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## No Relationship Between Notifiable Diseases and Immigrant Populations

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The international spread of the SARS-CoV-2 virus that causes the disease COVID-19 has prompted many governments to close their borders. Immigration policy plays an important role in limiting the international spread of contagious diseases.

Prior to the COVID-19 crisis, **several commentators** were concerned that immigrants – especially illegal immigrants – were spreading serious diseases in the United States. This blog post is the first in a series to answer the question of whether immigrants spread serious notifiable diseases other than COVID-19 in the United States. This post focuses on all pooled notifiable diseases for which there are vaccination requirements to enter the United States.

### Methods

This post tests the correlation between the incidence of **notifiable diseases** and immigrant population shares on the state level for the 2010–2018 period. We use annual, state-level data on notifiable disease cases from the CDC's **National Notifiable Diseases Surveillance System** (NNDSS), which reports the number of nationally notifiable infectious diseases and conditions by state and year. A notifiable disease is one where the CDC **states** that “regular, frequent, and timely information regarding individual cases is considered necessary for the prevention and control of the disease.”

Numerous diseases are reported to the CDC, but this post focuses on diseases that the **U.S. Citizenship and Immigration Services** (USCIS) and CDC require vaccination for prior to immigration. USCIS requires vaccination for mumps, measles, rubella, polio, tetanus, diphtheria toxoids, pertussis, haemophilus influenza type B, and hepatitis B. The CDC requires vaccination for hepatitis B, varicella, seasonal influenza, pneumococcal pneumonia, rotavirus, hepatitis A, and meningococcal disease.

Data for the foreign-born population on the state-level comes from the American Community Survey (ACS) provided by **IPUMS**. From the raw ACS microdata, we can identify immigrants by their nativity, citizenship status, and year of arrival. A further strength of the ACS microdata is that we can apply statistical techniques to identify likely illegal immigrants from observed characteristics in the data. Specifically, we use the residual technique of **Christian Gunadi** to identify illegal immigrants.

### Results

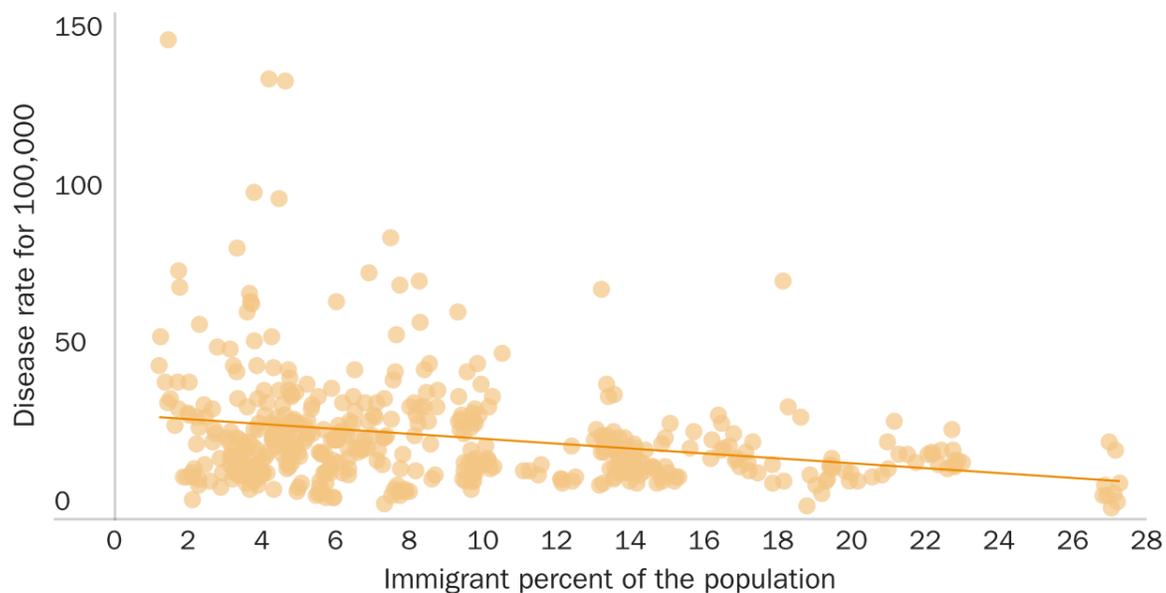
To test whether states with higher immigrant shares experience higher rates of notifiable disease, we run a two-way fixed effects regression to estimate the correlation between the rate of disease per 100,000 population and the share of immigrants in a state. The regressions use state and year fixed effects and the standard errors are clustered at the state level.

