

1 **THE EFFECTS OF DRIVER LICENSING LAWS ON IMMIGRANT TRAVEL**

2 Extended Abstract

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6 **Jesus M. Barajas**

7 University of Illinois at Urbana–Champaign

8 611 Taft Drive MC 619, Champaign IL 61820

9 Tel: 217-300-7136; Email: [barajas@illinois.edu](mailto:barajas@illinois.edu)

## 1 INTRODUCTION

2 While planners often seek to encourage alternatives to private auto use through priorities such as  
3 transit service, pedestrian and bicycle infrastructure, compact land development, and road pricing  
4 policies, the reality of metropolitan land structure and the distribution of opportunities in the  
5 United States makes it extremely difficult to navigate life without a car. These trends have  
6 special relevance for immigrants to the United States. Although people coming to the country  
7 seeking new opportunities continue to settle in traditional sites of immigration such as New  
8 York, Los Angeles, and Chicago, increasingly they are choosing to live in smaller metropolitan  
9 areas or to bypass central cities for suburbs where alternative transportation options are less  
10 robust (1, 2). Particularly for low-income immigrants with few financial resources, cars can be  
11 important tools to prevent low-wage workers from staying in or straying into poverty. Research  
12 suggests that those with access to vehicles find jobs and keep them better even if public transit is  
13 easily accessible (3–5).

14 Those who lack proper documentation for immigration into the United States face further  
15 restrictions on car access: most states limit issuance of drivers licenses to those who can prove  
16 legal entry as a permanent resident or citizen. Nevertheless, 13 jurisdictions in the United States  
17 do permit undocumented immigrants to obtain licenses (6). Approximately 11 million  
18 undocumented immigrants live in the United States (7), and over 4 million—or about 10 percent  
19 of all immigrants—live in states where they are eligible to obtain drivers licenses. While  
20 immigrants to the United States drive less than their US-born counterparts, car use and  
21 carpooling remain critical components of their travel options (8–11). However, limited incomes  
22 or lack of a drivers licenses restrict the extent to which immigrant car owners can lend vehicles  
23 or give rides (12, 13). Other barriers to car use are difficult to quantify but are nonetheless real.  
24 Policing practices, for example, produce a landscape of exclusion for undocumented immigrants  
25 by creating a fearful environment that they must navigate in their daily mobility practices. In two  
26 communities where local police had been given authority to enforce immigration law, Latino  
27 immigrants stopped working, drove less, spent more money on transportation, and were less  
28 likely to get routine healthcare (14, 15). The real cost of restrictive licensing laws extend beyond  
29 immigrant populations as well. The net effect of restrictive licensing has been to raise average  
30 individual insurance expenditures by about \$20 in current dollars (16). In California, counties  
31 that issued more licenses under a permissive licensing law had fewer hit-and-run crashes,  
32 resulting in an estimated \$17 million in economic efficiency from recovered insurance costs (17).

33 In this paper, I present results from logistic regression models that test the effects of  
34 licensing laws on driving using nationally-representative daily trip data. I find that foreign-born  
35 residents of the US are more likely to drive in states that allow undocumented immigrants to  
36 obtain licenses. This effect is stronger for those who drive in a carpool rather than drive alone.  
37 The findings suggest such permissive licensing has a positive effect on mobility, even for  
38 immigrants who do not drive.

## 39 METHODOLOGY

40 This study uses the 2017 public-use National Household Travel Survey as the data source (18).  
41 The unit of analysis is the person-trip, subset to trips made by travelers 18 years of age or older  
42 for trips less than 120 miles. This upper bound of trip length reflects 99 percent of all trips in the  
43 dataset, eliminating outliers or unusual trips such as vacation travel or other long-distance trips.  
44 After cleaning and removing records where trip mode or immigrant status was not available,  
45 819,015 trips remained for analysis, representing 189,964 individuals. I added a variable to the

1 dataset that represents whether the individual lives in a state with a law enabling undocumented  
 2 immigrants to drive.<sup>1</sup> Population-weighted data are used to present summary statistics and to  
 3 estimate models.

