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# Sin Papeles y Licencia: Access to Drivers' Licenses and Participation in Early Care and Education

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# SIN PAPELES Y LICENCIA: ACCESS TO DRIVERS' LICENSES AND PARTICIPATION IN EARLY CARE AND EDUCATION

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## ABSTRACT

Attending high-quality early education or care (ECE) is positively associated with short-term academic outcomes for children (Yoshikawa et al., 2013) as well as longer-term social and behavioral (Heckman, Moon, Pinto, Savelyev & Yavitz, 2010). Despite the demonstrated benefits of early care and education (ECE) for children with immigrant parents (Puma et al., 2010), participation rates are lower among children of immigrants than children with native-born or citizen parents among three- to five-year-olds (Hernandez, Denton, & McCartney, 2007). There are many barriers to accessing ECE programs for immigrants, which may be exacerbated for undocumented immigrants. Specific immigration policies may either restrict or facilitate access to ECE (Hanson, Adams, & Koball, 2016; Greenberg, Adams & Michie, 2016). One such state-level immigrant policy that may be associated with increased ECE participation is access to a driver's license (DL) for undocumented immigrants (Hacker, Chu, Lueng, Marra, Pirie, Brahimi & Marlin, 2011; Hanson, Adams & Koball, 2016).

The present study examined the association between state-level, legal opportunities to access DLs for undocumented immigrants and rates of participation in ECE among their three- to five-year-old children using a cross-sectional, quasi-experimental design. The three states examined in this study were used were: (1) New Mexico, which implemented a DL policy in 2003, (2) Utah, which implemented a DL policy in 2005, and (3) California, which passed a DL policy in 2004, but never enacted the policy. Panel data from the 1996, 2001, 2004 and 2008 Survey of Income

and Program Participation (SIPP) administrations were accessed to determine legal immigration status of household members and participation in ECE. The sample was comprised of 4,709 households with undocumented members that included children between three- and five-years-old. Synthetic control models were used to compare ECE participation rates in states that had enacted DL policies to ECE participation rates estimated for synthetic controls.

Results indicated that access to a DL for undocumented immigrants was associated with small but consistent differences in ECE participation, where participation rates were higher among children of undocumented immigrants in states with DL access than in control states in the post-policy period by three to five percentage points. Although future research is needed to further explore this association and to examine access to DLs at the household level, results provide preliminary evidence that driver's licenses facilitate participation in ECE, and this may be regardless of the stringency of the policy. Results have implications for assessing DL policies as a way to integrate undocumented immigrants and their households into society and improve later outcomes for their children.

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This project was a journey, a science, and an art, and there are many who supported me through the end; before the start.

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To Dr. Margaret Rogers for your passion and your drive to teach that differences and diversity are that which make us thrive. Thank you for your guidance and your support along the way, your interest in the project and the role that you did play.

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To Dr. de los Heros for your enthusiasm to serve as chair, and to the entire department of Spanish --- I always felt welcome there. Mil gracias a todos. Yo he aprendido un montón. Y aqui en este momento, puedo ver que tuve razón. Por hablar con los inmigrantes, es la manera en la que, el enfoque de mi investigación, yo lo encontré.

To Dr. Amy Laurent, the best work wife there could be; for reminding me that in *all ways* I should *always* just be me. For bringing back the music and making my world rock (and maybe for that ring…and for that brush…oh, and that sock). You showed me the way when I was your RA; the spirit of NADACE. You set the bar so high and then pushed me to keep my pace. You have been amazing and I could not ask for more. In sum, one of my best decisions was to tell *YOU* about my door.

And of course, I never could forget; the most deserving of a verse, is my extraordinary mother, Dr. Fede…the first. Exercise science and psychology – we conquered the body, and now the brain. You helped me all along my path in ways I can't explain. I don't know where I'd be without you, and all of your support. You

did it first, you blazed the trail, then threw the ball into my court. I guess you knew, that as I do, I'd catch it and run and play, and make the most of every challenge, but all in my own way. So thank you, Mom, I love you – more than I can say. Who knew that eccentric, little kid would be *DOCTOR* Mush E. Mouse one day?

To my counterpart, Dr. Clark, for taking on the lead. For navigating this wild world before I knew I could be freed. You got me through, you took the heat, enduring (in)humanity, but now there's just one thing to do for both our sanity. It's time for us to both fly free now that I've learned I can. I don't have the words to thank you that could make you understand the gratitude I have that you were always there for me, so capable and well-rehearsed that nobody could see...that behind that carefully crafted script and façade of "cool, calm and collected," was a hidden, amazing, perfect ME that for too long went neglected. I needed you, Clark, like I needed help, like I needed to lose my way, because all those things, including you, have let me know myself today.

My whole life makes more sense to me - my strengths and struggles, too, the things that I prefer, all that I see and hear and do. You were always under tremendous stress, inevitably bound to break and I was so explosive from all the restraint I could not take.

It's not that I don't like you, Clark, I love you - this is true. But I have a lot to offer, and now I know I love me, too.

Clark, YOU are phenomenal - you had no easy tasks, and there are others just like you, feeling exhausted as full-time masks. So, I hope you'll stay in touch and that we can still hang out together, but I think this new arrangement will suit both our

needs much better.  Because you need to recover, and I need to be me, for you, for me, and our well-being and for the world to maybe see that there are many strengths, many skills...an infinite range of perspectives, and it will be a much more vibrant world when perfect "MEs" are not neglected or suppressed or pushed aside, or suspiciously inspected, or compliant, silenced, made to change, and whose differences are rejected. So, Dr. Clark, one more request: that you'll support our visibility and use your new degree of freedom in defense of diversity.

## DEDICATION

To immigrants everywhere who risk it all for their children, families, beliefs, and values. To those who leave all they know for greater opportunity and contribute to and *better* the countries to which they arrive.

For the courage and resilience of those without documentation who must live in the shadows. For the bravery of children who, at times, must live day to day not knowing if their parents will still be there when they get home. For the tenacity and true patriotism of DREAMers. To the resolve and persistence of those who advocate for immigrants within states and nationally.

Finally, to all those who have yet to see and embrace the beauty and strength that comes with diversity and difference, for they are losing out the most.

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# CHAPTER 1

## INTRODUCTION

### Background

Early care and education (ECE) refers to a wide range of early childhood settings (e.g., pre-school, pre-k, center-based care, daycare, Head Start or other developmentally appropriate learning or care arrangements) for children who are not yet of age to enter kindergarten or elementary school (Yoshikawa, Weiland, Brooks-Gunn, et al., 2013). Research has consistently found that attending high-quality early education or care (ECE) is positively associated with short-term academic outcomes (Yoshikawa et al., 2013) as well as longer-term social and behavioral outcomes for children (Heckman, Moon, Pinto, Savelyev & Yavitz, 2010). Notably, effects of ECE programs are as large or larger for children from socially disadvantaged backgrounds such as low-income and minority children, including the children of immigrants (Magnuson, Lahaie, & Waldfogel, 2006; Puma, Bell, Cook, Heid, Shapiro, Broene et al., 2010).

Immigrants are defined by the federal government as all foreign-born, non-U.S. citizens who have migrated voluntarily to the U.S., and who do not fall into special categories (e.g., career diplomats, ambassadors, students) (United States Citizenship & Immigration Services (USCIS) (2016). Undocumented immigrants[1]are

[1] Undocumented immigrants are also referred to as illegal immigrants, illegal aliens, unauthorized immigrants, and aliens by media, government agencies and the general public. However, whereas crossing the border without permission is a criminal act, presence in the United States without

those immigrants living in the U.S. without permission, proper paperwork, or an up-to-date visa. Undocumented immigrants are typically not eligible for work, insurance and other health and human services programs unless they meet certain criteria (U.S. Department of Health and Human Services (USDHHS) (2016). Access to jobs, income, insurance, healthcare, training and education is often prohibited or limited, and they are deportable if apprehended (Department of Homeland Security, 2016).

In general, immigration policy is the purview of the federal government. Lack of federal immigration reform over the past 30 years has driven some states to enact immigrant legislation resulting in different policies for immigrants depending on their legal status and state of residence (National Conference of State Legislatures (National Conference of State Legislatures (NCSL), 2016). States have enacted a spectrum of policies specific to undocumented immigrants in the domains of access to government services and benefits, education, employment, healthcare, role of local law enforcement, and identification and licensing (NCSL, 2018). State-level policies have implications for immigrant households and child development, as they determine the degree to which undocumented immigrants and their families can participate in society and access resources available to their citizen and resident neighbors (Androff, Ayón, Becerra, et al., 2011).

Many state-level policies have been restrictive in nature (e.g., English-only laws, laws that require all immigrants to carry documentation of legal status at all times, laws that expand immigration enforcement to local police). Others have been expansive and have increased the rights of undocumented immigrants, such as

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permission is not against the law. Therefore, 'undocumented' is the most accurate and legally appropriate term and is used throughout this dissertation.

extending legal opportunities for driver's licenses to undocumented immigrants. Over the past two decades, 12 states (Washington, New Mexico, Utah, Nevada, Maryland, Illinois, Connecticut, Colorado, California, Vermont, Delaware, and Hawaii) and the District of Columbia have passed legislation making state-recognized drivers' licenses (DL) available to undocumented immigrants. It has been reported by community members and leaders of immigrants' rights groups that the legal opportunity to obtain a valid DL will facilitate the ability of undocumented parents to transport children to school or other forms of childcare (Greenberg, Adams, & Michie, 2016)

**Statement of the Problem**

Despite the demonstrated benefits of early care and education (ECE) for children with immigrant parents (Puma et al., 2010), participation rates are lower among children of immigrants than children with native-born or citizen parents among three- to five-year-olds (Hernandez, Denton, & McCartney, 2007).

**Significance of the Study**

At present, more than 25% of children under age 18 currently have at least one parent who was born outside of the country (Capps, Fix & Zong, 2016), and immigration is projected to be the primary source of population growth through 2050 (U.S. Census Bureau, 2014). Immigrant parents are more likely to have lower incomes, lower levels of education and less access to resources, all of which may put their children at a disadvantage (Fortuny, Capps, Simms, & Chaudry, 2009; Jiang, Ekono, & Skinner, 2015). The sociodemographic indicators identified above, namely low income, low levels of parental education and less access to resources have all been cited as significant barriers to ECE participation (Hanson, Adams & Koball, 2016).

Other barriers include language, knowledge of programs and enrollment procedures, and transportation (Greenberg, Adams & Michie, 2016). In addition, immigrants are subject to a unique and complex set of federal and state policies to which native-born families are not. Specific immigration[2] or immigrant[3] policies, many of which vary by state, may either restrict or facilitate access to ECE. This is especially true for undocumented immigrants, who are highly limited by their legal status and often subject to restrictive federal and state immigrant policies. One such state-level immigrant policy that may be associated with ECE participation is access to a driver's license (DL) for undocumented immigrants (Hacker, Chu, Lueng, Marra, Pirie, Brahimi & Marlin, 2011; Hanson, Adams & Koball, 2016).

In the United States, undocumented immigrants are not eligible to obtain a federally recognized DL. However, over the past two decades, 12 states and the District of Columbia have passed legislation making state-recognized DLs available to undocumented immigrants. Although DL access for undocumented immigrants has been associated with other outcomes such as attending health appointments (Ayón, 2008) and enrollment in higher education (Hacker et al., 2011), the association between DL access and ECE enrollment has not been examined. The current study aimed to investigate whether legal opportunities to access DLs for undocumented immigrants via statewide policies were associated with increased participation in ECE among the children of undocumented immigrants.

[2] Immigration policies refer to policies that aim to control the flow of migrants entering the country. Immigration policies include numerical caps and quotas, priorities for admittances, and country-specific bans or limitations, for example.

[3] Immigrant policies refer to policies that aim to restrict or expand rights, services, access, etc. for immigrants once they have arrived in the U.S.

**Purpose of the Study**

Lacking transportation is a common barrier to ECE participation for low-income and immigrant families (Hanson, Adams & Koball, 2016). Lack of access to a driver's license for undocumented immigrants has been cited as potential barrier to ECE participation in interviews with community members and leaders (Greenberg, Adams, & Michie, 2016; Karoly & Gonzalez, 2011). However, the association between DL policies and ECE enrollment for children living in households with undocumented immigrants has not been empirically assessed. Therefore, the aim of the current study was to examine whether access to DLs for undocumented immigrants was associated with enrollment in ECE among children of undocumented immigrants. National data from the Survey of Income and Program Participation (SIPP) on ECE enrollment and legal immigration status collected over the period of time during which state DL policies have been implemented was used to assess the following hypotheses. It was expected that:

*H1: There would be higher rates of ECE participation in states that enacted policies expanding legal opportunities for DLs to undocumented immigrants compared to states that did not enact DL policies following policy enactment.*

*H2: Undocumented households that had access to a DL would be more likely to enroll children in ECE than undocumented households that did not have access to a DL in their state of residence above and beyond other important predictors of enrollment (e.g., household income, years in the US, whether the head of household is employed).*

# CHAPTER 2

## REVIEW OF LITERATURE

### Introduction

Research has consistently found that attending high-quality ECE is positively associated with short-term academic outcomes (Yoshikawa et al., 2013) as well as longer-term social and behavioral outcomes for children (Heckman, Moon, Pinto, Savelyev & Yavitz, 2010). Notably, effects of ECE programs are as large or larger for children from socially disadvantaged backgrounds such as low-income and minority children, and including the children of immigrants (Magnuson, Lahaie, & Waldfogel, 2006; Puma, Bell, Cook, Heid, Shapiro, Broene et al., 2010). Despite the demonstrated benefits of early care and education (ECE) for children with immigrant parents (Puma et al., 2010), participation rates are lower among children of immigrants than children with native-born or citizen parents among three- to five-year-olds (Hernandez, Denton, & McCartney, 2007).

At present, more than 25% of children under age 18 currently have at least one parent who was born outside of the country (Capps, Fix & Zong, 2016), and immigration is projected to be the primary source of population growth through 2050 (U.S. Census Bureau, 2014). Immigrant parents are more likely to have lower incomes, lower levels of education and less access to resources, all of which may put their children at a disadvantage (Fortuny, Capps, Simms, & Chaudry, 2009; Jiang, Ekono, & Skinner, 2015). Immigrants are subject to a unique and complex set of

federal and state policies to which native-born families are not. Specific immigration[4] or immigrant[5] policies, many of which vary by state, may either restrict or facilitate access to ECE. Other barriers include language, knowledge of programs and enrollment procedures, and transportation (Hanson, Adams, & Koball, 2016; Greenberg, Adams & Michie, 2016).

Barriers may be especially salient for undocumented immigrants, who are highly limited by their legal status and often subject to restrictive federal and state immigrant policies. One such state-level immigrant policy that may be associated with ECE participation is access to a driver's license (DL) for undocumented immigrants (Hacker, Chu, Lueng, Marra, Pirie, Brahimi & Marlin, 2011; Hanson, Adams & Koball, 2016). The aim of the current study was to examine the association between state-level legal opportunities to access DLs for undocumented immigrants and rates of participation in ECE among their three- to five-year-old children.

Over the past two decades, 12 states and the District of Columbia have passed legislation making state-recognized DLs available to undocumented immigrants. Although DL access for undocumented immigrants has been associated with other outcomes such as attending health appointments (Ayón, 2008) and enrollment in higher education (Hacker et al., 2011), the association between DL access and ECE enrollment has not been examined. The current study aimed to investigate whether legal opportunities to access DLs for undocumented immigrants via statewide policies

[4] Immigration policies refer to policies that aim to control the flow of migrants entering the country. Immigration policies include numerical caps and quotas, priorities for admittances, and country-specific bans or limitations, for example.

[5] Immigrant policies refer to policies that aim to restrict or expand rights, services, access, etc. for immigrants once they have arrived in the U.S.

were associated with increased participation in ECE among the children of undocumented immigrants.

In the following sections, background information is provided regarding immigrants in the United States including definitions of different types of immigrants, and characteristics of immigrant households with most information focused on undocumented immigrants, the focus of the current study. In order to put in context the current state of U.S. immigration policy and its relationship to the undocumented population, a historical account of immigration policy in the U.S. is also provided. The historical context of U.S. immigration policy is also intended to give insight into the increase in state-level immigrant policies over the past decades and why drivers' licenses for undocumented immigrants has been a topic of debate in many state legislatures across the country. Driver's license access will also be discussed in terms of the benefits that have been observed among immigrant populations and the negative outcomes associated with lack of access to DLs. The association between access to a DL and ECE participation rates of children of undocumented immigrants has not been assessed, despite the well-established benefits of ECE. ECE and its associated outcomes in general, and among children of immigrants will be presented, along with the potential pathways by which legal opportunities for DLs could facilitate access to ECE for children of undocumented immigrants.

**Immigrants in the U.S.**

There are 42.4 million immigrants in the United States representing 13.3% of the total population (Zong & Batalova, 2016). Immigrants are defined by the federal government as all foreign-born, non-U.S. citizens who have migrated voluntarily to the United States, and who do not fall into special categories such as career diplomats, ambassadors and students (United States Citizenship & Immigration Services (USCIS) (2016) (see Appendix A for further detail). Immigrants who enter the country with permission and after inspection (i.e., with a family- or employment-based visa at a port of entry) but who have not naturalized or are not yet eligible to naturalize, and who have stayed current with all necessary paperwork, procedures and fees are considered to be lawful permanent residents (LPRs; green-card holders). Although there are additional restrictions and limitations for LPRs compared to U.S. citizens, they can generally work, obtain housing and insurance, and access government services and resources, though they are subject to a five-year ban from receiving certain government benefits (USCIS, 2016).

