

DISCUSSION PAPER SERIES

IZA DP No. 14746

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among Children**

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## ABSTRACT

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# Association between Parents' Nativity Status and Influenza Vaccination Rates among Children\*

Previous research has documented lower vaccination rates among ethnic and racial minorities as well as foreign-born people, thus raising concerns about health inequities during pandemics. We analyzed influenza vaccination rates among children with US-born parents and those with at least one immigrant parent. We found that children with immigrant parents have higher odds of receiving the influenza vaccination even after controlling for socio-demographic characteristics.

**JEL Classification:** I12, I14, I18

**Keywords:** influenza vaccine, immigration, mixed-status families

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## **INTRODUCTION**

Given the potential compounding health effects of the flu during a global pandemic, there has been an increased emphasis on understanding vaccination behavior among specific groups. Scholars have raised concerns about health inequities faced by immigrants and racial and ethnic minorities during an influenza pandemic and called for their protection (Hutchins et al. 2009; Truman et al. 2009). Indeed, influenza vaccination rates among foreign-born are lower than among US-born people (Lu et al. 2014). Rates are lower for foreign-born children compared to their US-born peers (Healy et al. 2018; Strine et al. 2002); and within US-born children, they are lower for African-Americans and Hispanics compared to non-Hispanic Whites (Anandappa et al. 2018; Chu, Barker, and Smith 2004). It remains unknown whether there are similar disparities for children in immigrant households. We used the National Health Interview Survey (NHIS) to compare influenza vaccination rates among children with US-born parents and those with at least one immigrant parent (Buelow and Van Hook 2008; Wolf et al. 2016).

## **METHODS**

The NHIS is an annual nationally representative cross-sectional survey of the non-institutionalized civilian population in the US (Blewett et al. 2019). Each year parents of a randomly selected set of “sample children” are asked whether their child has received a flu shot vaccine in the past 12 months. We used the 2005-2018 survey waves.

We focused on “sample children” age 1-17, born in the US (n=138,535). Only a single child is sampled from each household. Based on the birthplaces of the household head(s) (henceforth parents), we split all children into two groups – (i) children for whom all parents were US-born (n=102,084) and (ii) those who had at least one foreign-born parent (n=36,451). We analyzed both unadjusted and regression-adjusted vaccination rates and odds ratios controlling for the mother’s age, education dummies (high school (HS) dropout, HS graduate, some college, college graduate), Hispanic ethnicity, race dummies (White, African-American, Native American, other), poverty level dummies (<100% of Federal Poverty Line, 100-199%, 200-299%, 300%+), unemployment status, marital status, number of children, private and public health insurance coverage indicators, region of residence dummies and the child’s age, gender, education and private and public health insurance coverage indicators. If the mother was not present (n=10,175), we controlled for the father’s characteristics.

## **RESULTS**

Figure 1 shows the influenza vaccination rates over time among children in the two groups of interest. Vaccination rates were higher in the group of children with at least one immigrant parent. Figure 2 presents the odds ratios averaged throughout the sample period from logistic regressions (left panel – unadjusted odds, right – adjusted). In the full sample (top row) children of immigrant(s) parents had 35.4% [95% CI = 28.9%, 41.9%] higher odds of having received the influenza vaccine. Adjusting for socio-demographic characteristics narrowed the gap to 9.8% [2.5%, 17.1%]. This pattern was robust to using linear, probit, unweighted models and clustered standard errors by state-year. The unadjusted gap was higher among teens (42.3% [28.6%, 56.0%]), non-Hispanics (39.8% [30.4%, 49.2%]) and those recently arrived (77.4% [97.2%, 57.6%]), while the adjusted gap was higher among Hispanics (13.4% [1.2%, 25.6%]) and those with public health insurance (18.5% [5.0%, 32.0%]).