4 I fit a series of logistic regression models to test the effect of licensing laws on  
 5 immigrants' propensity to drive. There are two different dependent variables. In one set of  
 6 models, the dependent variable was whether an individual drove for a trip. This includes both  
 7 driving alone and driving others in a carpool or family trip. The other set modeled only driving  
 8 alone. The policy variable of interest is a dichotomous variable indicating whether a state has a  
 9 law that permits undocumented immigrants to obtain drivers licenses. The other main variables  
 10 of interest are immigrant status, and immigrant status interacted with licensing laws. Control  
 11 variables include other sociodemographics, auto access, employment and population density, trip  
 12 purpose, trip distance, and size of the MSA.

### 13 FINDINGS

14 Trip-making characteristics of the weighted sample are shown in Table 1. Consistent with  
 15 previous research, immigrants are less likely to drive alone and more likely to take other modes,  
 16 such as carpooling, walking, and public transit, compared to residents born in the United States  
 17 (8, 9).  
 18

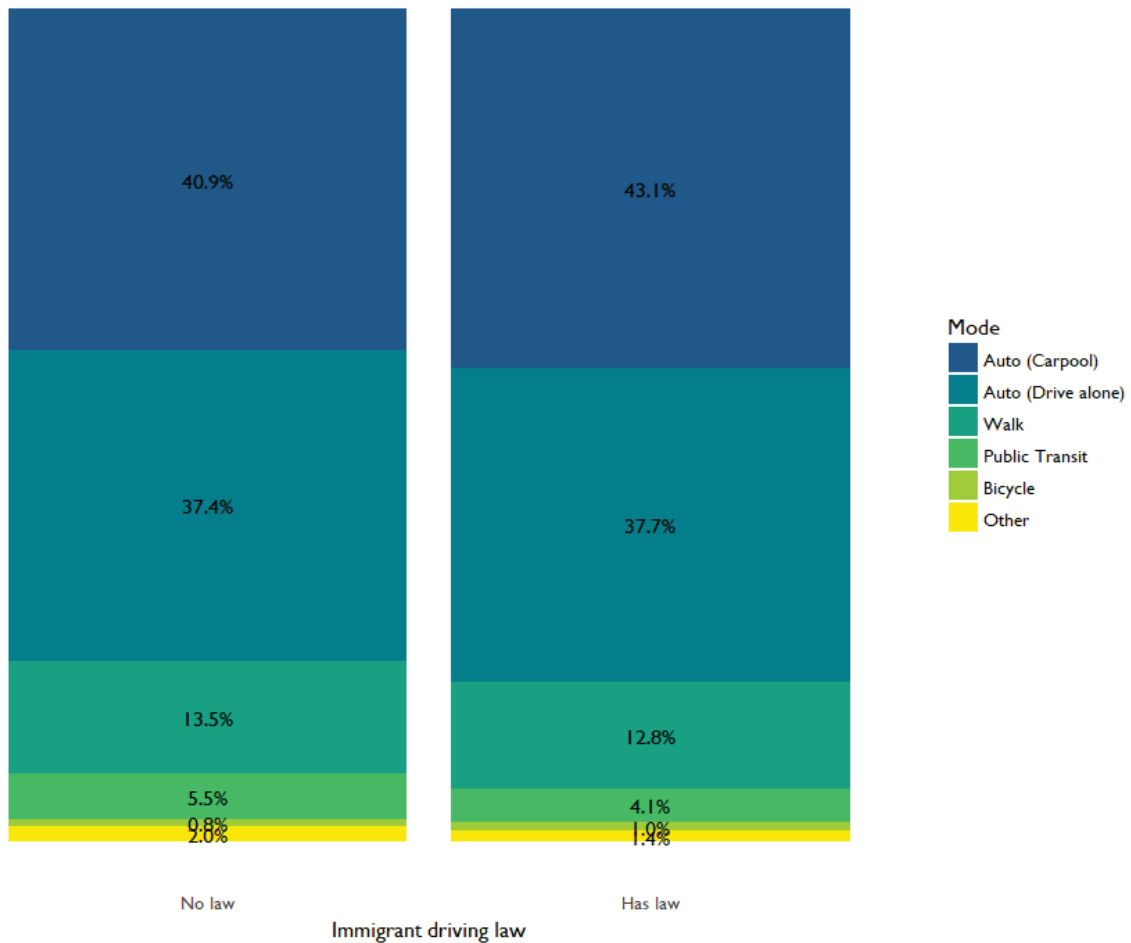
19 **TABLE 1 Mode Share by Immigrant Status**