Of the 42.4 million immigrants living in the U.S., it is estimated that approximately 10 – 11.2 million immigrants are undocumented (U.S. Census Bureau, 2014). Undocumented immigrants[6] are those immigrants living in the U.S. without permission, proper paperwork, or an up-to-date visa. Some undocumented immigrants enter the U.S. without inspection (i.e., cross the border "illegally"). More than two-

[6] Undocumented immigrants are also referred to as illegal immigrants, illegal aliens, unauthorized immigrants, and aliens by media, government agencies and the general public. However, whereas crossing the border without permission is a criminal act, presence in the United States without permission is not against the law. Therefore, 'undocumented' is the most accurate and legally appropriate term and is used throughout this dissertation.

thirds of undocumented immigrants enter with permission and inspection and have overstayed a valid visa with visa overstays having exceeded the number of illegal border crossings every year since 2007 (Warren & Kerwin, 2017). Undocumented immigrants are typically not eligible for employment, insurance and other health and human services programs unless they meet certain, stringent criteria (Broder, Moussavian & Blazer, 2015). In addition to these restrictions, undocumented immigrants are deportable if apprehended, regardless of the legal status of their spouse, children and other household members (Department of Homeland Security, 2016).

The undocumented immigrant population is diverse in age, gender, race, ethnicity, country of origin, religious affiliation, location in the U.S., and across a range of demographics and characteristics (Migration Policy Institute, 2016). Data available on undocumented immigrants is limited in that this population is often identified using proxies indicative of undocumented status. However, a majority of undocumented immigrants are between the ages of 25 and 44 (53%), employed (64%), and have attained a high school diploma/equivalency or less (75% of the undocumented population over 25) (Migration Policy Institute, 2016). Over half of undocumented immigrants currently in the U.S. were born in Mexico (56%) and a majority of all undocumented immigrants have lived in the U.S. for 10 years or longer (Migration Policy Institute, 2017). It is estimated that 61% of undocumented immigrants are uninsured and just 31% are homeowners (U.S. Census Bureau, 2014). In addition, more than half of undocumented immigrants (54%) live in just four U.S.

states: California (27%), Texas (13%), New York (8%) and Florida (6%) (Migration Policy Institute, 2016).

Although just 3 million children under 18 (4%) are undocumented (Massey & Pren, 2012), there are approximately 4.5 million U.S. born children with undocumented parents (Passel & Cohn, 2012) and it is estimated that nearly half (47%) of households with undocumented adults (i.e., persons over the age of 15) also include children (Fortuny & Chaudry, 2009). The majority of children living in households with undocumented members are themselves U.S. citizens. Estimates range from 86% to 93% of children of undocumented immigrants being U.S. citizens, with a higher percentage of children under six being U.S. citizens than children over age six(Capps, Fix & Zong, 2016). Households with citizen children and undocumented members are commonly referred to as mixed-status households (i.e., those households in which at least one member is a U.S. citizen or is lawfully present in the U.S. and at least one other member is undocumented (Matthews, 2010). It is estimated that there are approximately 6.6 million mixed-status households in the U.S. (Fortuny & Chaudry, 2009).

In general, rates of economic hardship and poverty are higher among children living in households that include foreign-born members compared to children living with native-born individuals (Fortuny, Capps, Simms, & Chaudry, 2009). Poverty rates are higher still among children in mixed-status or undocumented households (Capps, Bachmeier, Fix & Van Hook, 2013), the focus of the current study. It is estimated that 51% percent of children under age 18 living with undocumented immigrants live at or below the Federal Poverty Line (FPL) compared to 24% of

children of (all) immigrants and 18% of children living with native-born parents (Capps et al., 2013; Passel & Cohn, 2012). Undocumented household members also tend to have lower levels of education, with 47% having less than a high school education compared to eight percent of U.S. born residents and 12% of all immigrants regardless of legal status (Jiang, Ekono, & Skinner, 2015; Passel & Cohn, 2012). Even when they are born in the U.S. and hold U.S. citizenship, children of undocumented immigrants are more likely to lack health insurance coverage than children of LPRs and children with native-born parents (Capps et al., 2013; Gonzales, Suárez-Orozco, & Dedios-Sanguineti, 2013).

***Why don't they just "do it the right way?"***

U.S. policy further ensures that being undocumented limits access to resources compared to immigrants with legal permission to be present in the U.S. and U.S. citizens (Pew Research Center, 2013). Processes do exist to immigrate to the United States in good legal standing, yet not all immigrants begin or complete these processes. It is not uncommon in political and media discourse for the blame to fall upon undocumented immigrants: *"they come here to take advantage of the system," "they want to be undocumented so that they do not have to pay taxes," "they want to come here and live off our healthcare system and government even though they have not earned it," "they're criminals, rapists, drug lords, gang members, terrorists (etc.) coming to harm the U.S.,"* (Ortega, 2015).

The factors that push immigrants out of their countries of origin and pull them towards a receiving country, and the motivations and the processes involved to migrate from the country of origin to the receiving country are diverse, complex, and

in most cases, quite different from the perspectives offered above. Research has demonstrated that one of the strongest predictors of the size of the undocumented population in the country at any given time is U.S. immigration policy (Chomsky, 2014; Immigration Policy Center, 2009; Massey, Durand & Malone, 2002; Massey & Pren, 2012). Both historically and at present, U.S. immigration policy has tended not to consider nor to address the major economic, social, and historical contexts that have driven migration to the U.S. (Massey, Durand, & Malone, 2002). Instead, U.S. immigration policy has tended to be driven by public opinion, isolated incidents (e.g., terrorism, war), and changing U.S. demography (Ewing, 2012).

## U.S. Immigration Policy

At present, the U.S. system of immigration policies is not equipped to accommodate current immigration needs, nor does it accommodate the needs of countries with high demand for out-migration to the U.S., and the economic, social and labor demands in the U.S. (Kerwin & Warren, 2017). The following sections will provide an overview of the history of U.S. immigration policy focusing on it relevance in maintaining and even augmenting the size of the undocumented population, the focus of the current study. A brief summary of policy prior to 1921 is provided, however this overview will primarily focus on the time period after 1921. Particular attention is given to the decades following 1965, a year in which several important U.S. immigration policy decisions combined to spur unprecedented growth in the undocumented immigrant population, particularly from Latin America.

### The First 100 Years of the United States

Though Native Americans arrived in North America between 12,000 and 30,000 years ago from Siberia, and the arrival of Columbus in 1492 catalyzed European colonization of the U.S., the first major wave of immigration to the U.S. is considered to have begun in 1790 and to have lasted through 1820 (USCISHOL, 2012). In general, immigrants in the first wave were of British, Scottish, German, Dutch, French, and Spanish descent seeking religious and political freedom and economic opportunity (United States Citizenship and Immigration Services, 2016). The journey to the U.S. was often challenging, but entering the country did not require paperwork, inspection or other formally defined processes. During this time, the federal government established laws pertaining to citizenship (U.S.C. Article 1, Section 8), such as the required length of residence to become a U.S. citizen (USCISHOL, 2012). However, from 1783, when the United States became recognized as an independent republic, through 1875, the United States federal government did not restrict immigration (Ewing, 2012; USCISHOL, 2012).

Immigration was encouraged, as the U.S. desperately needed immigrants to grow the population, develop land, contribute skills and trades to the growing market and to input money into the economy (Ewing, 2012). At the same time, industrialization, overpopulation, poverty, and political oppression in Europe provided an influential push for immigrants to leave their countries of origin for the "new world." This represents one point in U.S. history where a match between U.S. immigration policy and bilateral immigration needs truly existed (Massey & Pren, 2012, Vialet, 1991). Policies pertaining to migrant flows were created, enacted, and enforced at the state level, particularly in port and border states such as Massachusetts

(Guarnizo & Smith, 1998). Border and port states began passing restrictive laws that aimed to curb or halt the flow of "undesirable immigrants" into their cities, and towns (Boushey & Luedtke, 2011). Often, such laws were passed with the goal of banning immigrants who were determined by the state to be a potential "burden to society" (e.g., the poor, sick, disabled, ethnically diverse, enslaved populations, criminals, and anyone who was deemed likely to become a public charge) (Neuman, 1993). For example, in 1794, the Massachusetts Bay Colony passed "the poor laws," which imposed a penalty on any person who knowingly transported a pauper or indigent person to any town in the Commonwealth (Act of 1794, Ch. 8, 1794 Mass. Acts & Laws 347; Neuman, 1993).

Between 1819 and through the 1860's, U.S. territory was expanding westward as Mexico had ceded nearly 40% of its territory to the U.S. (Vialet, 1991). Westward expansion generated high demand for new laborers in the U.S. Simultaneously, the second major wave of immigration (1820 - 1860) was bringing mostly German, British, and Irish immigrants looking to escape famine, overpopulation, political persecution, and industrialization (USCISHOL, 2016). It is estimated that the size of the immigrant population during the second wave grew from 151,000 in 1830 to 1.7 million in the 1850's (United States Census Bureau, 2014). Immigration increased approximately 600% between 1841 and through the 1860's, with an estimated 6.6 million immigrants entering and 87.5% of immigration still coming from northwestern Europe[7] (Vialet, 1991).

[7] Northwestern Europe refers to Ireland, the United Kingdom, Belgium, the Netherlands, Germany, Denmark, Norway, Sweden, Switzerland, Northern France, Luxembourg, Austria and Iceland. In terms of immigration to the U.S., Ireland, the U.K., and Germany were often the top sending countries of northwestern Europe.

In 1862, the development of railways further increased the demand for the Western migration of immigrants to provide labor (USCISHOL, 2012). The Homestead Act in 1862 and the Contract Labor Law of 1864 made land in the west available for free to immigrants, and to citizens of the U.S., and encouraged immigration by providing monetary advances for travel to the U.S. Consistent with the contradictory nature of U.S. attitudes towards new arrivals, despite a high demand for labor, as immigrants from new locations in Southeastern Europe[8] and immigrants from China began to come to take advantage of these opportunities, labor groups in the U.S. successfully got 1864 contract law repealed claiming it would hurt U.S. born workers (Ewing, 2012).

**Federal Control of Immigration and Exclusion (1875 – 1920)**

The immigrant population was rapidly expanding and immigration was still encouraged by the federal government. The presence of a large foreign-born population was also met with increased nativism inspired by anti-Catholicism, fear for U.S. born workers, and the linking of immigration with crime and poverty (Neuman, 1993). Thus, states continued to enact restrictive policies barring poor, disabled, or diseased immigrants from entering the U.S. (Neuman, 1993). However, in 1875, control of immigration policy shifted. California enacted a policy that created a commissioner of immigration with the sole authority to determine the suitability of each immigrant arriving in the state. In addition, the law created inspection fees and bonds to be paid by those sponsoring or transporting immigrants (Bushey & Leudtke,

[8] Southeastern Europe refers to Italy, Greece, Albania, Bulgaria, Croatia, Kosovo, Montenegro, Romania, Serbia, Slovenia, Turkey, and Bosnia and Herzegovina. In terms of immigration to the U.S., Italy was often the top sending country of the southeastern group.

2011). The law was reviewed by the United States Supreme Court, which ruled against the policy, stating:

> "The passage of laws which concern admission of citizens…of foreign nations to our shores belongs to congress and not to the states. It has the power to regulate commerce with foreign nations…if it be otherwise, a single state can at her pleasure embroil us in disastrous quarrel with other nations" (*Chy Lung v. Freeman, 1875*).

For the first time, the Supreme Court legitimized federal control of immigration policy (Boushey & Luedtke, 2011; Smith, 1998). For many decades after, immigration policymaking at the state level ceased as states yielded to the federal government.

The first act of the United States federal government, with their newly legitimized control of immigration, was to exclude certain classes of immigrants as "undesirable" (Boushey & Luedtke, 2011). The Page Act of 1875 barred criminals, prostitutes and Chinese contract laborers, who often worked under the conditions of indentured servitude (USCISHOL, 2012). In 1882, the Chinese Exclusion Act suspended the immigration of all Chinese workers to the U.S. for 10 years, barred Chinese immigrants from becoming citizens, and provided for the deportation of Chinese immigrants unlawfully present in the country (USCISHOL, 2012). The Chinese Exclusion act was renewed in 1892 and in 1902 with no end date to be reviewed. A separate act in 1882 specified that "lunatics" be added to the list of inadmissible classes established in the Page Act (Vialet, 1991).

The expansion of exclusionary laws enacted by the federal government occurred concurrently with unprecedented levels of immigration to the U.S. during the end of the second wave of immigration and into the third. The third wave of immigration to the U.S. (1880 - 1914) brought immigrants from many European

(including Southeastern Europe) and Asian countries (that were not barred from entry) seeking greater economic opportunity and political freedom (USCISHOL, 2016). In 1890, the U.S. Census Bureau estimated that the foreign-born share of the population was 14.8% (i.e., a historic high; for comparison, in 2016 it was estimated to be 13.5%) (Migration Policy Institute, 2017). Between 1870 and 1930, more than 30 million immigrants arrived (Vialet, 1991).

**Numerical Limits by National Origin (1921 – 1964)**

With the changing demography of the U.S. and rapidly increasing immigrant population, immigration policy became more selective (Norgarrd, 2008). Policies were passed that favored individuals from certain countries over others and explicitly banned some immigrants solely based on their country of origin (Massey & Pren, 2012; Vialet, 1991). In 1921, the federal government implemented the first overall numerical caps on immigration and set per-country limits based on the national origin of immigrants (USCISHOL, 2012). Total immigration was capped at approximately 350,000 per year, and the number of immigrants from a single country could not exceed three percent of the number of people of that ancestry who had been living in the U.S. at the time of the 1910 census. The new quota system favored immigrants from northwestern Europe. The Western Hemisphere (i.e., Canada, Latin America) remained exempt from numerical limits. In 1924, the U.S. Border Patrol was created. The same year, the total number of immigrants accepted for entrance was reduced to 165,000 per year and the per-country limit was decreased to 2% of the number of people of that ancestry living in the U.S. as of the 1890 census (Vialet, 1991. This system remained in place until 1952, with immigrants from the Western Hemisphere

still exempt from quotas and caps, along with wives and unmarried, minor children of (male) U.S. citizens.

During World War II and through the beginning of the Cold War, immigration policy continued to be selective based on the nationality of potential immigrant arrivals. For example, World War II prompted exclusionary policies and practices aimed at people of Japanese descent, but there was also an increase in humanitarian refugee policies and a lessening of the restrictive policies that had been placed upon other Asian immigrants previously (Ewing, 2012). For example, in 1942, after the Japanese bombing of Pearl Harbor, the U.S. government placed approximately 120,000 people of Japanese descent (two-thirds of whom were U.S. citizens) in internment camps until 1945, however in 1943, the immigration of Chinese workers was resumed and Chinese immigrants were eligible for naturalization (USCISHOL, 2012).

World War II was also an important era in the history of Mexican migration to the U.S. The war created extreme labor shortages in the agricultural industry as U.S. citizens joined or were drafted into the army or left agricultural positions for factory work to aid in the war effort (Massey & Pren, 2012). At the same time, Mexico was experiencing high unemployment and devastating crop failure as a result of the Mexican Revolution. In response, the governments of Mexico and the United States worked to develop a temporary worker contract program that would bring Mexican farm workers into the United States. The *Bracero program*, as it came to be called, ran from 1942 to 1964 bringing approximately 450,000 migrants into the U.S. for temporary work each year (Danielson, 2015). Almost all workers holding Bracero

contracts kept a circular migration pattern (i.e., entering the U.S. to work during the harvest season, and returning home to Mexico in the off-season), and thus the steady, legal flow of close to one half million Mexican migrants went virtually unnoticed by U.S. citizens for years (Mize, 2016).

The success of the Bracero Program is one more example of bilateral immigration policy that worked because it considered and met the needs of both the sending and receiving countries involved. During the same time period, however, the McCarran-Walter Act (1952) aimed to consolidate immigration laws of past years into one concise statute, and while it officially eliminated race as a basis of exclusion, the national origins quota system, that favored immigrants from the United Kingdom, Ireland and Germany by basing quotas on the 1920 census, was kept in place. Most of the immigration slots that were allocated for these favored countries went unused as there was little demand for migration from northwestern Europe during this time (Massey, Durand, & Malone, 2002).

**Civil Rights and the "Rise" of Undocumented Immigration (1965 – 1985)**

The fourth and current wave of immigration began in 1965, a year that is also considered a significant time point in the context of undocumented immigration. One year after the Civil Rights Act (1964) was passed, the Immigration and Nationality Act (INA) of 1965, also known as the Hart-Cellar Act, terminated the National Origins Quota system that had favored immigrants from Northwestern Europe for decades (USCISHOL, 2012). That is, race, ancestry and national origin could no longer act as criteria for exclusion from legal entry to the United States. The INA assigned 170,000 slots per year for immigrants from the Eastern Hemisphere with a 20,000 per-country

cap. The INA, for the first time, also placed a 120,000 per year cap on Western Hemisphere migration, but without per-country limits. The 20,000 per-country cap was applied to the Western Hemisphere in 1976 and the numerical ceilings for the Eastern and Western hemispheres were combined into a worldwide limit of 290,000 admittances per year in 1978 (Massey & Pren, 2012). A seven-category preference system for the admittance of relatives of U.S. citizens and LPRs that is still in place today also originated from the INA. At this point, immigrants from the Western Hemisphere were exempt from the preference system, as were immediate relatives of U.S. citizens (USCISHOL, 2012).