Table 1 shows the results of the regressions. They are all statistically insignificant except a 1 percent increase in the share of a state's legal immigrant population is correlated with 4.2 fewer cases of disease per 100,000 state residents, which is significant at the 5 percent level. There is no relationship between the share of a state's population that is foreign-born and the rate of disease per 100,000 residents. There is also no relationship between the illegal immigrant share of a state's population and the rate of disease per 100,000 residents.

Figure 1 shows the lack of a relationship between the immigrant share of the population and the incidence of these diseases on the state level. Figure 2 shows no relationship between the illegal immigrant share of state populations and the incidence of these reportable diseases.

Figure 1

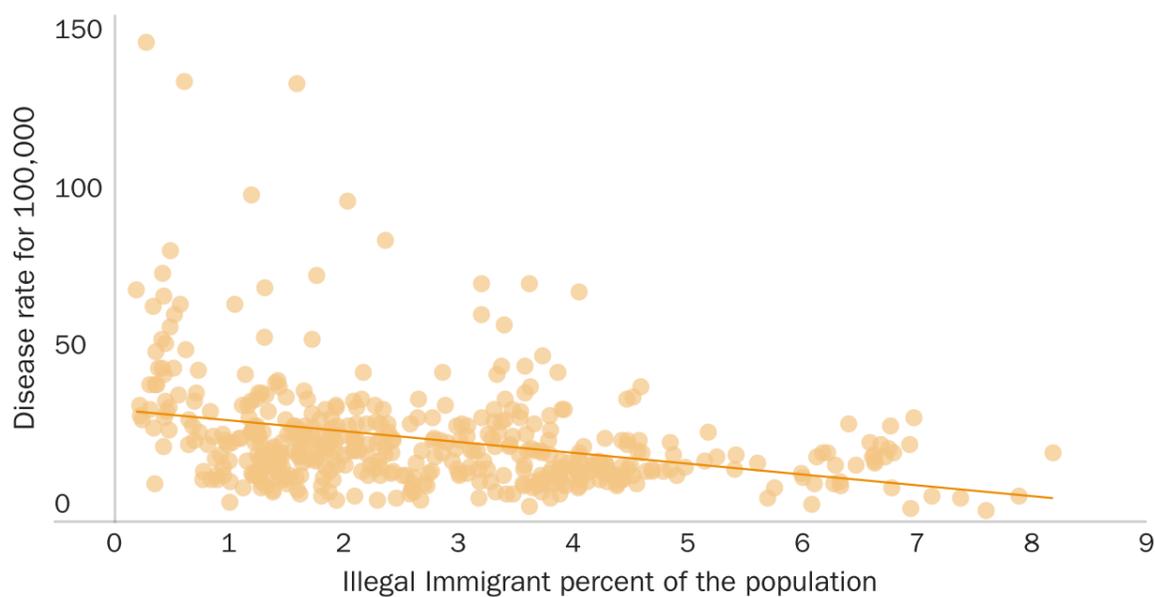
**Disease Rate and All Immigrants**



Source: ACS, CDC, and authors' calculations.

Figure 2

**Disease Rate and Illegal Immigrants**



Source: ACS, CDC, and authors' calculations.

Table 1

**Immigration and All Diseases**

	Dependent variable:			
	All Diseases per 100k			
	(1)	(2)	(3)	(4)
Pct. Natives	2.781 (1.684)			
Pct. Foreign-Born		-2.781 (1.684)		
Pct. Legal			-4.176* (1.849)	
Pct. Illegal				1.936 (1.663)
Observations	459	459	459	459
Adjusted R <sup>2</sup>	0.489	0.489	0.492	0.487
Note:	*p<0.05; **p<0.01; ***p<0.001			

Source: ACS, CDC, and authors' calculations.

Topics: COVID-19 and Labor Regulation, Immigration

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