Travel mode	Immigrant	US-Born
Drive alone	38%	45%
Carpool	42%	40%
Walk	13%	10%
Public Transit	5%	3%
Bicycle	1%	1%
Other	2%	2%

20  
 21 In bivariate comparisons, mode choice appears to differ between states with and without  
 22 permissive licensing laws Figure 1. Immigrants in states that permit undocumented immigrants  
 23 to drive are statistically more likely to drive alone and drive a carpool compared to the states that  
 24 prohibit undocumented immigrants to drive, though the differences are numerically small.

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1 The states with permissive licensing include California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Maryland, New Mexico, Nevada, Utah, Vermont, Washington, and the District of Columbia.



**FIGURE 1 Immigrant mode choice by state driver license law.**

**FINDINGS**

Logistic regression model results are shown in Table 2. Coefficients in the table indicate odds ratios. The first two models estimate effects of licensing laws on driving, whether driving alone or in carpools. The first model indicates that, consistent with expectations, immigrants living in states without provisions for undocumented individuals to obtain a drivers license are 56 percent as likely as non-immigrants to drive. All interaction terms in the model are statistically significant. Notably, the coefficient for immigrant and licensing law is greater than 1.0, indicating that immigrants are more likely to drive in states with permissive licensing laws. The NHTS sample does not distinguish between immigrants who are legal residents and those without documentation so it is not possible to test the effect on those two groups individually, but the findings suggests the licensing laws have an effect on all immigrant groups regardless of documentation status. Model 2 tests the effect of length of time since immigration on driving by adding an interaction term between years since immigration and license law. Results indicate that licensing laws do not help promote driving as they stay longer in the United States because the term is not statistically significant.