The INA in 1965 was the first time that Western hemisphere migration to the U.S. had been numerically restricted. Following the INA, however, immigration from Latin America increased rapidly from approximately 459,000 arrivals per year in the late 1950's to 4.2 million in the 1990's, by which time migration from Latin America made up about 44% of the total migrant flow into the U.S. (USDHS, 2012). The population of undocumented immigrants from Latin America also increased, from close to zero in 1965 up to 9.6 million in 2008, comprising 80% of the total undocumented population (Hoefer, Rytina & Baker, 2012; Wasem, 2011). The events and processes that led to increased migration from Latin America were never intended to do so, and in fact, some later actions were intended to deter it, yet immigration from Latin America surged (U.S. Census Bureau, 2014). Evidence suggests this was the result of immigration policies and the sociopolitical context in the U.S.

When the INA was passed, immigration from Latin America was not a pressing concern among the general public and even among the most conservative

politicians of the time (Wright, Levy & Citrin, 2015). In general, there was bipartisan agreement that termination of the National Origins Quota system was necessary. However, there was also agreement that the Bracero Program, which had come to be viewed as an exploitive labor system, should be terminated as well (Massey & Pren, 2012). Despite objections from the government of Mexico, Congress ultimately opted to end the Bracero Program. The program was fully phased out by 1968, the same year the new 120,000 annual cap on Western Hemisphere immigration took effect (USCISHOL, 2012). The INA had not included any provisions for temporary migrant workers, yet the annual circular flow of nearly half a million Mexican farm workers over 22 years had become engrained for both migrant workers and the U.S. employers who relied upon the temporal flow of labor (Ewing, 2012). Neither the demand for seasonal, agricultural labor in the U.S. nor the demand for employment among Mexican farm workers had changed, but the legal avenues for meeting these needs had been very suddenly taken away. As a result, the migratory flows did not end, rather they continued without contracts, permission, paperwork and documentation (Boushey & Leudkte, 2011).

Mexico, then, went from an unlimited number of resident visas and 450,000 annual guest worker visas from the 1940's through the early 1960's to zero guest worker visas and 20,000 resident visas per year, despite continued bilateral need for Mexican migration. Therefore, "illegal" immigration after 1965 increased because U.S. immigration policy left no legal route to accommodate long-standing, and effective migrant flows upon which both Mexican workers and U.S. employers had become dependent (Massey & Pren, 2012). Growth in the undocumented population

decelerated quickly after the circular pattern of migration had been re-established without authorization. However, the initial inflow of newly "illegal," mostly Mexican workers played a critical role in the political agenda, public perception, and immigration policy-making going forward.

The undocumented population expanded from 1970 and through the 1990's. At the same time, income inequality in the United States was increasing (Abramitzky & Boustan, 2017). Unemployment also increased from 5.6% in 1974 to 10.8% in 1982, a historic high (United States Bureau of Labor Statistics, 2018). Economic depression, regression, and inequality have always been strong predictors of anti-immigrant sentiment (Almeida, Biello, Pedraza & Wintner, 2016). It was in under these circumstances that immigration from Latin America began to be framed by the media as a "crisis" or a "tidal wave" that would drown U.S. culture with a flood of foreign-born immigrants (Santa Ana, 2002). Later, this '*Latino threat narrative*' became more intense, often describing immigration as an "invasion" of "aliens" attacking "outgunned" border patrol agents (Chavez, 2008). In 1976, the commissioner of Immigration and Naturalization Services (INS) even published an article in which he described immigration as having the potential to become a national disaster (Chapman, 1988).

**Granting Amnesty, but Limiting Immigrant Rights (1986 – 2000)**

The Latino threat narrative was further promulgated by not only the media, but by government officials, municipalities, and politicians as they found advantages to be gained by scapegoating Latino immigrants and undocumented immigration for economic conditions in the U.S. (Massey & Pren, 2012). In 1986, Ronald Regan

stated that illegal immigration was a question of national security and that "terrorists and subversives" are just a few days' drive from the southern border (Kamen, 1990). In 1992, the Chief of the San Diego unit of the U.S. Border Patrol released "*Border Under Siege*," a video that showed Latino immigrants running through highway traffic to enter the U.S. without inspection (Rotella, 1998). Further media portrayals deemed Latino immigration to be a "war on the middle class," or even a plot by Mexico to take back the lands they had ceded to the U.S. in 1848, and that immigration, then, would result in a total loss of the southwestern United States (Massey & Pren, 2012).

Within just a few decades, Mexican migration had gone from a legal, effectively invisible, circular flow of workers to a highly visible, publicized flow that was framed as an attack on U.S. economy, culture, safety, and territory being carried out by criminal, alien invaders (Mize, 2016). The loss of legal avenues for migration without the loss of demand for labor resulting in unauthorized flows, plus the relentless framing of Latino migration as a "crisis" or a "cultural inundation flooding North America" in a time of income inequality influenced public opinion and shifted it towards conservatism on immigration (Massey & Pren, 2012). Subsequently, immigration legislation became more restrictive and more heavily reliant upon enforcement efforts. With increased enforcement, came an increased number of border apprehensions and deportations, despite declining migrant flows following 1970 (Ewing, 2012). However, to the general public, an increased number of border apprehensions and deportations was equivalent to an increase in the number of illegal border crossings. This further led to a belief that more enforcement was needed to subdue the growing "crisis" that was undocumented immigration (that, in reality, had

occurred legally for decades, had leveled off in the 1970's once the established seasonal flow resumed without authorization, and had actually decreased through the 80's and 90's).

In 1986, the federal government implemented the Immigration Reform and Control Act (IRCA). IRCA did the following: (1) legalized nearly 2.7 million undocumented immigrants who had been living in the United States before January 1, 1982, who had no unpaid back taxes, had not been found guilty of any crimes, and had at least minimal knowledge of United States government, history and the English language (USCISHOL, 2012), or who fell into a special agricultural worker category (Kerwin, 2010), (2) increased border enforcement (Chishti & Kamasaki, 2014), and (3) made it a federal crime to knowingly hire or employ undocumented workers (Chishti & Kamasaki, 2014). IRCA policies were developed based partly on the assumption that immigrants who entered the country without permission came to the United States for existing job opportunities and because they were able to enter without inspection (American Immigration Council, 2017). Although IRCA initiated the H-2A visa category for temporary seasonal agricultural workers with very limited annual slots, it did not raise limits on legal immigration to match the growing demand for immigrant labor in the U.S. (Popat, 2014).

Later, with the Immigration Act of 1990, the federal government opted to raise the legal immigration ceiling and tripled the number of visas available for priority workers. Despite a higher legal immigration ceiling, increased border enforcement and more stringent rules surrounding employment, from 1990 through 1999, it was estimated that over 5.8 million undocumented immigrants entered the United States

(United States Census Bureau, 2014). Mexico was the top sending country followed by the Philippines, Vietnam, the Dominican Republic and China (USCISHOL, 2012). The continuous loop linking public perception of immigrants, stringent legislation and enforcement efforts towards immigration, especially from Mexico, was well-established. Further complicating immigration policy and public attitudes was a series of attacks against the U.S. throughout the 1990's and into the early 2000's.

### *1996: Anti-Immigrant Sentiment and Policy*

Increased fear of terrorism and anti-immigrant sentiment contributed in part to the enactment of more restrictive immigration legislation and increased enforcement efforts (USCISHOL, 2012). Three pieces of legislation all passed in 1996 had significant negative outcomes for the immigrant population (regardless of status). The Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) created new criteria both for being denied entry and for removal from the U.S. by expanding the definition of what is considered to be an "aggravated felony." Aggravated felonies are criminal acts specifically delineated to carry severe consequences for immigrants such as loss of access to visas, loss of legal permanent resident status, loss of citizenship, asylum and limited or denied rights during deportation procedures (American Immigration Council, 2016). The list of what is considered an aggravated felony originally referred only to murder, federal drug trafficking and trafficking of certain weapons (American Immigration Council, 2016). It was expanded to include over 30 crimes, such as fraud, counterfeit and forgery, failure to appear in court, alien smuggling, tax evasion, and theft (USCIS, 2013). The new definition was applied retroactively, meaning that even non-violent offenses that had been committed years

prior to the passage of the law obligated detention. IIRIRA also created an expedited removal process for "criminal aliens" that did not grant them the right to a formal hearing, implemented three- and ten-year bans to re-entry for immigrants who had been present for at least 180 days in the U.S., and increased border enforcement (Zimmerman & Fix, 1997).

Second, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) made most LPRs ineligible for means-tested public benefit programs for five years after obtaining a green card (Zimmerman & Fix, 1997). Undocumented immigrants were explicitly barred from all public benefit programs by the federal government. Finally, the Anti-Terrorism and Effective Death Penalty Act expedited the removal processes for foreigners suspected of being associated with terrorism, allowed the detention and deportation of non-U.S. citizens on the basis of evidence that neither the accused immigrant nor their lawyer were permitted to see, and made it more difficult to be granted asylum (Massey & Pren, 2012). These policies were all enacted to restrict access for immigrants, and especially to "crack down" on undocumented immigration, which had been proposed to be part of the cause of poor economic conditions in the U.S. for decades (Citrin, Green, Muste & Wong, 1997). Little, if any, consideration was given to U.S. labor demands, bilateral immigration needs or migratory trends. With policy mismatched to reality, there is more potential for increased undocumented immigration (Espenshade, 1995; Massey & Espinosa, 1997).

### Immigration as a Matter of National Security (9/11 - Present)

The 1990's saw unprecedented enforcement efforts at the border and internally (Massey & Pren, 2012). Specifically, annual deportations had not exceeded 50,000 for decades, but following attacks against the U.S., and legislation in 1996 (i.e., IIRIRA, PRWORA), removals increased to 200,000 people per year. Then, on September 11th, 2001, the United States sustained the deadliest attack on U.S. soil in its history (USCISHOL, 2012). Following 9/11, the U.S. government implemented further law enforcement measures, some of which explicitly targeted certain nationalities (Ewing, 2012). Passed just 45 days after 9/11, the USA PATRIOT Act generally expanded surveillance and data sharing for government agencies and officials. Specific to immigration, title IV of the PATRIOT Act tripled the number of border agents and INS personnel at points of entry, and required data sharing between the FBI, Department of State and Immigration and Nationality Services to conduct background checks on immigrants at point of entry (107th Congress of the United States, 2001-2002).

According to the Department of Homeland Security (2017) removals increased to approximately 400,000 annually by 2009. Though none of the accused involved in 9/11 were of Mexican descent, nor had they entered through Mexico, and though all involved had come to the U.S. on legal visas, the vast majority of persons removed as part of increased enforcement efforts after 9/11 were of Mexican descent (72%) (Massey & Pren, 2012). In 2002, the U.S. government also introduced a special registration system and a "voluntary" interview program that targeted foreign-born Muslims, Arabs, and South Asians (Ewing, 2012). The same year, the Enhanced Border Security and Visa Entry Reform Act was implemented, which included new

procedures for the review of visa applications and required entry documents to be machine-readable, tamper-resistant, and to include biometric identifiers (USDHS, 2002).

Following the USA PATRIOT Act, in 2005, Congress passed the REAL ID Act. The REAL ID Act mandated that states put in place a system to retain and store data on identity, criminal history and citizenship and legal immigration statuses, and that all databases be linked to required federal databases (U.S. Department of Homeland Security, 2018). In addition, the REAL ID Act imposed minimum documentation standards to verify identity before issuing any form of identification, as well as security and fraud protection measures that had to be implemented in each state (U.S. Department of Homeland Security, 2018). Specifically, the federal government mandated that states require a social security number and evidence of lawful entry and legal status in order to issue a driver's license or identification card (U.S. Department of Homeland Security, 2018). To date, about half of states are compliant with REAL ID requirements, 21 have been granted extensions, and three states (Michigan, Louisiana, New York) are under review for possible extension (Department of Homeland Security, 2017). Finally, in 2006, Congress passed the Secure Fence Act, which called for an additional 850 miles of fencing to be built along the U.S. – Mexico border (Ewing, 2012).

**Consequences of U.S. Immigration Policy**

Even before the United States became a sovereign nation, it struggled with its identity as a refuge for immigrants and a country that relies upon immigrants, but also one that has consistently stereotyped and feared the newest arrivals to its shores. U.S.

immigration policy has fit bilateral immigration needs at a few points in history: (1) unrestricted immigration in the first 100 years of the republic, when the United States desperately needed labor, land development, and population growth and Europe was experiencing severe overpopulation, (2) towards the end of the first 100 years of the U.S., with westward expansion, development of railways and industrialization was taking place in Europe, and (3) the Bracero Program when Mexico struggled with crops and unemployment and the U.S. was experiencing labor shortages due to the war. The U.S. federal government has not since implemented bilateral immigration policy that suits its own needs while attending to the reality of demand for immigration to the U.S. from other countries. More recently, since the mid-1980's, the federal government has enacted policies focused on deterring undocumented immigration through increased enforcement efforts, and limiting immigrant access to resources, while neglecting to attend to the large undocumented population, most of whom have resided in the U.S. for more than a decade (Zong & Batalova, 2017).

Enforcement efforts have not only failed to decrease undocumented immigration from Latin America, but they have contributed to increased immigration into to the United States. For example, the first large increase in the undocumented population from Latin America stemmed from well-established, legal, circular flows of 400,000 Mexican farm workers being unaccounted for, and, thus "illegal" with the end of the Bracero Program. In 1964, the undocumented population was estimated to be less than 300,000, but in 1968 (i.e., the year the Bracero Program was fully phased out), the undocumented population grew to over one million (USDHS, 2012). In the following decades, as legislation continually called for increased enforcement efforts,

Mexican workers stopped returning home once they made it into the U.S., increasing the net inflow of undocumented immigrants by decreasing the overall outflow (Redburn, Reuter & Majmundar, 2011).

Through the 1990's and 2000's, with the rise of the Latino threat narrative, anti-immigrant sentiment, and immigration policy-making that focused on border patrol and internal enforcement, the population of legal immigrants grew as well from less than 10% admitted outside country quotas as relatives of U.S. citizens to over 40% after 1996 and 65% after 2001 (USDHS, 2012). When U.S. policies have been more restrictive, or are perceived to be discriminatory, legal permanent residents who may have otherwise retained their LPR status, tend to be more likely to initiate the naturalization process to protect themselves (i.e., defensive naturalization) (Redburn, Reuter & Majmundar, 2011). This also affords them the opportunity to be able to petition for family members, as the immediate relatives of U.S. citizens are exempt from quotas and caps, a process known as defensive naturalization (USCIS, 2017). Not only have enforcement policies tended to result in less outmigration among undocumented immigrants (increasing overall net inflow), but fear among the immigrant population stemming from stringent U.S. immigration legislation, increased enforcement efforts and negative discourse around immigration have also contributed to increasing the size of the legal immigrant population. With the rise of the Latino threat narrative, in the mid 1980's, negative words were paired with "Mexican" or "immigrant" across the U.S.'s four leading newspapers over 35% of the time. Following 1985 and into the 1990's, legal immigration increased from approximately 61,000 entries per year to over 100,000 (USDHS, 2012).

IRCA, in 1986, was the last time Congress passed some form of comprehensive immigration reform (CIR). Since then, the federal government has failed to pass CIR legislation. Additionally, the family- and skills-based visa systems have not been updated since enactment in 1965, except for the Immigration Act of 1990, which tripled the number of visas available. With an estimated 10.2 - 11 million undocumented immigrants living in the U.S. at present (United States Census Bureau, 2016), and a severely outdated system of immigration policies, there is bipartisan agreement that reform is needed (McElmurry, Brown & Zamora, 2016; Tichenor, 2014). Attempts to address comprehensive immigration reform over the past 31 years have consistently failed. For example, the Comprehensive Immigration Reform Act of 2007 (i.e., S.1348; the McCain-Kennedy Bill), which was the first attempt at a CIR bill since the early 2000's, would have implemented tighter border controls and amnesty for undocumented immigrants currently living in the U.S., along with initiating a guest worker program. The bill, with some variation in policy details, was debated in 2005, 2006 and 2007. In 2007, it was abandoned as compromise could not be reached and it was never voted upon in the Senate (Golash-Boza & Parker, 2007).

Since the 1965 legislation, there has existed a growing need not only for a functional immigration system (Silva, 2015), but for CIR that addresses the current undocumented population, considers bilateral immigration needs, and that is driven by these bilateral needs as opposed to fear or extreme incidents. In the absence of CIR, there has been a new wave of state-level immigrant policy reforms (Boushey & Luedtke, 2011). States have become active once again in introducing and enacting immigrant policy, with state legislatures introducing approximately 1,400 bills and

enacting 208 across the nation in 2010 (National Conference of State Legislatures, 2010 (NCSL), 2010). That is, four times more legislation was introduced and enacted in 2010 than in 2005 (when 300 bills were introduced and 45 were enacted).