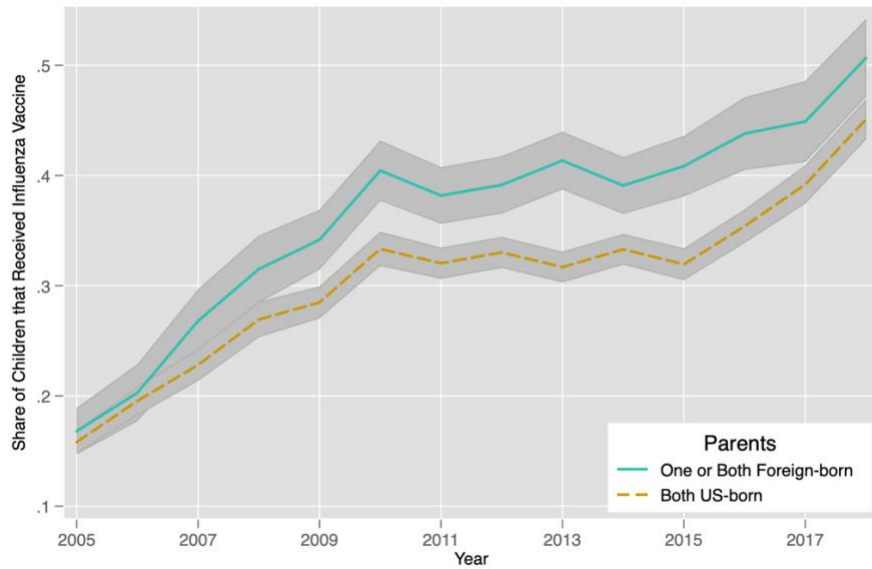
## **DISCUSSION**

By 2050, one in three children in the US is predicted to have at least one immigrant parent (Passel 2011). Understanding the health-related behaviors of this group is of great importance to both medical and public health professionals. We found that children with at least one immigrant parent have higher odds of being vaccinated against influenza than their peers with US-born parents. This finding is encouraging in the light of previous research (Huang, Yu, and Ledsky 2006) documenting worse health outcomes and lower health care utilization for children in immigrant families. Our results are informative to policy makers designing optimal return-to-school policies during the COVID-19 pandemic. Future research should identify whether this relationship is causal. Limitations included using self-reported data and lack of detailed geographic information to allow controlling for local characteristics related to immigration status and vaccine take-up.

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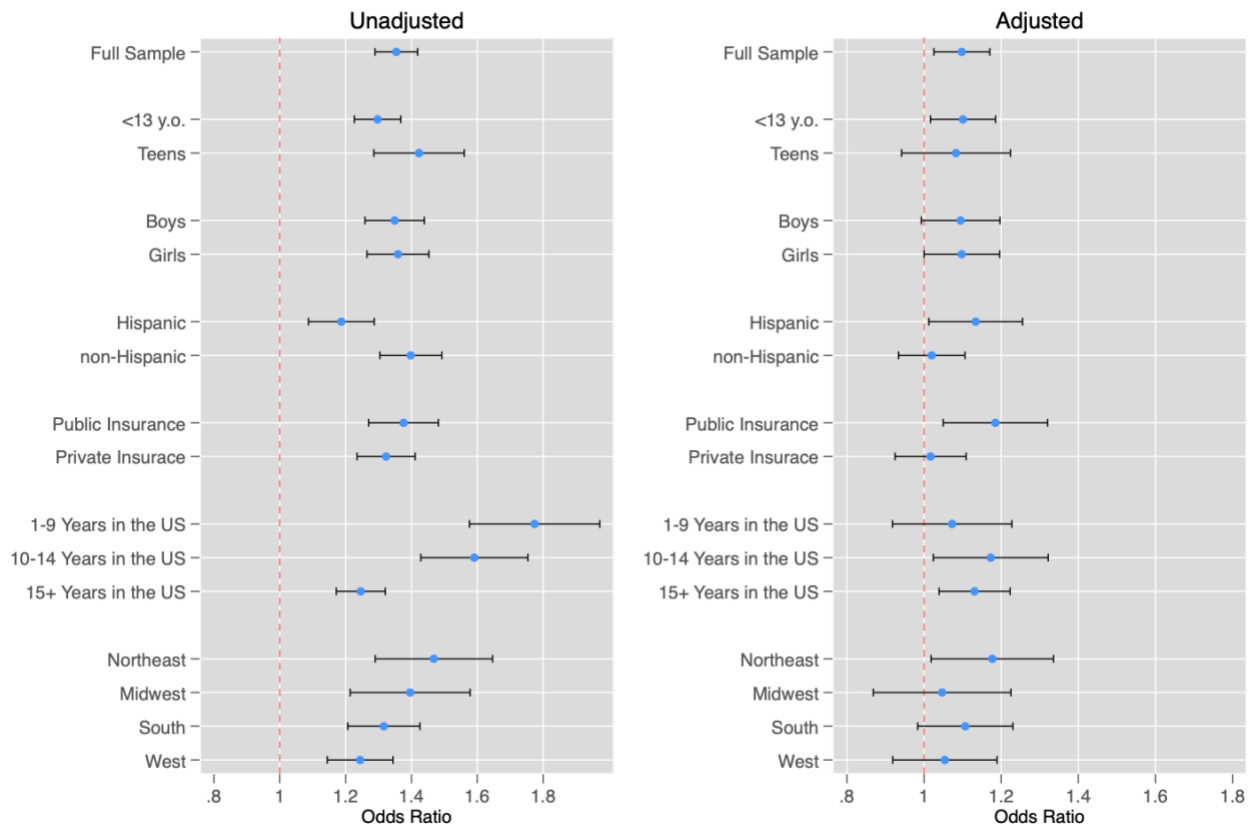
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Figure 1: Influenza Vaccination Rates Among Children by Parents' Nativity Status, 2005-2018



Notes: Shaded regions correspond to 95% confidence intervals.

Figure 2: Gaps in Influenza Vaccination Rates among Children by Parents' Nativity Status, Subsamples, 2005-2018



Notes: Log odds ratios of having received the flu vaccine in the past 12 months of children with at least one immigrant parent compared to children with US-born parents. Adjusted models control for mother's age, education dummies, Hispanic ethnicity, race dummies, poverty level dummies, unemployment status, marital status, number of children, private and public health insurance coverage indicators, region of residence dummies and the child's age, gender, education and private and public health insurance coverage indicators. Horizontal bars correspond to 95% confidence intervals.