1 **TABLE 2 Logistic Regression Model Results**

2

Predictors	Model 1: Drive (any)		Model 2: Drive (any)		Model 3: Drive alone		Model 4: Drive alone	
	Odds Ratios	p	Odds Ratios	p	Odds Ratios	p	Odds Ratios	p
(Intercept)	0.19 (0.17 – 0.22)	<b>&lt;0.001</b>	0.19 (0.17 – 0.22)	<b>&lt;0.001</b>	1.25 (1.08 – 1.43)	<b>0.002</b>	1.25 (1.08 – 1.43)	<b>0.002</b>
Immigrant	0.56 (0.49 – 0.65)	<b>&lt;0.001</b>	0.57 (0.48 – 0.68)	<b>&lt;0.001</b>	0.62 (0.54 – 0.72)	<b>&lt;0.001</b>	0.65 (0.54 – 0.77)	<b>&lt;0.001</b>
License law	0.95 (0.92 – 0.98)	<b>0.003</b>	0.95 (0.92 – 0.98)	<b>0.003</b>	1.01 (0.98 – 1.04)	0.396	1.01 (0.98 – 1.04)	0.396
Gender: Female	0.73 (0.71 – 0.75)	<b>&lt;0.001</b>	0.73 (0.71 – 0.75)	<b>&lt;0.001</b>	0.89 (0.87 – 0.91)	<b>&lt;0.001</b>	0.89 (0.87 – 0.91)	<b>&lt;0.001</b>
Immigrant x license law	1.18 (1.10 – 1.27)	<b>&lt;0.001</b>	1.15 (0.89 – 1.47)	0.282	1.07 (0.99 – 1.15)	0.071	0.95 (0.73 – 1.24)	0.729
Immigrant x female	0.74 (0.69 – 0.80)	<b>&lt;0.001</b>	0.74 (0.69 – 0.80)	<b>&lt;0.001</b>	0.91 (0.84 – 0.97)	<b>0.007</b>	0.91 (0.84 – 0.97)	<b>0.008</b>
License law x Years in US (log)			1.01 (0.93 – 1.09)	0.808			1.04 (0.96 – 1.13)	0.365
Years in US (log)	1.20 (1.15 – 1.25)	<b>&lt;0.001</b>	1.20 (1.13 – 1.26)	<b>&lt;0.001</b>	1.15 (1.10 – 1.20)	<b>&lt;0.001</b>	1.13 (1.07 – 1.19)	<b>&lt;0.001</b>
Income quintile: 2	1.29 (1.23 – 1.34)	<b>&lt;0.001</b>	1.29 (1.23 – 1.34)	<b>&lt;0.001</b>	1.19 (1.14 – 1.24)	<b>&lt;0.001</b>	1.19 (1.14 – 1.24)	<b>&lt;0.001</b>
Income quintile: 3	1.20 (1.14 – 1.26)	<b>&lt;0.001</b>	1.20 (1.14 – 1.26)	<b>&lt;0.001</b>	1.19 (1.14 – 1.25)	<b>&lt;0.001</b>	1.19 (1.14 – 1.25)	<b>&lt;0.001</b>
Income quintile: 4	1.05 (1.00 – 1.10)	<b>0.036</b>	1.05 (1.00 – 1.10)	<b>0.036</b>	1.12 (1.07 – 1.17)	<b>&lt;0.001</b>	1.12 (1.07 – 1.17)	<b>&lt;0.001</b>
Income quintile: 5	0.90 (0.86 – 0.95)	<b>&lt;0.001</b>	0.90 (0.86 – 0.95)	<b>&lt;0.001</b>	1.11 (1.06 – 1.17)	<b>&lt;0.001</b>	1.11 (1.06 – 1.17)	<b>&lt;0.001</b>
Educational attainment: HS grad	1.85 (1.73 – 1.97)	<b>&lt;0.001</b>	1.85 (1.73 – 1.98)	<b>&lt;0.001</b>	1.47 (1.37 – 1.57)	<b>&lt;0.001</b>	1.47 (1.37 – 1.57)	<b>&lt;0.001</b>
Educational attainment: College grad	2.12 (1.98 – 2.28)	<b>&lt;0.001</b>	2.12 (1.98 – 2.28)	<b>&lt;0.001</b>	1.43 (1.33 – 1.53)	<b>&lt;0.001</b>	1.43 (1.33 – 1.53)	<b>&lt;0.001</b>