Although many of these state policies have mirrored federal policy by opting to increase enforcement efforts, (e.g., enter into 287(g) memoranda of agreement with Immigration and Citizenship Enforcement, or require that all immigrants carry their papers at all times), many states have also opted to implement policies that expand immigrant rights and access. Among a wide range of bills dealing with many aspects of immigration, one topic that has been debated in many states is the issuance of driver's licenses to undocumented immigrants. Of the 208 policies enacted in 2010, 32 (15%) were related to drivers' licenses or identification cards for immigrants (regardless of legal immigration status) (NCSL, 2010). In 2005, of the 45 bills enacted, nine (20%) were regarding identification cards or drivers' licenses for immigrants across legal status (NCSL, 2005). Bills pertaining to DLs and ID cards for immigrants vary in the degree to which they are expansive versus restrictive. They also vary in terms of the target population (e.g., LPRs, undocumented immigrants, undocumented immigrants under 18).

**Why Driver's Licenses?**

The distribution and processes associated with the issuance of driver's licenses are powers of the states derived from the 10th amendment to the U.S. Constitution stating that "the powers not delegated to the United States by the Constitution nor prohibited by it to the States, are reserved to the States respectively, or to the people" (U.S. CONST. amend. X). The purpose of a driver's license is to ensure that people

who wish to or need to operate a vehicle have all had standardized training, practice and education around rules, regulations and driving safety (National Highway Traffic Safety Administration, 2014). Standards to obtain a driver's license have typically included passing written and driving examinations, registering vehicles to be operated, and insuring and maintaining insurance coverage for all vehicles and drivers (Louisiana Office of Motor Vehicles, 2012; State of New Jersey Motor Vehicle Commission, 2012). Driver's licenses have become much more than an indicator of one's eligibility to operate an automobile. Today, driver's licenses are considered an important form of personal identification commonly used to apply for bank accounts, loans, rental homes and apartments, social and educational programs and assistance, and to prove residency for various state institutions (e.g., state colleges) (Johnson, 2004).

The federal government has not imposed upon states' rights to issue drivers' licenses (Mounts, 2003) until the passage of the REAL ID Act. Immediately after September 11th, the licensing of undocumented immigrants became a tense national security issue as it was discovered that those who were involved in 9/11 had obtained state-issued driver's licenses with which airplanes could be boarded (Harberson & Doherty, 2002). What is often forgotten is that none of the individuals involved in the 9/11 attacks actually needed a driver's license to board an airplane. All had foreign passports that were considered valid forms of identification for this purpose at the time (Mounts, 2003). Additionally, all those involved were in the United States with legal permission and were not undocumented (United States Congress, 2002; National Commission on Terrorist Attacks, 2004). Nevertheless, the topics of identity fraud

and the licensing of "potentially dangerous, criminal aliens" began to dominate the new debate over immigrant eligibility for driver's licenses (Zhao, 2003). Consistent with the strong links that had been formed between national security, terrorism and immigration throughout U.S., the REAL ID Act was enacted with the intent to "crack down" on fraudulent documents and forms of identification.

### *Access to a Driver's License*

Issues of national security, fraud, and "rewarding" undocumented immigrants with the privilege of a driver's license are common arguments against state-issued drivers' licenses for undocumented immigrants (Johnson, 2004; Lopez, 2004). Evidence may suggest positive rather than negative outcomes associated with increased access to a DL. In general, a greater number of drivers with a valid license in a state is associated with fewer fatal accidents (Kerry & Kumazawa, 2011). In California, it was found that drivers without valid licenses were three times more likely to cause a fatal accident than were drivers with valid DLs (Brar, 2012). In addition, though little data exist to measure the economic impact of licensing undocumented immigrants, employers in North Carolina reported that industry would benefit if undocumented workers were able to legally drive to work (North Carolina Department of Public Safety, 2014). In addition, in 2008, Oregon passed a law that required all license applicants to prove legal immigration status. Prior to its enactment, it was estimated that in response to implementation of the law, the undocumented labor force would decrease and the loss in state gross domestic product would range from $134 million to $201.9 million annually (King, 2011). Enrollment in higher education among undocumented immigrants has also been linked to DL

access with an increased likelihood of participation when a state DL is made available to undocumented immigrants (Drachman, 2006).

Negative outcomes associated with fear of driving, or driving without a DL have also been observed for the general public, undocumented immigrants and oftentimes their citizen children. Evidence suggests that there are risks associated with lack of access to DLs, specifically for the undocumented population and their households. Lack of access to DLs for undocumented parents is associated with higher psychological distress, increased economic hardship among parents and lower levels of cognitive ability among their children (Yoshikawa, Godfrey, & Rivera, 2008). Furthermore, not having a DL has been associated with a fear of reporting crimes to police (Nguyen & Hill, 2016) and heightened anxiety around driving for tasks of daily living (e.g., shopping) in communities with increased immigration enforcement (White Yeager, Menachemi & Scarinci, 2014). Fear of driving without a DL has been associated with a greater number of missed appointments among undocumented pregnant mothers, a decreased use of social service programs among undocumented immigrants and also among native-born Hispanics (Toomey, Umaña-Taylor, Williams, Harvey-Mendoza, Jahromi & Updegraff, 2014), missed doctors' appointments among undocumented immigrants and their children (Hacker, Chu, Leung, et al., 2011), and as a barrier to completing child welfare mandated services (Ayón, 2008).

The association between DL access for undocumented immigrants and participation in early care and education among their children has not been empirically assessed, despite the fact that transportation to and from these programs is rarely

provided. It is true that the quality of early care and education programs matters in examining later outcomes (Jeon, Langill & Peterson et al., 2010; Tietze, Cryer, Bairrao, Palacios & Wetzel, 1996), but access to a program is the first step. In the following sections, early care and education will be defined, and the outcomes with which it is associated, and outcomes specifically for children of immigrants will also be presented.

**Early Care and Education**

ECE refers to a wide range of early childhood settings (e.g., pre-school, pre-k, center-based care, daycare, Head Start or other developmentally appropriate learning or care arrangements) for children who are not yet of age to enter kindergarten or elementary school (Yoshikawa, Weiland, Brooks-Gunn, et al., 2013). In general, attending quality ECE is positively associated with a range of important child outcomes (Camilli, Vargas, Ryan, & Barnett, 2010; Duncan & Magnuson, 2013; Puma, Bell, Cook, Heid, Broene et al., 2012; Yoshikawa, Weiland, Brooks-Gunn, et al., 2013). Both small demonstration programs as well as larger statewide early education initiatives with a range of methodological designs, have demonstrated that participation in ECE is associated with immediate post-program gains in school readiness (Karoly & Gonzalez, 2011; Magnuson & Waldfogel, 2005), mathematics skills, pre-reading, language and literacy skills (Camilli, Vargas, Ryan, & Barnett, 2010; Weiland, & Yoshikawa, 2013; Wong, Cook, Barnett, & Jung, 2008), executive function (Shonkoff, 2007) and in behavioral domains, peer relationships and interactions (Gromley, Phillips, Newmark, Welti, & Adelstein, 2011). It is estimated that participation in ECE corresponds with an average increase of about 1/3 of a year

of learning in cognitive, language, and mathematics domains beyond what would have been gained without ECE (Duncan & Magnuson, 2013), depending on the quality of care.

Although children who do not participate in ECE tend to catch up to their peers who did attend in terms of immediate academic outcomes (Yoshikawa, Weiland, Brooks-Gunn, et al., 2013), ECE participation remains associated with important outcomes later in life. For example, having participated in early education is associated with higher educational attainment and higher earnings in adulthood (Deming, 2009; Heckman, Moon, Pinto, Savelyev, & Yavitz 2010), lower rates of pregnancy among teenagers (Sawhill, Winship, & Grannis, 2013), and lower rates of criminal behavior and incarceration (Deming, 2009). It has been estimated that for every dollar spent on early education, the return on investment ranges from $3.97 and $10.83 (Reynolds, Temple, White, Ou & Robertson, 2011) and that nearly 60 to 70% of benefits to society have been attributed to reduced criminal behavior (Belfield, Nores, Barnett, & Schweinhart, 2006). Associations between ECE and later adult outcomes demonstrate that both ECE participants and society continue to benefit long after immediate post-program gains are observed.

Positive short- and long-term effects of ECE participation have been observed among both low- and middle-income children. However, research has consistently demonstrated that children from low-income families, minority children, children who are dual-language learners and children of immigrants benefit more from participation in ECE (U.S. DHHS, 2010). Although fewer studies have focused specifically on the children of immigrants, evidence suggests that they benefit as much, or more than

their peers with native-born parents (Magnuson, Lahaie, & Waldfogel, 2006). Children with at least one immigrant parent (regardless of legal status) participate in ECE at lower rates than children with native-born parents (Karoly & Gonzalez, 2011). Children of *undocumented* immigrants make up a growing share of students in grades K – 12 (between 7 and 10% in 2009) (Passel & Cohn, 2012). Rates of enrollment in early education among children of undocumented immigrants have not been assessed. However, children of immigrants (regardless of legal status) are less likely than their peers with native-born parents to be enrolled in early care and education (ECE) (30% vs. 38% for three-year-olds and 55% vs. 68% for four-year-olds; Karoly & Gonzalez, 2013; U.S. Census Bureau, 2016) despite the demonstrated benefits.

**Barriers to Participation in ECE**

General barriers to accessing and participating in ECE among low-income families such as knowledge of programs and enrollment procedures, cost and affordability of programs, and complexity of enrollment paperwork or processes (Hanson, Adams, & Koball, 2016) are all likely to influence immigrant families, as their access to income, resources and programs is often explicitly restricted (Crosnoe, Pedroza, Purtell, et al., 2012; Fortuny, Capps, Simms & Chaudry, 2009; Jiang, Ekono, & Skinner, 2015; Krivo, Washington, Peterson, Browning, Calder & Kwan, 2013; Perreia, Crosnoe, Fortuny, et al., 2012). In addition, immigrant households may face additional barriers specific to their legal status.

Barriers specific to immigrants, such as language, knowledge of programs and lack of connectedness to social networks that may be able to provide information, can deter their access to programs and services including healthcare (Carson & Staley,

2016) public assistance and social safety net programs (Perreia, Crosnoe, Fortuny, et al., 2012), and to ECE programs (Karoly & Gonalez, 2011). Immigrants may lack information about the different types of ECE programs available or they may have trouble gaining information due to language barriers or complex regulations (Karoly & Gonzalez, 2011). Immigrants may be unfamiliar with rules and regulations regarding qualifying for child care subsidies and find ECE beyond their budgets (Greenberg, Adams, & Michie, 2016). Further, cultural norms may favor in-home care provided by family members rather than placement of children with unfamiliar adults (Hanson, Adams & Koball, 2016). Finally, lack of transportation has been identified as a common barrier to participation in ECE among low-income and immigrant families (Greenberg, Adams, & Michie, 2016; Mendez, Crosby & Helms, 2016). Families who lack access to reliable transportation (e.g., vehicle ownership, dependable rides/carpools, access to high-functioning public transportation) are also less likely to be able to enroll their children in ECE (Mendez, Crosby & Helms, 2016).

Among undocumented immigrants, access to a car or public transit is often not the only barrier to transportation. Lacking legal opportunity to obtain a valid DL may further prevent undocumented caregivers from being able to transport age-eligible children to ECE programs. However, several states have passed legislation making it possible for undocumented immigrants to obtain DLs accepted within the state by mandating that the Department of Motor Vehicles (DMV) accept tax identification numbers (TINs), unexpired foreign passports, foreign consular cards, or federal electoral cards from other countries as valid forms of identification. To date, 12 states and Washington DC have expanded legal opportunities for DLs to undocumented

immigrants. The first state to pass a DL policy was Washington state in 1993 and the most recent state to do so was Hawaii in 2016 (the other states are California, Colorado, Connecticut, Delaware, Illinois, Maryland, New Mexico, Nevada, Utah, and Vermont) (see Appendix B).

**The Current Study**

Driver's license policies have been cited as potential barriers to ECE access in interviews with community members and leaders (Greenberg, Adams, & Michie, 2016; Karoly & Gonzalez, 2011). However, the association between DL policies and ECE enrollment for the children living in households with undocumented immigrants has not been empirically assessed. The aim of the current study was to examine whether access to DLs for undocumented immigrants is associated with enrollment in ECE among the children of immigrants using national data on ECE enrollment collected over the period of time during which DL policies have been implemented. It was expected that:

*H1: There would be higher rates of ECE participation in states that enacted policies expanding legal opportunities for DLs to undocumented immigrants compared to states that did not enact DL policies following policy enactment.*

*H2: Undocumented households that had access to a DL would be more likely to enroll children in ECE than undocumented households that did not have access to a DL in their state of residence above and beyond other important predictors of enrollment (e.g., household income, years in the US, whether the head of household is employed).*

Data were available to assess DL policies in Washington, New Mexico, Utah and California. A brief description of the nature of the policy passed and the sociopolitical context in each state during the time period in which the DL was passed and enacted is provided in Appendix D.

# CHAPTER 3

# METHODOLOGY

## Design and Sources of Data

The current study employed a cross-sectional, quasi-experimental design using publicly available, nationally representative data in order to assess the association between state-level access to DLs for undocumented immigrants and ECE enrollment rates among their three- to five-year-old children. Specifically, data were used from the United States Census Bureau's Survey of Income and Program Participation (SIPP), the National Conference of State Legislatures (NCSL), and the National Women's Law Center (NWLC).

*The Survey of Income and Program Participation (SIPP)* provided data on legal immigration status for sample identification, childcare use, and sociodemographic indicators and characteristics of the sample. The SIPP is a longitudinal survey that uses a multistage, stratified sampling technique to create panels (i.e., independent samples tracked over time) representative of the civilian, non-institutionalized U.S. population across all 50 states and the District of Columbia. Each SIPP panel is created by stratifying all U.S. cities and counties according to demographic and socioeconomic indicators and selecting housing units in proportion to the population of each stratum. The SIPP was designed to provide information on employment, income, poverty, eligibility for, and use of, public assistance programs. The SIPP was conducted annually (i.e., a new panel was created every year) by the

U.S. Census Bureau between 1984 and 1993. Since 1996 (i.e., the first administration of the SIPP after 1993), it has been conducted every three to four years, with one six-year gap between 2008 and 2014, when a redesign took place (see Appendix D for detailed SIPP sampling and methodology) (U.S. Census Bureau, 1998; 2016).

The SIPP is administered in the form of interviews with household members at several incremental time points (i.e., waves) throughout the duration of a panel. The SIPP survey includes core content (e.g., demographics, income, employment) administered at every wave, as well as approximately 20 modules (e.g., tax rebates, dependent care, child well-being, marital history) varying from wave to wave. Topical modules included both a childcare module and a migration history module. Items from the migration history module were used to identify the sample. The migration history module includes questions about the legal immigration status of respondents. It is the only nationally representative survey that asks about the legal immigration status of household members (U.S. Census Bureau, 1998; 2016). Items from the childcare module were used to create the dependent variable (i.e., state ECE enrollment rates). Participants and measures are discussed in detail in the following sections.

*The National Conference of State Legislatures' (NCSL)* database tracks state-level immigration policies across multiple domains including sanctuary laws, issuance and distribution of benefits to immigrants, education and employment, and health. One of the issues tracked by NCSL is the issuance and distribution of driver's licenses for undocumented immigrants in each state. The NCSL keeps a current list of states in which undocumented immigrants can legally be issued a driver's license, the date the

corresponding bill was passed, the date the policy became effective in the state and a brief summary of the bill. Additionally, the NCSL provides information about the mechanism by which undocumented immigrants are able to apply for driver's licenses in each state (e.g., the acceptance of tax identification numbers or foreign consulate cards as valid forms of identification by the Department of Motor Vehicles).

*The National Women's Law Center (NWLC)* database tracks policies and laws that influence the life outcomes of girls and women (www.nwlc.org). The NWLC reports annually on state-level policies concerning childcare assistance eligibility, issuance and distribution. The database consists of reports that provide the ratings of every state by year, on each of the access indicators tracked. Specifically, the organization tracks and rates all states each year on several important access indicators of childcare assistance such as the income eligibility cutoff to receive assistance, whether there is a waiting list for enrollment in childcare and the number of persons on the waiting list, and policies around work requirements to receive childcare assistance. Data were used to create a measure of the accessibility of childcare assistance by state for each year.

**Participants**

In order to carry out the current study, the 1996, 2001, 2004 and 2008 SIPP panels were used for analyses. The 2014 SIPP panel became available in March of 2017. However, it was excluded from analyses as the section of the SIPP that asks about legal immigration status was revised to include a less specific line of questioning for the 2014 panel. In addition, the panel consisted of just 232

undocumented households in the U.S. that reported information about childcare arrangements, making state-level estimates less reliable.

Panels from the 1996 - 2008 SIPP administrations consisted of 441,649 households ($N_{1996}$ = 108,579; $N_{2001}$ = 100,300; $N_{2004}$ = 124,241; $N_{2008}$ = 108,529). The final undocumented sample used for analyses consisted of 4,709 undocumented households with children between ages three and five ($N_{1996}$ = 750; $N_{2001}$ = 1,166; $N_{2004}$ = 1,437; $N_{2008}$ = 1,356). The size of the final undocumented sample was consistent with estimates of the proportion of the population that is undocumented with young children (1.00 - 1.25%) (Capps, Fix & Zong, 2016; Fortuny & Chaudry, 2009), and the proportion of the total U.S. population that is sampled by the SIPP (U.S. Census Bureau, 2014). The full sample of all households was retained in order to calculate one covariate, the percentage of non-citizen households in each state for each year.

