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Driver's licensing delay: A retrospective case study of the impact of attitudes, parental and social influences, and intergenerational differences

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ABSTRACT

Young adults currently obtain driver's licenses at a substantially lower rate than previous generations. In a handful of recent studies, scholars have evaluated this trend by investigating the association of various factors, primarily personal characteristics and the built environment, with driver's licensing. However, these studies have examined a limited set of possible explanatory factors and in some cases used only descriptive statistical analyses. To explore the causes of the licensing trend in more depth, this study uses retrospective questions asked of respondents to the 2014–15 UC Davis Campus Travel Survey, an annual online survey of students and employees at the University of California, Davis. We test the influence of an array of explanatory factors on driver's license *possession*, using a binomial logistic model, and on license *timing*, using multilevel survival analysis and censored regression models. The results show that delay in licensing is associated with travel attributes and attitudes, parental influences, and graduated driver's licensing policies. After controlling for these factors, the variables accounting for unexplained cohort influences had a small and uncertain effect on delay. Since we observe generational differences in eagerness to get a driver's license and find that driver's licensing attitudes substantially increase delay, this result suggests that cultural changes may be driving the decreased licensing trend. This generational shift in attitudes may have synergistic effects with policies designed to encourage smart growth and with the proliferation of innovative travel options that provide alternatives to car ownership and use.

1. Introduction

Recent media attention in the U.S. has focused on differences between the “millennial generation”, young adults born between 1981 and 1996 ([Pew Research Center, 2014](https://www.pewresearch.org/2014/02/11/millennials/)), and previous generations, particularly on their apparent apathy toward car ownership and their delay in driver's licensing. This shift, if indicative of a permanent rather than transient behavioral change, could have dramatic ramifications for travel patterns and transportation sustainability. Motor vehicle crashes continue to be the leading cause of death among 15–20 year olds in the United States ([National Highway Traffic Safety Administration, 2014](https://www.nhtsa.gov/press-releases/2014/03/2014-03-03)). Assessing patterns of licensing delay can help policymakers better understand the effectiveness of graduated drivers licensing (GDL) programs, as teenagers who delay licensing may miss the components of GDL programs that are intended to help them learn to drive safely. Simultaneously, licensing delay may also allow teenagers to gain valuable skills and knowledge for how to travel by bike and other alternative modes to the car, with implications for sustainable transportation now and as the teenagers age. For these reasons, it is important for policy

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makers to understand the causes of the licensing trend.

Though evidence of a shift in driver's licensing abounds (Delbosc and Currie, 2013a), studies examining causal influences are still few in number. The main explanatory factors featured thus far in studies of driver's licensing rates have focused primarily on socio-demographic characteristics and the built environment as explanatory variables. The influence of attitudes and the advent of cell phones and other information and communications technology have also received some attention as possible explanations. Some scholars have accounted for the impacts of GDL programs, which seek to reduce teenage driving fatality rates through a program that gives these teenagers more time to learn how to drive in increasingly independent contexts (National Highway Traffic Safety Administration, 2008). However, as Williams et al. (2012) note, few have focused on parental influences, and even fewer have focused on the influence of previous travel experiences or the social environment. Another notable deficiency in many of the articles on driver's licensing is their omission of cohort effects. Including older age groups helps to provide a built-in comparison and enhances the contextual understanding of the factors behind the observed changes in driver's licensing rates.

This study investigates the factors influencing driver's licensing in the US. We include variables previously shown to influence driver's licensing delay, such as socio-demographic characteristics, technology, and the built environment, and contribute further to the understanding of driver's licensing delay by more deeply exploring cohort effects and including attitudinal variables related to the influence of parents, peers, and the social environment as well as variables related to personal travel patterns in high school. To do so, we used data from retrospective questions asked of respondents in the 2014–15 UC Davis Campus Travel Survey, an annual online survey of students and employees at the University of California, Davis. We asked questions of individuals from four generations, which allowed us to characterize how the current generation differs from previous generations. Using statistical regression models for our analysis, we find that the trend of decreased licensing is being driven primarily by parental influences, travel attitudes, travel attributes, and GDL policies.

2. Literature review

This section briefly examines the existing evidence for the factors associated with driver's licensing delay, noting which factors are well-established and which areas have room for further exploration. Since there were a wide variety of statistical approaches taken in these studies, and given the methodological extensions we provide in this paper, we also follow with a brief discussion of the statistical analysis approaches.

2.1. Findings

We divide the independent variables of interest into five broad groups: socio-demographics, the built environment and travel attributes (e.g. car or bus access), attitudes and norms, graduated driver's licensing laws (GDLs), and cohort and period effects. Fifteen of the 16 studies in this review included socio-demographic variables in their analysis; 10 studies covered the combined aspects of the built environment and travel attributes (see Table 1). In contrast, fewer studies analyzed the role of attitudes and norms, GDLs, or cohort/period effects, and, notably, only one of the studies investigated all five influences.

2.1.1. Sociodemographic characteristics

Many of the studies included gender as an explanatory variable, with most finding that women were less likely to hold a driver's license (Berg, 2001; Delbosc and Currie, 2014; Hjorthol, 2016; Le Vine and Polak, 2014; Licaj et al., 2012; Noble, 2005; Raimond and Milthorpe, 2010). Another consistent finding was that minorities had lower levels of licensing (Brown and Handy, 2015; Shults and Williams, 2013; Tefft et al., 2014; Williams, 2011). These two characteristics are likely indirect indicators of the factors that influence licensing, such as personal preferences or income.

Studies also identified variables that more directly affect licensing. High personal or household income was associated with higher driver's licensing (Berg, 2001; Bohnet and Gertz, 2010; Delbosc and Currie, 2014; Forward et al., 2010; Le Vine and Polak, 2014; Licaj et al., 2012; Noble, 2005; Tefft et al., 2014), as were higher levels of employment (Delbosc and Currie, 2014; Hjorthol, 2016; Le Vine and Polak, 2014; Noble, 2005). Proxies for income, such as parental or personal educational levels, also were associated with driver's licensing (Brown and Handy, 2015; Hjorthol, 2016; Le Vine and Polak, 2014).

Though it is possible that individuals' interpersonal relationships and household characteristics could influence driver's licensing, few studies explored these characteristics and the evidence was frequently mixed. For example, living with parents was associated with increased licensing in one setting (Delbosc and Currie, 2014) and decreased licensing in others (Le Vine and Polak, 2014; Licaj et al., 2012).

2.1.2. Built environment and travel attributes

Characteristics of the individual's local built environment and their travel attributes were also examined across many studies. Larger city size and increased population density were consistently associated with lower rates of licensing (Berg, 2001; Bohnet and Gertz, 2010; Hjorthol, 2016; Le Vine and Polak, 2014; Licaj et al., 2012; McDonald and Trowbridge, 2009; Noble, 2005; Raimond and Milthorpe, 2010; Sivak and Schoettle, 2012a; Tefft et al., 2014). Lack of car access was also found to be a key barrier to licensing, both for access to a vehicle to practice with as well as a vehicle to use after gaining a driver's license (Bohnet and Gertz, 2010; Delbosc and Currie, 2014; Hjorthol, 2016; Licaj et al., 2012; Williams, 2011).

Access to other modes had mixed or counter-intuitive associations with licensing. Two studies found that public transit access decreased the probability of having a driver's license (Berg, 2001; Bohnet and Gertz, 2010), one found no evidence of an association

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