Age	1.05 (1.05 – 1.05)	<b>&lt;0.001</b>	1.05 (1.05 – 1.05)	<b>&lt;0.001</b>	0.99 (0.99 – 1.00)	<b>&lt;0.001</b>	0.99 (0.99 – 1.00)	<b>&lt;0.001</b>
Age squared	1.00 (1.00 – 1.00)	<b>&lt;0.001</b>	1.00 (1.00 – 1.00)	<b>&lt;0.001</b>	1.00 (1.00 – 1.00)	<b>&lt;0.001</b>	1.00 (1.00 – 1.00)	<b>&lt;0.001</b>
Employed	1.68 (1.63 – 1.73)	<b>&lt;0.001</b>	1.68 (1.63 – 1.73)	<b>&lt;0.001</b>	1.46 (1.42 – 1.51)	<b>&lt;0.001</b>	1.46 (1.42 – 1.51)	<b>&lt;0.001</b>
Race/ethnicity: Black or African American	1.07 (1.02 – 1.12)	<b>0.009</b>	1.07 (1.02 – 1.12)	<b>0.009</b>	1.09 (1.04 – 1.14)	<b>0.001</b>	1.09 (1.04 – 1.14)	<b>0.001</b>
Race/ethnicity: Hispanic/Latino	1.17 (1.12 – 1.22)	<b>&lt;0.001</b>	1.17 (1.12 – 1.22)	<b>&lt;0.001</b>	0.98 (0.94 – 1.02)	0.303	0.98 (0.94 – 1.02)	0.292
Race/ethnicity: Asian	0.90 (0.85 – 0.96)	<b>0.002</b>	0.90 (0.85 – 0.96)	<b>0.002</b>	0.82 (0.77 – 0.87)	<b>&lt;0.001</b>	0.82 (0.77 – 0.87)	<b>&lt;0.001</b>
Race/ethnicity: Other	0.94 (0.88 – 1.01)	0.079	0.94 (0.88 – 1.01)	0.079	0.89 (0.84 – 0.95)	<b>&lt;0.001</b>	0.89 (0.84 – 0.95)	<b>&lt;0.001</b>
Household size	1.05 (1.04 – 1.07)	<b>&lt;0.001</b>	1.05 (1.04 – 1.07)	<b>&lt;0.001</b>	0.88 (0.88 – 0.89)	<b>&lt;0.001</b>	0.88 (0.88 – 0.89)	<b>&lt;0.001</b>
Cars per driver	2.23 (2.14 – 2.32)	<b>&lt;0.001</b>	2.23 (2.14 – 2.32)	<b>&lt;0.001</b>	1.51 (1.47 – 1.55)	<b>&lt;0.001</b>	1.51 (1.47 – 1.55)	<b>&lt;0.001</b>
Empl dens: 50-99 workers/sq mi	0.94 (0.84 – 1.07)	0.361	0.94 (0.84 – 1.07)	0.358	0.93 (0.84 – 1.04)	0.208	0.93 (0.84 – 1.04)	0.203
Empl dens: 100-249 workers/sq mi	0.98 (0.87 – 1.11)	0.806	0.98 (0.87 – 1.11)	0.802	0.89 (0.80 – 0.99)	<b>0.033</b>	0.89 (0.80 – 0.99)	<b>0.032</b>
Empl dens: 250-499 workers/sq mi	0.93 (0.79 – 1.08)	0.337	0.93 (0.79 – 1.08)	0.336	0.96 (0.83 – 1.10)	0.554	0.96 (0.83 – 1.10)	0.552
Empl dens: 500-999 workers/sq mi	0.89 (0.75 – 1.06)	0.191	0.89 (0.75 – 1.06)	0.190	0.96 (0.82 – 1.13)	0.628	0.96 (0.82 – 1.13)	0.626
Empl dens: 1,000-1,999 workers/sq mi	0.92 (0.76 – 1.11)	0.391	0.92 (0.76 – 1.11)	0.389	1.09 (0.92 – 1.29)	0.330	1.09 (0.92 – 1.29)	0.332
Empl dens: 2,000-3,999 workers/sq mi	0.83 (0.68 – 1.02)	0.073	0.83 (0.68 – 1.02)	0.073	1.11 (0.92 – 1.32)	0.270	1.11 (0.92 – 1.32)	0.272
Empl dens: 4,000 or more workers/sq mi	0.79 (0.64 – 0.97)	<b>0.026</b>	0.79 (0.64 – 0.97)	<b>0.026</b>	1.01 (0.83 – 1.22)	0.927	1.01 (0.83 – 1.22)	0.926