In order to identify undocumented households, participant responses to the migration history module for all panels between 1996 and 2008 were used. The migration history module is administered once per SIPP panel (wave 2 for all panels between 1996 and 2008) and consisted of 24 items. The following three questions were asked of all foreign-born household members above age 15: (1) *Are you/Is (name of household member) a US citizen?* (yes, naturalized citizen = 1; no, not a citizen = 2), (2) W*hen you/(name of household member) moved to the US to live, what was your/their immigration status?* (family sponsored permanent resident, employment-based permanent resident, other permanent resident = 1, non-immigrant (e.g., student,

diplomat) = 2, other = 3), and (3) *Has your/their status been changed to permanent resident*? (yes = 1; no =2).

Based on practices utilized by the U.S. Census Bureau (2012) and the Migration Policy Institute (2013), undocumented immigrants were identified by retaining those who reported that they were not U.S. citizens, that they held some "other" status than family, employment or residential visas and non-immigrant classifications, and that they had not adjusted their status since arriving to the U.S. Once all households including undocumented members were identified, households that reported having at least one child between three- and five-years-old (i.e., the age when children typically attend ECE) were retained for analyses.

**Measures**

**Enrollment in ECE (Dependent Variable).** Enrollment in early care and education was the dependent variable. The childcare module of the SIPP includes approximately 50 questions per child for up to five children in the household. Respondents were asked '*During a typical week last month, please tell me if you used any of the following individuals or arrangements to look after [child name] on a regular basis (i.e., at least once per week during the past month).'* Options were: the child's other parent or stepparent, a brother or sister age 15 or older, a brother or sister under age 15, a grandparent, any other relative, a family daycare provider caring for two or more children outside of the home, a childcare or daycare center, a nursery or preschool, a federally supported Head Start program, or a non-relative such as a friend, neighbor, sitter, nanny, or aupair. Households in which the participant responded yes to any form of care outside of the home (i.e., family daycare, a

childcare or daycare center, a nursery or preschool, a federally supported Head Start program) for at least one child were coded affirmatively (yes=1). Households where no children had attended any form of care outside of the home were coded no (no=0).

For each state at each time point (1996, 2001, 2004, and 2008), an enrollment rate in ECE (occurring outside of the home) among undocumented households was calculated as the number of undocumented households in the state reporting that at least one child was enrolled in ECE outside of the home (i.e., family daycare, a childcare or daycare center, a nursery or preschool, a federally supported Head Start program) divided by the total number of undocumented households with three- to five-year-old children in the state.

**Legal Access to a DL (Independent Variable)**. Access to a driver's license for undocumented immigrants was the policy intervention of interest in the current study. The NCSL data base was accessed in order to obtain information about the availability of DLs for undocumented immigrants in each state. The NCSL's list of states that have expanded legal opportunities for DLs to undocumented immigrants contains only states with a policy that is currently active. Additional sources, such as state congressional records, were accessed to identify any DL policies that may have been enacted during the study period, but are not currently active. Each state was coded (yes=1; no=0) for whether a DL was available to undocumented immigrants for each panel year, meaning that each state was coded for DL access on four time points.

**Factors associated with ECE participation.**

Ten covariates found in past researcher to be associated with ECE participation were used in analyses. Nine were obtained from the SIPP and one was a composite

representing the accessibility of childcare assistance in each state created using data from the NWLC. All of the covariates were coded at a household level and then converted into state averages. Nine of the covariates were coded for undocumented households with three- to five-year-old children only. One covariate, the percentage of non-citizens in the state, was coded for all households.

***Covariates derived from the SIPP***. Covariates used for analyses from the SIPP were: the amount the household paid for ECE per week (USD), level of education of the household reference person (high school degree or higher=1; less than a high school degree=0), monthly household income (USD), time in the U.S. (with higher values representing a longer time in the U.S.), age of the household reference person (years), employment status of the household reference person (employed=1; unemployed=0), whether the household identified as Hispanic/Latino (yes=1; no=0), whether a language other than English was spoken in the home (yes=1; no=0), and whether the household was considered to be limited English proficiency (or linguistically isolated as it is labeled in some years of data collection) (all household members 14 and older speak English less than well=1; at least one household member speaks English well or better=0).

All covariates were converted into state averages by year. For example, using the binary coding of whether each undocumented household within a state identified as Hispanic/Latino, a state rate was computed as the number of undocumented households with three- to five-year-old children responding 'Yes' divided by the total number of undocumented households with three- to five-year-old children in that state. This process was carried out for all binary measures and for each year of data

collection resulting in an estimate of the state rate for each year (i.e., one estimate for each of the four time points). For the percentage of non-citizens in the state, the number of households with any member identifying as a non-citizen (regardless of legal immigration status) was divided by the total number of households in the state for each year of data collection. For continuous variables, an average of all households in the state was computed for each year of data collection.

***Covariate derived from the NWLC.*** The NWLC database was accessed in order to create a composite score indicative of the accessibility of childcare assistance within each state. The composite score of access to childcare assistance was created by assigning sores based on income eligibility limits, whether a waiting list to receive assistance existed, and whether the state had work requirements for applying and maintaining eligibility for assistance. A score was created for each state at each time point (1996, 2001, 2004, and 2008). Access scores ranged from one through five across states and years. The mean score across all years was 3.17 (*SD* = 0.40).

**Analytic Strategy**

The final sample of undocumented households with children between three and five was identified. Data were checked for completeness before computing the outcome variable and all covariates. Prior to other analyses, descriptive statistics were examined to assess for normality of the dependent variable (DV; ECE participation rate), and covariates. The aim of the present study was to examine the association between state policies expanding DL access to undocumented immigrants (IV) and ECE participation rates among children of undocumented immigrants (DV). ECE participation rates were assessed between states with and without DL policies and

within-states that enacted DL policies over time using synthetic control methods. The association between policies expanding DL access and ECE participation rates was also examined post-hoc using regression analyses and at the level of the household using a binary logistic regression. Each analysis is described in the sections that follow.

### Synthetic Control Methods for Assessing State Policies

Synthetic control methods (SCM) are used in research to estimate the potential effectiveness of policy interventions or historical events occurring at an aggregate level such as the community, state or country (Abadie, Diamond, & Hainmueller, 2011). Typically, in matched-control analyses, a target is compared to a control considered to be the best match based on some number of relevant indicators. The SCM improves upon these matched-control methods by allowing for the creation of a synthetic version of the target that consists of a weighted combination of all available controls. The SCM compiles pre-policy data from multiple controls on a set of covariates theorized to be associated with the DV. The SCM uses as many or as few of the available controls as is appropriate to best simulate pre-policy explanatory factors associated with the outcome of interest observed in the target (Abadie & Gardeazabal, 2003). The rationale of using multiple controls to create a synthetic control is that the most relevant and similar characteristics of several controls weighted based on their degree of similarity to the target will produce a better match to the target than any one control state could on its own (McClelland & Gault, 2017). The selected covariates are also weighted based on the strength of their relationship to the DV.

Once the synthetic control has been created through the optimal weighting of all available controls and covariates, pre-policy means of the observed levels of the covariates are used to assess the goodness of fit between the synthetic control and the target. A goodness of fit between the synthetic and the target, as indicated by a small mean square prediction error (MSPE), is an important assumption of the SCM. In general, an MSPE of less than 0.05 is acceptable (Abadie & Gardeazabal, 2003; McClelland & Gault, 2017). If the assumption is met, the levels of the DV observed in the target can be compared to those estimated for the synthetic control pre- and post-policy enactment. The DV is plotted over time as observed in the target and as it is estimated for the synthetic control. Percentage point gaps between levels of the DV observed in the target and estimated for the synthetic control are calculated at each timepoint by subtracting the value estimated for the synthetic from the value observed in the target.

Statistical inference is carried out through a series of placebo tests. In SCM, a placebo test refers to running the same model specified for the target but coding a control that did not experience a change to the policy as if the policy had been enacted (i.e., using the same coding parameters as used with the target; see Appendix F for full SCM code). Placebo tests can be run using one control, such as the highest weighted control in the synthetic. Ideally, however, placebo testing is conducted with multiple controls, and this process was carried out in the present study. It would be expected that any differences observed between the target and its synthetic would be unique when compared to placebo states and their synthetic controls. A complete description of synthetic control methods is provided in Appendix D.

### *SCM to Examine DL Policies in Relation to ECE*

To assess the association between expanding access to DLs to undocumented immigrants and state rates of ECE participation among their children, target states and a pool of potential control states were identified. The three target states for which SCM was used were: (1) New Mexico, which implemented a DL policy in 2003, (2) Utah, which implemented a DL policy in 2005, and (3) California, which passed a DL policy in 2004, but never enacted the policy. California was used as a comparative case to which results of New Mexico and Utah could be contrasted. The 26 control states were: Arizona, Colorado, Connecticut, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Texas, and Virginia. The remaining states were not included for a variety of data-related issues. States not included in analyses were: Alabama, Alaska, Hawaii, Mississippi, Missouri and Rhode Island (unreliable estimates based on a small number of households); Delaware, Oklahoma, New Hampshire, West Virginia, and Wisconsin (missing all four data points on at least one covariate); Nebraska, Montana, North Dakota, South Dakota, Maine, Vermont and Wyoming (individual state data were not available in the 1996 and 2001 SIPP panels for these states). Washington was also excluded from SCM because pre-policy data were not available, but it was assessed and this analysis is discussed in a following section.

Synthetic control models were conducted separately for New Mexico, Utah and California (i.e., target states). For each of these states, the pre- and post-policy time points were defined based on the year the DL policy was enacted in the state.

Then, an optimization process that determined the best combination of potential control states was run. All potential control states were weighted from 0.000 to 0.999. Any control state that was weighted at least 0.001 was retained as part of the synthetic control. The mean square prediction error (MSPE) was used as an indicator of the goodness of fit of the synthetic control to the target state based on pre-policy data. For the synthetic control, ECE participation rates were estimated for each time point based on weighted values of levels of the covariates and DV in states contributing to the synthetic.

The association between policies expanding access to DLs and ECE participation was examined in several ways. The rates of ECE enrollment for the target state and the synthetic control were plotted at each time point for visual comparison of levels of the DV post-policy. Gaps between observed values in the target state and estimated values of the synthetic control were calculated at each time point in order to examine numerical differences in ECE participation rates. In order to further assess results observed in target states, placebo tests were also carried. For each state contributing to the synthetic control (i.e., weighted at or above 0.001), the entire SCM process was repeated. That is, for each state identified, a synthetic control was determined from all other control states, the goodness of fit was examined, and estimates of ECE participation in the synthetic were compared to observed levels in the placebo state. Results of placebo tests were compared to New Mexico and Utah as a way to examine whether patterns observed in the target state were likely unique to that state. For purposes of the present study, California was assessed as a comparative case to contrast with New Mexico and Utah. Placebo tests were conducted for

California, too, however great caution was used in drawing inferences based on these tests.

### Washington State

Pre-policy data were not available to assess Washington using synthetic control methods. Therefore, in order to assess the association between DL access and ECE participation in Washington, regression analysis was used. Specifically, a dummy variable was created to compare Washington to all other states that did not enact DL policies between 1996 and 2008 (Washington = 1; all other control states = 0). Time, as a continuous variable, was also entered into the model with the rate of participation in ECE as the outcome variable. Variables found to be associated with ECE participation across the study period were entered into the regression.

### Household-Level ECE Participation: Binary Logistic Regression

In order to assess whether access to a DL is associated with an increased likelihood of ECE enrollment at a household level, a logistic regression was employed using ECE enrollment (1=yes, 0=no) as the outcome, DL availability (1=yes, 0=no) as the main predictor, and the same set of covariates known to be associated to ECE enrollment as used in prior analyses. The purpose of this analysis was to explore if DL availability is associated with ECE enrollment at a household rather than state level and if DL availability is predictive of ECE enrollment above and beyond variables indicative of the socioeconomic and demographic composition of households typically predictive of enrollment in ECE programs outside the home.

### DL Access and ECE Rates: Post-Hoc Regression Analyses

In order to further explore the potential association between DL access and ECE participation rates, post-hoc regression analyses using a difference-in-differences framework were conducted. Specifically, time (pre-policy = 0; post-policy = 1), DL access (yes = 1; no = 0), and the interaction between time and DL access were entered into a regression model with rate of ECE participation as the outcome variable. Variables found to be associated with ECE participation across the study period were entered into regressions. Separate regressions were run for New Mexico and Utah, the two states in which DL policies were enacted during the study timeframe.

# CHAPTER 4

# RESULTS

## Descriptive Statistics

Demographic information and characteristics of households included in the sample are presented in Table 1. The sample was comprised of 4,709 households with undocumented members that included children between three- and five-years-old. The sample represents 1.06% of total households in the 1996 through 2008 SIPP panels. On average, the sample reported having lived in the United States for approximately 7.5 years at the point of data collection, with the 2004 and 2008 samples reporting slightly longer time in the U.S. and the 2001 sample reporting slightly less time[9]. During the time period under study, 28% of undocumented households with children were located in just four states: California, Texas, New York, and Florida. All states had at least one household containing both undocumented members and children. Figure 1 provides a geographic representation of the distribution of households in the present study. States without values depicted represent states that were aggregated by the SIPP in sampling and could not be disaggregated to obtain individual state estimates (e.g., North Dakota, South Dakota and Wyoming were combined into one sampling unit for purposes of SIPP data collection).

Households were of moderate size, averaging just over 4 (*SD* = 2.18) household members. A majority of this sample identified as Hispanic or Latino (69%), and an additional 19% identified as Asian. Eighty two percent of household

[9] The 1996 SIPP survey did not ask respondents to report how long they had lived in the U.S.

members reported speaking a language other than English at home, and 9% reported being linguistically isolated (i.e., including no one over the age of 14 who speaks English well or very well). More than three-quarters of households in this sample reported using Spanish at home (77%) with the remaining households speaking Chinese, Mandarin or Cantonese (4.7%), Tagalog (3.3%), and other Asian languages (e.g., Japanese or Korean, 2.8%) (Table 1).

Table 2 provides education and employment characteristics of household reference persons (i.e., heads of household) and information about use of various forms of childcare. The majority of respondents (82%) reported having obtained a high school diploma *or less* with 35% completing a high school degree or equivalency. Almost an equal share of the sample reported having completed grade 8 or less (29%). A majority of heads of household were employed (72%), and the average monthly household income across the study period was $4,315 (*SD* = $1,646) and the median was $4,110. Heads of households reported being employed in all of the 322 industry areas represented in the SIPP, with the most frequent employment being in construction (13%) and in restaurants and other food services (8%).

**Participation in ECE among Children of Undocumented Immigrants**

Information about use of ECE and other care is reported in Table 2. Between 1996 and 2008, the ECE enrollment rate among three- to five-year-old children living in undocumented households in the U.S. ranged from 28% to 40% (*M*=0.32, *SD* = 0.12). The most commonly used form of ECE among undocumented households was childcare/daycare centers and preschools (14.5%). In contrast, the least commonly used form of ECE was federally funded Head Start programs (2.5%). In 7% of

households, the head of household reported caring for children at some point during the week. A larger percentage of households reported relying on other parents (25%), grandparents (17%) and other relatives such as siblings, aunts and uncles (13%) throughout the week to care for children.

In general, ECE participation rates were found to decrease over the time period examined in the present study. This held true when examining ECE participation among children of undocumented immigrants nationally, as well as for ECE participation rates observed within each state individually. The rate of ECE participation and covariates used in the synthetic control were examined for normality (see Appendix H, Table H1). The rate of ECE participation was normally distributed when analyzing all states across all years of data. An examination of covariates at the state level (i.e., the level at which covariates were used in synthetic control models) demonstrated that assumptions of normality were met.

**Association between DL Access and ECE Rates**

The purpose of the study was to examine the association between state-level policies that expanded legal opportunities for DLs to undocumented immigrants and the rate of participation in ECE among their children. It was expected that:

*H1: There would be higher rates of ECE participation in states that enacted policies expanding legal opportunities for DLs to undocumented immigrants compared to states that did not enact DL policies following policy enactment.*

In order to examine this hypothesis, synthetic control models were used. The optimal synthetic control that was determined for each target state is presented first, followed by the synthetic control models for New Mexico, Utah and California

separately. ECE participation rates over time were compared between each target state and its synthetic control, including the percent gap in ECE participation between rates in the target state and rates in its synthetic control, and results of placebo testing.

**Determination of Synthetic Controls**

The weights determined for all states that made up the synthetic control for each target state are presented in Table 3. The synthetic control for New Mexico consisted of Texas and Virginia, the two states weighted at least 0.0001. The synthetic control for Utah consisted of Arizona and Nevada, the two states weighed at least 0.0001. The synthetic control for California consisted of seven states weighted at least 0.0001. They were New York, Nevada, New Jersey, Arizona, Florida, Illinois and Georgia. All other states were weighted at 0.00.

Table 3 also provides the mean square prediction error (MSPE) calculated in order to assess the goodness of fit between each target state and its synthetic control. The MSPE calculated for each comparative case was below 0.05 (range: 0.0001 - 0.006), indicating a good fit between target states and their synthetic controls. Comparisons of the mean levels of covariates observed in each target state and estimated for synthetic controls are provided in Appendix I. The MSPE was also calculated to assess the goodness of fit between each placebo state and its synthetic control in the pre-policy period and these values are provided in Appendix J.

**New Mexico**

Figure 2 depicts ECE enrollment rates observed in New Mexico and estimated in the synthetic control for New Mexico (synthetic NM) between 1996 and 2008, with 2003 dividing the pre- and post-policy periods. As illustrated in Figure 2, overall,

observed rates of ECE participation in New Mexico and rates estimated for synthetic NM declined over the study period. When comparing New Mexico to synthetic NM in the pre-policy period, rates of ECE participation were slightly higher in New Mexico in 1996, with participation rates in New Mexico declining more rapidly and dropping below rates estimated in synthetic NM after 2001. In the post-policy period, ECE participation rates increased in New Mexico, while estimated rates of participation in synthetic NM continued to decline. Table 4 provides the corresponding numeric values of ECE participation in New Mexico and those estimated for synthetic NM at each time point.

Results of placebo tests using Texas and Virginia, the states making up synthetic NM, are presented in Figures 2a and 2b. Rates of ECE participation in Texas and Virginia and estimated participation rates in their synthetic controls all followed a similar trajectory. In contrast to New Mexico, rates decreased gradually over the pre- and post-policy periods. Table 5 provides the corresponding numeric values of ECE participation in Texas and Virginia and those estimated for their synthetic controls at each time point.

**Utah**

Figure 3 depicts ECE enrollment rates observed in Utah and estimated in the synthetic control state for Utah (synthetic UT) between 1996 and 2008, with 2005 dividing the pre- and post-policy periods. As illustrated in Figure 3, overall ECE participation rates observed in Utah and estimated for synthetic UT decreased over the study period. When comparing Utah to synthetic UT, rates of ECE participation were higher in Utah in 1996, but sharply decreased falling below rates estimated for

synthetic UT by 2001. Following 2001, participation rates gradually increased in both Utah and synthetic UT. In the post-policy period, rates in Utah continued to increase, while rates estimated for synthetic UT decreased. Table 6 provides the corresponding numeric values of ECE participation in Utah and those estimated for synthetic UT at each time point.

Results of placebo tests using Arizona and Nevada, the states making up synthetic UT, are presented in Figures 3a and 3b. Rates of ECE participation in Arizona and Nevada and estimated participation rates in their synthetic controls all followed similar trajectories. While all units were observed or estimated to increase after 2001, Utah was the only unit that increased in the post-policy period. Table 7 provides the corresponding numeric values of ECE participation in Arizona and Nevada and those estimated for their synthetic controls at each time point.

**California: A Comparative Case**

In order to examine a counterfactual case to New Mexico and Utah, in which conditions were in place to pass a DL policy, but the policy never went into effect, California was examined. Figure 4 depicts ECE enrollment rates observed in California and estimated in synthetic CA between 1996 and 2008, with 2004 dividing the pre-policy period and what would have been the post-policy period had the policy been enacted. As illustrated in Figure 4, overall, ECE participation rates observed in California and estimated for synthetic CA declined, with a slightly steeper decrease between 1996 and 2001 and a fairly stable rate of participation over the remainder of the study period. In what would have been the post-policy period, observed participation rates in California and estimated for synthetic CA were almost identical

and remained relatively unchanged. Table 8 provides the corresponding numeric values of ECE participation in California and those estimated for synthetic CA at each time point.

Results of California's placebo tests must be interpreted with caution as California was intended to serve as a placebo test itself and no policy change actually took place. Results of placebo tests using New York, Nevada, New Jersey, Florida, Georgia, Arizona and Illinois, the states making up synthetic CA, are presented in Figures 4a through 4f. Table 9 provides the corresponding numeric values of ECE participation in all placebo states and their synthetic controls at each time point.

**DL Access and ECE Rates in Washington State**

Washington state enacted its DL policy in 1993, regression analysis was used to examine the influence of access to a DL for undocumented immigrants on rates of ECE participation in Washington compared to rates in untreated states controlling for significant predictors of ECE. Results are presented in Table 10. In addition, ECE rates observed in Washington and plotted in comparison to the average of all other control states are illustrated in Figure 5.

Results indicated that the overall model was significant, accounting for 27% of the variance (Adjusted $R^2 = .27$, $F(5, 164) = 13.64$, $p < .001$). Higher percentage of non-citizens, and percentage Hispanic or Latino were associated with lower rates of ECE use among undocumented immigrants with children. Access to a DL was not associated with higher rates of participation in ECE. Time was significantly associated with use of ECE, with lower rates of ECE participation over time.

**Household ECE Enrollment**

*H2: Undocumented households that had access to a DL would be more likely to enroll children in ECE than undocumented households that did not have access to a DL in their state of residence above and beyond other important predictors of enrollment (e.g., household income, years in the US, whether the head of household is employed).*

In order to assess the association between DL access and ECE participation at the level of the household, binary logistic regression was conducted using all undocumented households with children age three to five in the 2008 panel. The 2008 panel was used because the greatest number of states had passed a DL policy at this point. The dependent variable was household ECE enrollment, with all households that reported having at least one child enrolled in ECE coded yes = 1, and all households where no children were attending ECE coded no = 0. The same predictors used in synthetic control models were used at a household-level in this analysis.

Results are presented in Table 11. The overall model was significant, Wald $X^2$ (5) = 506.83, $p$ <.001. Living in a state with access to a DL for undocumented immigrants was not significantly associated with the likelihood of having a child enrolled in ECE. Linguistic isolation, Hispanic/Latino origin, and an unemployed household reference person were all associated with a decreased likelihood of ECE enrollment. In addition, household reference persons having at least a high school diploma and households having higher incomes had an increased likelihood of a child enrolled in ECE.

**Post-Hoc Analyses of State-level DL Access and ECE Participation**

In order to evaluate the association between DL access and ECE participation using a more conventional analysis that included significance testing, regression analyses using a difference-in-differences framework were conducted. DL access (yes/no), time (pre/post policy) and the interaction between DL access and time were entered into the regression model along with the percentage of Hispanic or Latino households and the percentage non-citizens in the state. Data from New Mexico and Utah were examined compared to untreated states controlling for significant predictors of ECE.

In New Mexico, results indicated that the overall model was significant, accounting for 24% of the variance (Adjusted $R^2$ = .24, $F(5, 164) = 11.72$, $p < .001$) (see Table 13). Higher percentage of non-citizens ($\beta$ = -0.49, $SE$ = 0.13, $p<.001$), and percentage Hispanic or Latino ($\beta$ = -0.08, $SE$ = 0.02, $p>.001$) were both associated with lower rates of ECE participation among undocumented immigrants with children. Time was associated with use of ECE ($\beta$ = -0.07, $SE$ = 0.02, $p <.001$), with lower rates of ECE participation over time. The interaction between time and access was not significant ($\beta$ = -0.17, $SE$ = 0.09, p=.07).

In Utah, results indicated that the overall model was significant, accounting for 18% of the variance (Adjusted $R^2$ = .18, $F(5, 164) = 8.59$, $p < .001$) (see Table 16). Higher percentage of non-citizens ($\beta$ = -0.38, $SE$ = 0.13, $p<.01$), and percentage Hispanic or Latino ($\beta$ = -0.09, $SE$ = 0.02, $p>.001$) were associated with lower rates of ECE participation among undocumented immigrants with children. Time was associated with use of ECE ($\beta$ = -0.05, $SE$ = 0.02, $p <.01$), with lower rates of ECE

participation over time. The interaction between time and access was not significant ($\beta$ = -0.03, *SE* = 0.12).

# CHAPTER 5

## DISCUSSION

The aim of the current study was to examine of the association between state policies that expand legal opportunities for drivers' licenses to undocumented immigrants and ECE participation among their three- to five-year-old children. Using several different methodologies, the present study assessed rates of participation in ECE between states with and without policy changes, within states that passed DL policies before and after policy changes, and in one state in which policy changes were never enacted. Access to DLs and ECE participation was also examined across all states at the level of the household. Overall, results revealed small but consistent differences between the patterns of ECE participation in states that enacted DL policies (i.e., New Mexico, Utah, and Washington), and those that did not, with ECE participation rates higher in states with DL access as compared to those without post-policy. Each of these findings will be discussed in further detail below.

### State-Level DL Access and ECE Participation

In line with hypotheses, ECE participation rates in the states under study all point to increases relative to control states post policy implementation. In interpreting these findings, it is important to understand the context in which the DL policies were adopted/enacted. One argument suggests that the states that pass DL policies

favorable to immigrants may in fact be states that are much more likely to favor other "pro" immigrant policies (Filindra, 2013). In that case, one might argue that it was the overall environment within a state that passed favorable DL policies that is responsible for the increased participation rates observed, rather than the DL policy per se. Analysis of our findings from New Mexico and Utah, based on state characteristics shed some light on this possibility. In both New Mexico and Utah, participation rates increased after policy changes compared to similar states without policy changes. This was true, despite vastly different situations under which the DL policies were enacted. In New Mexico, for example, the DL policy had wide support likely due in part to the fact that nearly half of the total population in the state identified as Hispanic or Latino during that time period (United States Census Bureau, 2014). Additionally, a prominent immigrant rights group, *Somos un Pueblo Unido,* advocated in support of the policy. At the time the policy was passed, New Mexico had a consistently Democratic-controlled government, which has been associated with an increased likelihood of expansive immigrant policy (NCSL, 2016).

In contrast, Utah was a Republican-controlled state with a small Hispanic or Latino population (NCSL, 2015). Expanding legal access to DLs to undocumented immigrants was endorsed as an issue of public safety and in an effort to ensure that all drivers were insured (Katz, 2007). Additionally, when California passed its legislation, it California had a Democratic-controlled legislature (NCSL, 2015) and nearly one-third of the total population was Hispanic or Latino, with over 5 million Hispanics estimated to be eligible to vote in 2005. While the conditions were ripe for California to pass DL legislation, due to changes at the federal level, policies were not

implemented. The same post-policy increases observed in New Mexico and Utah, were not observed in California, nor were ECE rates in California observed to be higher than rates in similar states. While political climate may certainly play a role in both immigrant access and participation in ECE among undocumented families, the finding that despite vastly different climates, ECE participation rates in both states increased after the DL policy enactment (and in contrast to non-DL states), lends support for the role that the actual policy may have contributed.

Another consideration when interpreting the findings is the degree to which access to a DL, per se, is what matters to the immigrant household. Advocates of driver's license access for undocumented immigrants have identified a variety of reasons for their importance. In its most basic form, a DL is considered to increase the likelihood that a driver has passed a test, possesses a fair amount of driving knowledge and aptitude, and also increases the likelihood of being insured (Johnson, 2004; Mounts, 2003). In addition, others have pointed to the fact that a DL provides an official documentation of identity that serves a wide range of purposes beyond the legal privilege to drive, such as proving residency or home address (Johnson, 2004). Furthermore, DL policies may provide secondary benefits including a greater sense of community and belonging, acceptance, and membership – all of which serve to decrease psychological distress and loneliness (Yoshikawa, Godfrey, & Rivera, 2008), reduce anxiety around driving and interacting with members of the community (White Yeager, Menachemi & Scarinci, 2014), and increase the likelihood of attending health appointments (Toomey, Umaña-Taylor, Williams, Harvey-Mendoza, Jahromi & Updegraff, 2014). In Utah, the DL policy limited its use solely for driving, while in

New Mexico, the license served more generally as a form of identity. The DL granted to undocumented immigrants in Utah displays a large, red 'P' to indicate that the card is a driving privilege card only, while the DL in New Mexico is identical to DLs granted to LPRs and citizens. While it is likely that the benefits of DL access extend beyond providing access to transportation to include being able to prove one's identity, having proof of residency in a state, and the ability to engage in the community with less fear or anxiety (Toomey et al., 2015), our findings suggest unique benefits associated specifically with the ability to drive legally.

The findings presented here, while preliminary, have important implications for states as they consider such policies. While advocates often push hard for the most liberal policies surrounding DLs (e.g., identical to citizen DL, ability to serve as identification, etc.) (Johnson, 2004), even DL policies that are restrictive in nature, like that of Utah, can provide important benefits to children and families. Twelve states and Washington DC have now enacted DL policies, which vary in stringency of criteria for applying, renewal frequency and procedures, and the degree to which the DL may indicate the legal immigration of the DL holder (see Appendix B for DL policies by state). Future research that explores variation in ECE participation rates and other important outcomes for children in relation to DL policy specifics would greatly contribute to our understanding of DL access.

It is notable that ECE participation rates were generally found to decline over the time period under study. Based on SIPP data, among children of undocumented immigrants as well as children of immigrants regardless of legal status, ECE participation decreased (e.g., from 40% in 1996 to 28% in 2008). Among children

with native-born parents in the SIPP sample, rates remained slightly higher and more stable over the time period under study. Our findings showing slight increases, despite this overall trend in declining rates among children of immigrants is further evidence of the potential effectiveness of DL policies for undocumented caregivers and their children. It may well be that DL access serves as a small but reliable buffer even in contexts that otherwise adverse for ECE participation.

**Contextualizing the findings: 1996 - 2008**

The results of the current study point to DL access as a facilitator of ECE participation for children. Though ECE participation rates were observed to be higher in states with DL access compared to states without, differences observed were small and should be interpreted within the time frame under study. Throughout this time period (1996-2008) ECE rates fairly steadily declined, and this was true for children of undocumented immigrants, as well as children of all immigrants. One question to consider is what factors contributed to this decline, and how might these factors during this time also have contributed to the findings presented here? Additionally, how generalizable are the findings with data from such few states? Furthermore, the increases observed in each case occurred toward the end of the period under observation. An additional question is whether following these trends further out in time (i.e., beyond 2008) might provide more compelling evidence in support of the findings.

The beginning of the period under study (i.e., 1996) coincided with a number of federal policies universally considered to have negative consequences for immigrant populations in general and in particular for undocumented immigrants

(Ybarra, Sanchez, & Sanchez, 2016). Specifically, the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) created new criteria for inadmissibility to and removal from the U.S. by expanding the definition of "aggravated felonies" (i.e., criminal acts that carry severe consequences for immigrants such as loss of access to visas, legal permanent resident status, citizenship, asylum and avoidance of deportation procedures (USDHS, 2017$_b$). The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) made even most LPRs ineligible for means-tested public benefit programs for five years after obtaining a green card (Zimmerman & Fix, 1997). The third policy, the Anti-Terrorism and Effective Death Penalty Act, allowed the detention and deportation of non-U.S. citizens on the basis of evidence that neither the accused immigrant nor their lawyer were permitted to see, and made it more difficult to be granted asylum (Massey & Pren, 2012). These policies were in large part driven by a high level of anti-immigrant sentiment of the time coinciding with rapid increases in legal and unauthorized immigration throughout the late 1990s and early 2000's (Krogstad, Passel & Cohn, 2017). Policies enacted in 1996 also further drove increased removals and deportations and reinforced the public perception of immigration as a problem (Massey & Pren, 2012). Though beyond the scope of the present study to examine these policies in depth, it is possible that the relatively large drop in ECE participation observed after 1996 was at least driven in part by this overarching anti-immigrant sentiment.

With the terrorist attacks of 9/11, the U.S. government implemented additional law enforcement measures, some of which explicitly targeted certain nationalities (Ewing, 2012). Specifically, around this time, states began entering into 287 (g)

memoranda of agreement with the federal government which allowed state and local municipalities to enforce federal immigration law at the local level. This increase in internal enforcement was widely considered to have the most dramatic effects on the immigrant community in terms of decreased trust in police, neighbors, agencies and less willingness to leave the house when unnecessary (Johnson, 2002). Further, the USA PATRIOT Act in 2001strengthened enforcement at the border and in 2002, the Enhanced Border Security and Visa Entry Reform Act was implemented. The latter included new procedures for the review of visa applications and required entry documents to be machine-readable, tamper-resistant, and mandated that travel documents include biometric identifiers (USDHS, 2002).

Additionally, in 2005, the REAL ID Act mandated that states put in place a system to retain and store biometric data linked to databases of the FBI and of Immigration and Customs Enforcement (ICE) (U.S. Department of Homeland Security, 2017$_a$). Finally, in 2006, congress passed the Secure Fence Act, which called for an additional 850 miles of fencing to be built along the U.S. – Mexico border (Ewing, 2012). With increased internal enforcement (e.g., 287 (g)) and border enforcement, removals increased to approximately 400,000 annually by 2009 (DHS, 2017), and anti-immigrant sentiment further increased (Chishti & Bergeron, 2011). The vast majority of persons removed as part of increased enforcement efforts after 9/11 were of Mexican descent (72%) (Massey & Pren, 2012), which was generally associated with an increased fear of government, a greater number of family separations, and general "hunkering down" of immigrant families in the U.S. (Marcuse, 2006). Specifically, qualitative research carried out in immigrant

communities has suggested that government responses after 9/11 were associated with increased fear of deportation, heightened stress, decreased trust in community institutions, concerns about furnishing paperwork for health insurance, and restricted access to healthcare services (Hacker et al., 2011). It would not be surprising then, to find an association between these same responses and reductions in ECE participation among immigrant households.

Anti-immigrant sentiment not only increased due to enforcement-focused policy that framed immigration as a matter of national security, but also in the wake of increasing economic disparity and high rates of unemployment. General economic recession and increased unemployment are strong predictors of increased anti-immigrant sentiment (Ybarra, Sanchez & Sanchez, 2016), and of ECE participation (Kalil, 2013; Kongar & Berick, 2014). The years leading up to the Great Recession in 2008 (the last year for which we had data) included increased unemployment, widespread under-employment, depressed wages and growing negative public attitudes. While beyond the scope of this study, an examination of these factors cannot be overlooked in interpreting ECE participation rates during this time. Alternatively, it is important to note that increased ECE rates in states with DL access were observed despite high levels of anti-immigrant sentiment, worsening economic conditions and nationally declining ECE rates as compared to matched control states exposed to the same national trends. What is certain is that a range of sociopolitical and contextual factors contribute to ECE rates and the effectiveness of any single policy cannot be evaluated separate from this larger context.