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Pop dens: 100-499	1.21	<b>0.002</b>	1.21	<b>0.002</b>	1.20	<b>&lt;0.001</b>	1.21	<b>&lt;0.001</b>
people/sq mi	(1.07 – 1.36)		(1.07 – 1.36)		(1.09 – 1.33)		(1.09 – 1.34)	
Pop dens: 500-999	1.33	<b>&lt;0.001</b>	1.33	<b>&lt;0.001</b>	1.23	<b>0.004</b>	1.23	<b>0.004</b>
people/sq mi	(1.14 – 1.56)		(1.14 – 1.56)		(1.07 – 1.41)		(1.07 – 1.41)	
Pop dens: 1,000-1,999	1.34	<b>0.001</b>	1.34	<b>0.001</b>	1.14	0.109	1.14	0.108
people/sq mi	(1.12 – 1.59)		(1.12 – 1.59)		(0.97 – 1.33)		(0.97 – 1.33)	
Pop dens: 2,000-3,999	1.27	<b>0.011</b>	1.27	<b>0.011</b>	1.02	0.826	1.02	0.823
people/sq mi	(1.06 – 1.54)		(1.06 – 1.54)		(0.86 – 1.21)		(0.86 – 1.21)	
Pop dens: 4,000-9,999	1.21	0.064	1.21	0.064	0.93	0.438	0.93	0.441
people/sq mi	(0.99 – 1.47)		(0.99 – 1.47)		(0.78 – 1.11)		(0.78 – 1.12)	
Pop dens: 10,000-24,999	0.82	0.071	0.82	0.071	0.69	<b>&lt;0.001</b>	0.69	<b>&lt;0.001</b>
people/sq mi	(0.66 – 1.02)		(0.66 – 1.02)		(0.57 – 0.84)		(0.57 – 0.84)	
Pop dens: 25,000 or more	0.26	<b>&lt;0.001</b>	0.26	<b>&lt;0.001</b>	0.21	<b>&lt;0.001</b>	0.21	<b>&lt;0.001</b>
people/sq mi	(0.21 – 0.33)		(0.21 – 0.33)		(0.17 – 0.26)		(0.17 – 0.26)	
Percent renters	1.00	<b>&lt;0.001</b>	1.00	<b>&lt;0.001</b>	1.00	<b>&lt;0.001</b>	1.00	<b>&lt;0.001</b>
	(0.99 – 1.00)		(0.99 – 1.00)		(1.00 – 1.00)		(1.00 – 1.00)	
Trip purpose: Shopping	0.64	<b>&lt;0.001</b>	0.64	<b>&lt;0.001</b>	0.32	<b>&lt;0.001</b>	0.32	<b>&lt;0.001</b>
	(0.61 – 0.67)		(0.61 – 0.67)		(0.31 – 0.33)		(0.31 – 0.33)	
Trip purpose:	0.70	<b>&lt;0.001</b>	0.70	<b>&lt;0.001</b>	0.28	<b>&lt;0.001</b>	0.28	<b>&lt;0.001</b>
Family/Personal	(0.68 – 0.74)		(0.68 – 0.74)		(0.27 – 0.29)		(0.27 – 0.29)	
Trip purpose:	0.31	<b>&lt;0.001</b>	0.31	<b>&lt;0.001</b>	0.18	<b>&lt;0.001</b>	0.18	<b>&lt;0.001</b>
Social/Recreational	(0.30 – 0.32)		(0.30 – 0.32)		(0.18 – 0.19)		(0.18 – 0.19)	
Trip Purpose: Other	0.38	<b>0.012</b>	0.38	<b>0.012</b>	0.18	<b>&lt;0.001</b>	0.18	<b>&lt;0.001</b>
	(0.18 – 0.81)		(0.18 – 0.81)		(0.08 – 0.44)		(0.08 – 0.44)	
Trip distance (mi)	1.01	<b>&lt;0.001</b>	1.01	<b>&lt;0.001</b>	1.00	<b>&lt;0.001</b>	1.00	<b>&lt;0.001</b>
	(1.00 – 1.01)		(1.00 – 1.01)		(1.00 – 1.00)		(1.00 – 1.00)	
MSA size: In MSA of 1 million or more	1.14	<b>&lt;0.001</b>	1.14	<b>&lt;0.001</b>	1.07	<b>&lt;0.001</b>	1.07	<b>&lt;0.001</b>
	(1.10 – 1.18)		(1.10 – 1.18)		(1.03 – 1.10)		(1.03 – 1.10)	
MSA size: In MSA of less than 1 million	1.08	<b>&lt;0.001</b>	1.08	<b>&lt;0.001</b>	1.00	0.913	1.00	0.897
	(1.04 – 1.12)		(1.04 – 1.12)		(0.96 – 1.03)		(0.96 – 1.03)	
MSA size: Not in MSA	0.98	0.496	0.98	0.495	0.88	<b>&lt;0.001</b>	0.88	<b>&lt;0.001</b>
	(0.93 – 1.04)		(0.93 – 1.04)		(0.84 – 0.92)		(0.84 – 0.92)	
Observations	795051		795051		795051		795051	
Cox & Snell's R <sup>2</sup> / Nagelkerke's R <sup>2</sup>	0.155 / 0.219		0.155 / 0.219		0.141 / 0.189		0.141 / 0.189	

1  
2 Models 3 and 4 in Table 2 are fit with the same model structure as the first two models,  
3 but with driving alone as the dependent variable. While many of the effect magnitudes and  
4 directions of association between independent variables and the likelihood of driving alone are  
5 similar to those of all types of driving, there are some notable differences between the models.  
6 For example, odds ratios associated with immigrant status and female gender are closer to 1.0,  
7 indicating a less pronounced difference in the choice to drive alone for these groups. On the  
8 other hand, there were substantially lower odds of driving alone for non-work trip purposes  
9 compared to driving at all. Finally, unlike in the first two models, the association between travel  
10 distance and driving was negative in the drive alone model; every 10 miles traveled decreased  
11 the odds of driving alone by about 2 percent.

12 The relationship between licensing laws and the propensity to drive alone was also  
13 different compared to the full drive model. The main effect of licensing laws was insignificant,  
14 while the interaction term between immigrant and license law was significant at the  $\alpha = 0.10$   
15 level rather than the  $\alpha = 0.05$  level. Thus, the effect of the licensing laws is weaker on solo-  
16 driving for immigrants compared to driving in carpools.

## 17 CONCLUSION

18 Updated nationally representative data corroborate previous evidence showing that immigrants  
19 are less likely than their American-born counterparts to drive and more likely to get rides, take  
20 transit, and walk. And consistent with previous research, difference in mode choice between  
21 immigrants and US-born residents diminishes the longer immigrants remain in the United States.

1 The analysis in this study shows that state-level policies influence those driving rates further. In  
2 states where undocumented immigrants are permitted to obtain drivers licenses, immigrants are  
3 more likely to drive than in other states. But this difference does not hold for all types of driving;  
4 presence of a licensing law predicted only marginal increases in the odds of driving solo but far  
5 greater increases in carpooling.

6 There are some limitations to the findings in this paper. First, the public use dataset  
7 masks the geography of trip origins and destinations, so precise controls for neighborhood  
8 sociodemographics and accessibility cannot be used in the models. Second, it is not possible in  
9 the dataset to distinguish between immigrants who have legal residence and those without proper  
10 documentation. Additional imputation could assign a probable status to the individual traveler,  
11 but the missing information means that we cannot be certain whether permissive licensing  
12 improves travel options for all immigrants or solely for the undocumented. Finally, the study  
13 presents only a cross-sectional analysis of immigrant mode choice. Future work should examine  
14 how past travel trends influence current patterns using previous versions of the NHTS.

15 Benefits to permissive driver licensing accrue far beyond undocumented immigrants  
16 themselves. With greater increases in carpooling than driving alone, communities that rely on  
17 sharing vehicles and rides as immigrants tend to do receive more improvements in accessibility,  
18 decreasing isolation and exclusion that come with lack of vehicle access (14). Licensing of  
19 drivers also yields positive externalities in the form of improved safety to all roadway users (17,  
20 19), suggesting states with such laws should conduct their own analyses to quantify the  
21 magnitude of potential effects relative to other public policy goals.

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