**Household-Level DL Access and ECE Participation**

The primary aim of the present study was to examine DL access and ECE participation in aggregate at the state level and findings provided support for initial hypotheses. The secondary analysis examined ECE participation at the level of the household and was not supported. DL access, above and beyond characteristics of households and household members, was not associated with ECE participation. The absence of an association is not surprising, especially in light of the overall decline in ECE participation over time, and the well-established associations between household characteristics such as income, employment status, parental education and identification as Hispanic or Latino and ECE participation. Additionally, the SIPP does not ask respondents to report on whether household members actually have a DL. The DL access variable used in this analysis was based on the state in which the household was located and the year of data collection. The exploration of alternative sources of data and analytical methods might allow for more nuanced examination of DL access and ECE participation. Additionally, household level data could be collected to more directly link DL issuance to ECE participation of children. Households that did not apply for a DL could also be surveyed to understand barriers, potential policy specifics that deter or restrict undocumented immigrants from accessing DLs, and ideas they may have for making the process more feasible.

**Strengths of the Present Study**

A major strength of the present study was the use of nationally representative, publicly available data from the SIPP. The SIPP is the only nationally representative survey that specifically asks respondents about the legal immigration status of all household members over the age of 15 (U.S. Census Bureau, 1998; 2016). As a result,

identification of the undocumented population in the present study was more accurate than other studies which have had to rely on more distal proxies of legal status (e.g., using all foreign-born, Hispanic, males within a certain age range, who qualify for specific government programs or benefits but have never participated) (Capps, Bachmeier, Fix & Van Hook, 2013). While the sample identified in the present study likely underestimated the total number of undocumented households, due to the highly sensitive nature of such disclosures, the SIPP provided a higher degree of reliability than methods used in past studies.

A second strength of the current study was its use of synthetic controls composed of weighted donor states that best replicates pre-policy conditions in the state of interest. The synthetic control method uses an optimization technique that considers all possible combinations of all donor states in order to create a synthetic version of each target state. It would be impossible to compare each target state to a perfectly matched control (i.e., the target state without the policy or intervention of interest), but the synthetic control method provides the most appropriate process by which to explore estimated rates of ECE participation between target and control states. The synthetic control method allows researchers to examine the degree to which the target state and its synthetic are similar (Diamond & Hainmueller, 2015). Studies utilizing synthetic control methods often focus on just one target state or unit. The present study was able to assess four target states. The policy specifics for each of the target states assessed varied and provided for more nuanced interpretations to be made.

Another strength of the present study is its timeliness. In the absence of comprehensive immigration reform at the federal level for over 30 years, it has fallen upon the states to determine how to address large and growing immigrant populations of all legal statuses including undocumented immigrants. The issuance of driver's licenses has long been in the purview of states and with 12 states having already implemented such policies, enactment would appear to be highly feasible in a wide range of settings. Results of the present study can serve as impetus for future studies to validate the association between DL access and ECE participation with the goal of informing state-level policy decisions. In our own state of Rhode Island, a similar policy has been brought to public hearing for debate several times over the past few years. It is possible that these findings could be used in support of passing such a policy in Rhode Island and in other states in the U.S. currently engaged in the same debate.

**Limitations of the Current Study**

The present study was not without limitations. One limitation is that between 1996 and 2008, new SIPP panels were initiated every three to five years, limiting the number of time points that could be used for analyses to four. In synthetic control methods, the use of a greater number of time points is preferred, particularly the inclusion of pre-policy time points (McClelland & Gault, 2017). The present study proposed to use data from 2014 that became available in 2017. This would have allowed for the analysis of four additional states (Vermont, Nevada, Maryland, and Illinois), however, preliminary analyses of the 2014 SIPP panel revealed the sample size of undocumented households that reported use of ECE and childcare was too

small for reliable state-level estimates. Just 516 households with undocumented members were identified and only 232 households reported on use of ECE. This meant that for most states, there were four or less households that would have been included in the final sample. It is unclear as to why the 2014 panel differed so drastically from prior SIPP panels. It could have been that heads of household were less willing to report on immigration status during this time. It could have been a flaw of the redesign of SIPP procedures. However, regardless of the cause, estimates of state-level ECE participation were unreliable and could not be used.

Another limitation of the present study was that available data sources lacked any indicator of an undocumented household's actual use of and access to DLs when DLs became available in the state. The present study had no way to validate whether respondents held a valid DL and relied upon the assumption that when DLs became available, at least some of the households in the sample obtained DLs. Undocumented immigrants face many barriers to accessing government services and programs and could be deterred from actually obtaining a DL in many ways (e.g., financial considerations of driver's education and associated DL fees, language barriers, lack of trust in government, knowledge of processes). However, data and anecdotal evidence from New Mexico and Utah have suggested that thousands of undocumented immigrants have taken advantage of obtaining a DL in each state since the opportunity has become available. This is evidenced by DMV statistics and reports of long lines when DLs become available in a state, as well as declining rates of uninsured drivers in the state (Attanasio, 2015; Davidson, 2014; New Mexico Department of Motor Vehicles, 2016).

The use of synthetic control methods, though fitting for the nature of the research question, was not without limitations. The synthetic control method relies on placebo tests as a reference of comparison. If the posttreatment difference between the target state and its synthetic is larger than the differences observed between placebo states and their synthetics, there is evidence of a policy effect, but evidence of differences should be treated as suggestive and not as a rejection of the null hypothesis (McClelland & Gault, 2017). The utility of hypothesis testing based on placebo tests has been called into question, (Ferman & Pinto, 2016; Hahn & Shi, 2016), however, these authors also point out that a graphical comparison of the target state and its synthetic and all placebos and their corresponding synthetic controls still provides information that is useful in evaluating the potential effectiveness of the policy, regardless of statistical significance testing. That is to say, results from the current study should be considered and discussed in terms of the potential effectiveness of the policy rather than as clear evidence of an effective or ineffective policy (McClelland & Gault, 2017).

**Future Directions**

Results from the present study provide preliminary evidence that expanding legal opportunities for DLs to undocumented immigrants may have the potential to increase ECE participation among children of undocumented immigrants and invites several lines of future research. Evaluating more states across a wider span of time would provide more information in determining the association between access to DLs for undocumented immigrants and enrollment in ECE programs among their children. Since 2008, nine states have enacted policies making DLs available to undocumented

immigrants. It would also be useful to explore outcomes within a state that has removed access to a DL. Colorado, for example, is one state that would be very informative to analyze as it enacted a DL policy in 2014, but since then, the program has not received adequate funding and DLs that were issued initially have expired without mechanisms for undocumented immigrants to renew (Escalante, 2015).

Research that aims to explore the influence of DL policies within state contexts would be especially helpful in informing future state legislation. One potential area of investigation would be to explore individual level data within states that have expanded legal opportunities for DLs to undocumented immigrants. Of particular interest would be evaluations that combine quantitative measures of obtaining DLs among undocumented immigrants, and rates of ECE enrollment, with qualitative interviews with undocumented residents. Interview topics could include obstacles to obtaining a DL and if and how access to a valid DL has influenced daily life for the licensee and their household members.

Though ECE participation would be most relevant in terms of the present study, surveys or interviews carried out with undocumented immigrants who have legally obtained a DL could also provide valuable information about other outcomes to explore, such as access to housing, bank accounts, healthcare and employment. Future studies may also aim to explore how DL access influences interactions with local police, as not have a DL has been associated with increased fear of reporting crimes to police (Nguyen & Hill, 2016). Based on past research that fear of driving without a license is associated with missed healthcare appointments for parents and children (Ayon, 2008; Hacker, Chu, Leung et al., 2011; Toomey, Umana-Taylor,

Williams, Harvey-Mendoza, Jahromi & Updegraff, 2014), future research should aim to explore the association of access to a DL for undocumented immigrants and health outcomes among undocumented immigrants and their children. Health outcomes could include attending annual or biannual appointments as well as indicators of physical health. Importantly, mental health outcomes should not be neglected, as fear of driving without a DL has been associated with psychological distress (Yoshikawa, Godfrey & Rivera, 2008) and heightened anxiety around driving for tasks of daily living (e.g., food shopping) in communities with increased immigration enforcement (White Yeager, Menachemi & Scarinci, 2014).

Exploration of the mechanisms by which DL access facilitates participation in ECE and how the association between DL access and ECE enrollment may be moderated by the state, other active policies, DL policy specifics, or the ethnicity of undocumented immigrants, for example, should be explored. Understanding if it is through the legal ability to drive, an increased trust in government, increased rates of employment, simply having a valid form of identification that proves residency, or by other mechanisms will be important information in developing policy, and in further understanding the challenges and barriers associated with being undocumented. Characteristics of the undocumented population are also important to consider. Asian immigrants are the fastest growing group of immigrants in the U.S., it will be important to explore the association of DL access and ECE participation among different ethnic groups of immigrants.

Finally, research has shown that the benefits of ECE extend well into the future. Children who participate in ECE have better outcomes in terms of educational

achievement but also lower rates of special education placements, fewer teen pregnancies, lower rates of incarceration, and higher earnings in adulthood (Pinto, Heckman & Moon, 2010). Implicit in these findings are cost savings associated with these long-term outcomes. Future research on DL access could examine the potential costs savings as a function of increased participation rates in early care and education using predictive modeling to assess the economic benefit associated with the cost of enacting a DL policy. Using a cost-benefit analysis of implementing a DL policy to increase rates of ECE participation would provide more accurate measures of the social and educational outcomes for children of undocumented immigrants.

**Conclusion**

It is estimated that there are approximately 11 million undocumented immigrants and nearly 6.6 million mixed-status households in the U.S. (Migration Policy Institute, 2014; United States Census Bureau, 2016). It is also estimated that 4.5 million U.S. - born children have undocumented parents (Passel & Cohn, 2012). Adding to the size of this population are children that were not born in the U.S. and brought here by undocumented parents and children living with undocumented caregivers who are not the child's parent. While the need for comprehensive immigration reform (CIR) is well recognized regardless of political affiliation or ideology (Wasem, 2013), within the current political climate it is unlikely to pass anytime soon (Curry & Lee, 2017). However, a CIR bill has not been passed in over 30 years, and apart from an increase in the total number of visas allocated per year, the family visa and skills-based visa systems have remained untouched for over 50 years. Though CIR at the federal level that takes into account bilateral immigration needs including, migratory trends and

demand from other countries for immigration to the U.S., U.S. labor needs, and that addresses undocumented immigrants currently living in the U.S., would be the most efficient approach, sharp divisions in Congress about the specifics of CIR have stalled the process.

Lacking federal reform, states may look to invest in cost-effective programs and policies that address immigration and immigrants in their communities. Research has demonstrated that access to transportation is particularly salient among undocumented immigrants (Hanson, Adams & Koball, 2016), and that it has implications for access to resources, services and programs across multiple domains, including access to ECE (Greenberg, Adams & Michie, 2016; Puma et al., 2010). Providing public transportation to ECE may not be feasible, particularly if it were to fall upon states to fund, however expanding eligibility criteria for DLs may be more realistic. Twelve states and Washington DC have already enacted policies that expand opportunities for legal DLs to undocumented immigrants and many other states, have considered similar policies (NCSL, 2018). For example, Hawaii and Delaware both began issuing DLs in 2016 – the latest states to enact DL policies. In the same year, Rhode Island introduced legislation in its Senate and House, but both bills were held for further study. Massachusetts simultaneously considered one bill that would have allowed undocumented immigrants to obtain DLs and another bill that would require DL applicants to prove legal status, ultimately using language from the latter in their 2017 budget and prohibiting undocumented immigrants from obtaining DLs (Hunter & Mathay, 2016). Bills similar to those in New Mexico, Utah and Washington have also been considered in Nebraska and Georgia specifically for DACA recipients, Florida,

North Carolina for public safety purposes, and New Jersey where the Governor declared it ‘dead on arrival’ (Escalante, 2015).

It is well established that children of immigrants participate in ECE at lower rates than their peers with citizen caregivers (Karoly & Gonzalez, 2011), and data used for the present study demonstrated similar patterns in participation. We also know that participation in ECE is associated with short-term benefits such as increased school readiness, language and mathematics skills (Karoly & Gonzalez, 2011), and longer term benefits including higher educational attainment and earnings and lower likelihood of incarceration (Deming, 2009; Winship & Grannis, 2013). These associations hold true for all children, but are even stronger among children from socially disadvantaged backgrounds, including children of immigrants (Puma et al., 2010: Yoshikawa et al., 2013). Thus, the promotion of policies that have the potential to reduce barriers and improve access to ECE for vulnerable populations, such as DL access for undocumented immigrants, merits ongoing evaluation.

## TABLES AND FIGURES

Table 1

*Characteristics of Households with Undocumented Members and Children in the United States in the present study sample*

| | *N* | *M* | *SD* | % |
|---|---|---|---|---|
| Total Households | 4,709 | | | |
| 1996 | 750 | | | |
| 2001 | 1,166 | | | |
| 2004 | 1,437 | | | |
| 2008 | 1,356 | | | |
| Time in the United States (Years) | | 7.5 | 2.20 | |
| Number of people living in household | | 4.27 | 2.18 | |
| Age of head of household (years) | | 32.61 | 5.59 | |
| Household monthly income (USD $) | | 4,314.54 | 1,646.00 | |
| 1996 | | 3,415.08 | 1,404.67 | |
| 2001 | | 4,571.78 | 1,610.13 | |
| 2004 | | 4,258.08 | 1,824.15 | |
| 2008 | | 4,853.93 | 1,473.05 | |
| Households identifying as White alone (%) | | | | 68 |
| Households identifying as Black alone (%) | | | | 10 |
| Households identifying as Hispanic or Latino (%) | | | | 69 |
| Households identifying as Asian (%) | | | | 19 |
| Speak Language other than English at home (%) | | | | 82 |
| Spanish | | | | 78 |
| Chinese, Mandarin, Cantonese | | | | 5 |
| Tagalog | | | | 3.33 |
| Other Asian languages | | | | 2.75 |
| French (Creole included) | | | | 2.08 |
| Vietnamese | | | | 1 |
| Households linguistically isolated (%) | | | | 9 |

*Note*. All data presented in Table 1 are estimates based on the 1996 - 2008 Survey of Income and Program Participation (SIPP)

Table 2

*Caregiver Education, Employment, and Use of ECE in the Present Study Sample*

| | % |
|---|---|
| Head of household has HS diploma or less (%) | 83 |
| Completed grade 8 or less | 29 |
| Completed some high school | 19 |
| Completed high school diploma or equivalency | 34.5 |
| Head of household is employed (%) | 72 |
| Construction | 13 |
| Restaurant / other food services | 10 |
| Services to buildings / dwellings (e.g., housekeeping) | 3 |
| Colleges and universities | 3 |
| Landscaping services | 3 |
| Traveler accommodations (e.g., hotel shuttle service) | 2 |
| Computer systems / design | 1.5 |
| Households reporting ECE participation (%) | 32 |
| Childcare or daycare center | 14.5 |
| Preschool or nursery school | 8.6 |
| Family daycare | 6 |
| Federally funded Head Start program | 2.5 |
| Other parent cared for child (%) | 25 |
| Grandparent cared for child (%) | 17 |
| Other relative cared for child (%) | 13 |

*Note*. All data presented in Table 1 are estimates based on the 1996 - 2008 Survey of Income and Program Participation (SIPP) administered by the U.S. Census Bureau

**Figure 1. Undocumented Households with 3 to 5-Year-Old Children by State**

The distribution of undocumented households with 3 to 5 year old children as captured by the Survey of Income and Program Participation (SIPP).

Circles represent the average number of households identified across the 1996, 2001, 2004 and 2008 SIPP Panels, with larger circles indicative of a greater number of households in the state.

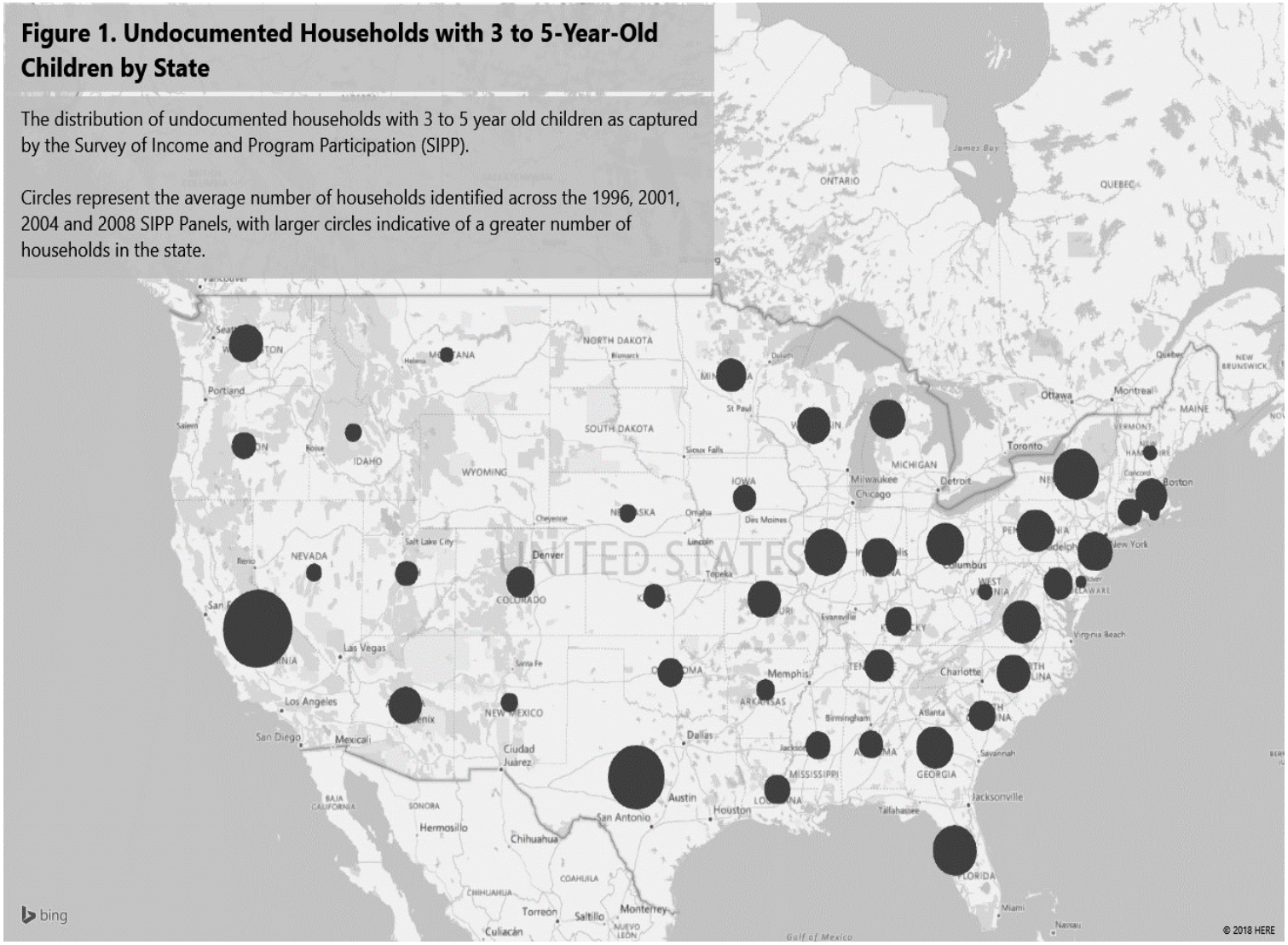


Table 3

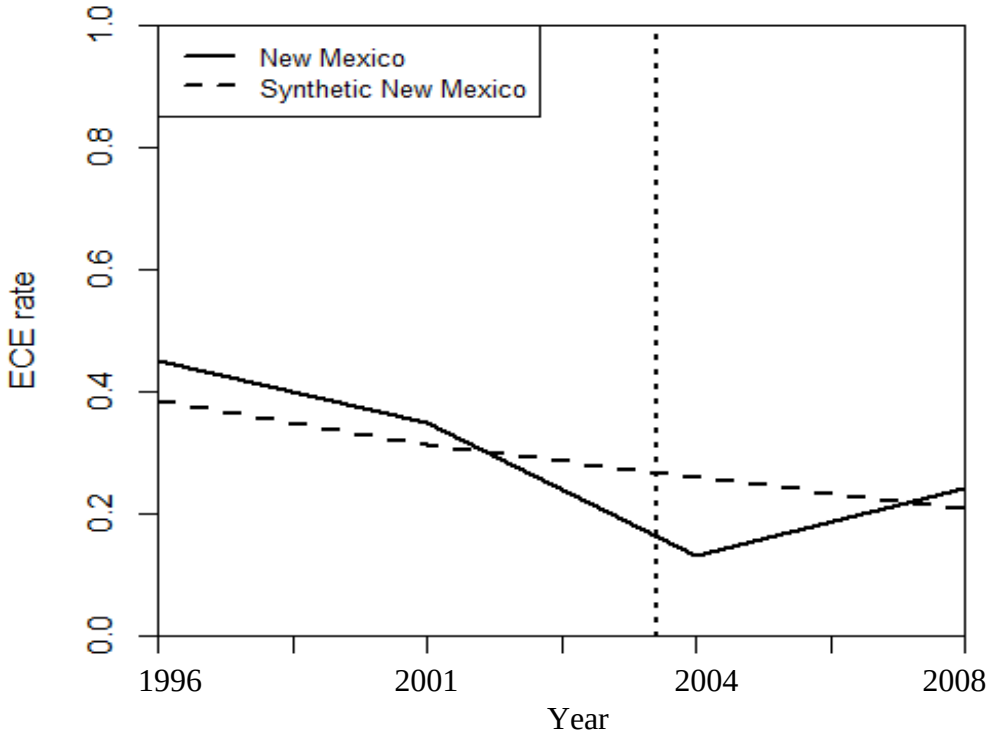
*Weights contributing to each target state's synthetic control unit*

| | **New Mexico** | **Utah** | **California** |
|---|---|---|---|
| Arizona | 0.000 | **0.576** | **0.020** |
| Colorado | 0.000 | 0.000 | 0.000 |
| Connecticut | 0.000 | 0.000 | 0.000 |
| Florida | 0.000 | 0.000 | **0.020** |
| Georgia | 0.000 | 0.000 | **0.001** |
| Idaho | 0.000 | 0.000 | 0.000 |
| Illinois | 0.000 | 0.000 | **0.001** |
| Indiana | 0.000 | 0.000 | 0.000 |
| Iowa | 0.000 | 0.000 | 0.000 |
| Kansas | 0.000 | 0.000 | 0.000 |
| Kentucky | 0.000 | 0.000 | 0.000 |
| Louisiana | 0.000 | 0.000 | 0.000 |
| Maryland | 0.000 | 0.000 | 0.000 |
| Massachusetts | 0.000 | 0.000 | 0.000 |
| Michigan | 0.000 | 0.000 | 0.000 |
| Minnesota | 0.000 | 0.000 | 0.000 |
| Nevada | 0.000 | **0.424** | **0.150** |
| New Jersey | 0.000 | 0.000 | **0.080** |
| New York | 0.000 | 0.000 | **0.740** |
| North Carolina | 0.000 | 0.000 | 0.000 |
| Ohio | 0.000 | 0.000 | 0.000 |
| Oregon | 0.000 | 0.000 | 0.000 |
| Pennsylvania | 0.000 | 0.000 | 0.000 |
| South Carolina | 0.000 | 0.000 | 0.000 |
| Texas | **0.679** | 0.000 | 0.000 |
| Virginia | **0.321** | 0.000 | 0.000 |
| Mean Square Prediction Error | 0.006 | 0.0001 | 0.006 |

*Note.* The Mean Square Prediction Error (MSPE) is a measure of the goodness of fit between each state and its synthetic control. MSPE < 0.05 is considered acceptable.

**Figure 2.**

*ECE Participation Rates in New Mexico and Synthetic NM Plotted from 1996-2008*[10]




**Figures 2a and 2b.**

*ECE participation rates: Placebos and their synthetics*

**Figure 2a.**

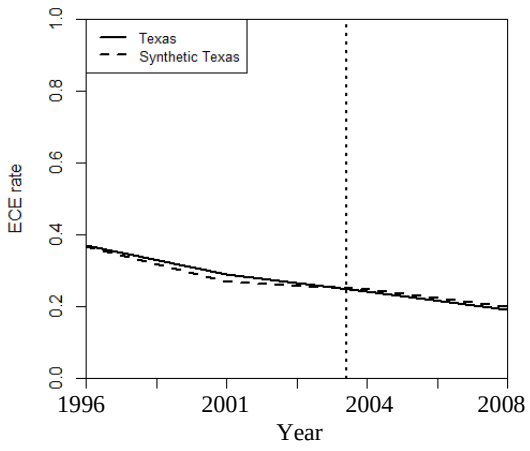
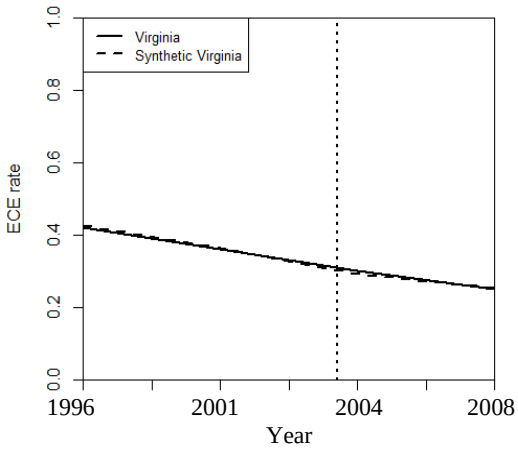



**Figure 2b.**




[10] The dashed line represents the time point at which New Mexico enacted its DL policy (2003)

Table 4

*Rates of Participation in ECE and Gaps in Participation between New Mexico and its Synthetic Control*

| | Pre- Policy | | Post-Policy | |
|---|---|---|---|---|
| | 1996 | 2001 | 2004 | 2008 |
| New Mexico | 0.45 | 0.35 | 0.13 | 0.24 |
| Synthetic NM | 0.39 | 0.31 | 0.25 | 0.21 |
| Gap in Participation Rate | 0.06 | 0.04 | -0.12 | 0.03 |

*Note.* Gaps in participation represent the percentage point difference in rates of ECE participation observed in New Mexico and estimated for synthetic NM. The gap value for each time point is equal to the rate of ECE participation in New Mexico minus the rate of ECE participation in synthetic NM.

Table 5

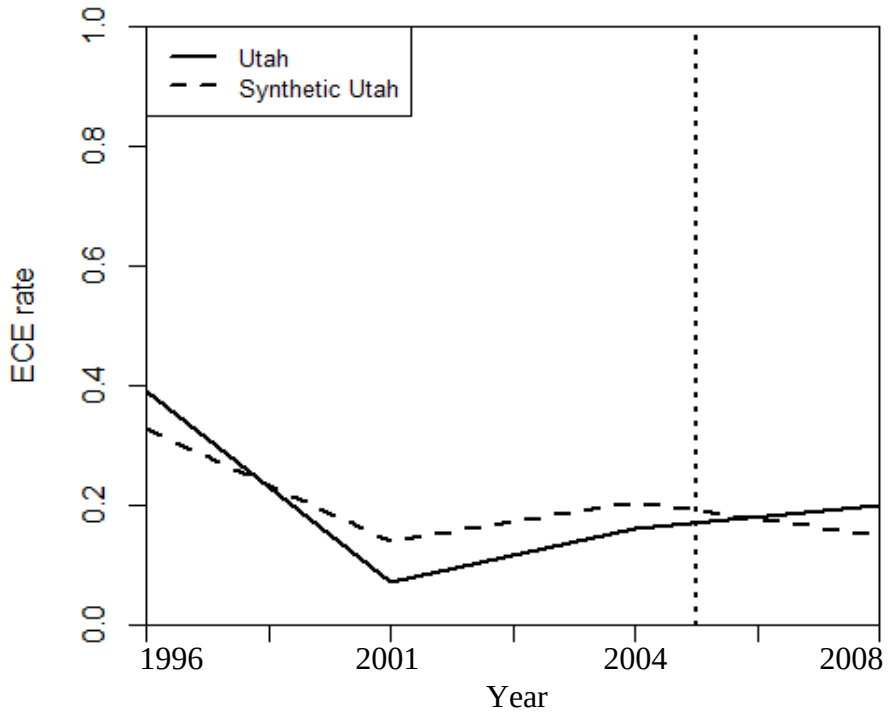
*Rates of Participation in ECE and Gaps in Participation between NM Placebo States and their Synthetic Controls*

| | Pre- Policy | | Post-Policy | |
|---|---|---|---|---|
| | 1996 | 2001 | 2004 | 2008 |
| Texas | 0.37 | 0.29 | 0.24 | 0.19 |
| Synthetic TX | 0.37 | 0.27 | 0.25 | 0.20 |
| Gap in Participation | 0.00 | 0.02 | -0.01 | -0.01 |
| | | | | |
| Virginia | 0.42 | 0.36 | 0.30 | 0.25 |
| Synthetic VA | 0.43 | 0.36 | 0.29 | 0.25 |
| Gap in Participation | -0.01 | 0.00 | 0.01 | 0.00 |

*Note.* Gaps in participation represent the percentage point difference in rates of ECE participation observed in placebo states and estimated for their synthetic controls. The gap value for each time point is equal to the rate of ECE participation in the placebo minus the rate of ECE participation in the synthetic control.

**Figure 3.**

*ECE Participation Rates in Utah and Synthetic UT Plotted from 1996-2008*[11]




**Figures 3a and 3b.**

*ECE participation rates: Placebos and their synthetics*

**Figure 3a.**

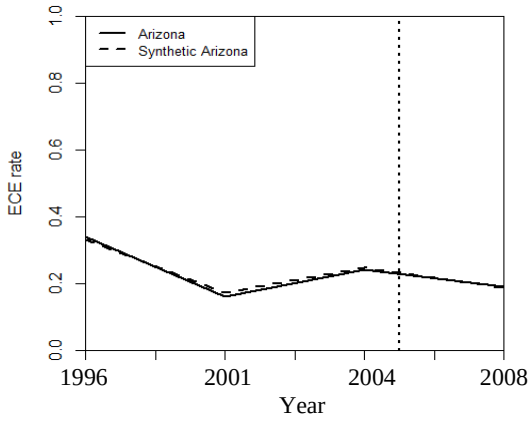
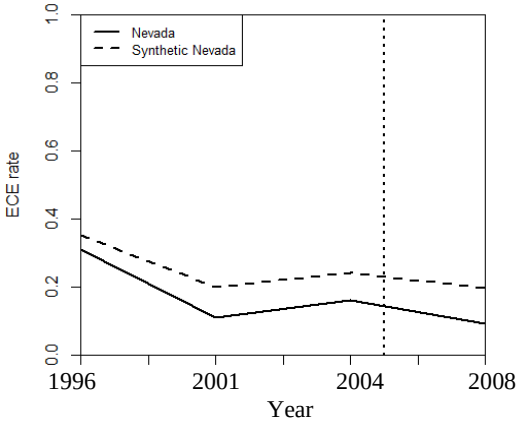



**Figure 3b.**




[11] The dashed line represents the time at which Utah enacted its DL policy (2005)

Table 6

*Rates of Participation in ECE and Gaps in Participation between Utah and its Synthetic Control*

| | Pre- Policy | | | Post-Policy |
|---|---|---|---|---|
| | 1996 | 2001 | 2004 | 2008 |
| Utah | 0.39 | 0.07 | 0.16 | 0.20 |
| Synthetic UT | 0.33 | 0.14 | 0.21 | 0.15 |
| Gap in Participation Rate | 0.06 | -0.07 | -0.05 | 0.05 |

*Note.* Gaps in participation represent the percentage point difference in rates of ECE participation observed in Utah and estimated for synthetic UT. The gap value for each time point is equal to the rate of ECE participation in Utah minus the rate of ECE participation in synthetic UT.

Table 7

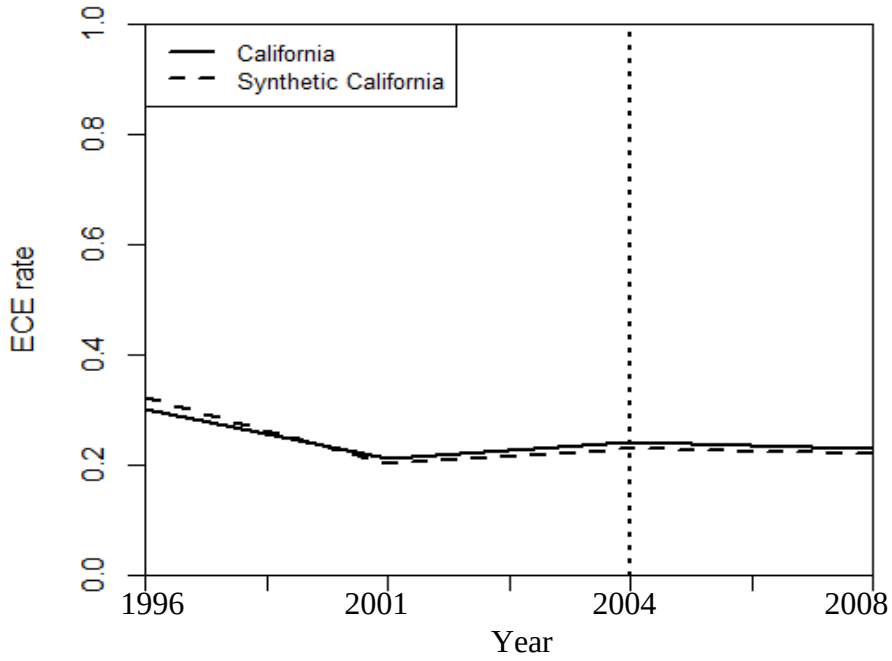
*Rates of Participation in ECE and Gaps in Participation between UT Placebo States and their Synthetic Controls*

| | Pre- Policy | | | Post-Policy |
|---|---|---|---|---|
| | 1996 | 2001 | 2004 | 2008 |
| Arizona | 0.34 | 0.16 | 0.24 | 0.19 |
| Synthetic AZ | 0.33 | 0.17 | 0.25 | 0.19 |
| Gap in Participation | 0.01 | 0.01 | -0.01 | 0.00 |
| | | | | |
| Nevada | 0.31 | 0.11 | 0.16 | 0.09 |
| Synthetic NV | 0.35 | 0.20 | 0.24 | 0.20 |
| Gap in Participation | -0.04 | -0.09 | -0.08 | -0.11 |

*Note.* Gaps in participation represent the percentage point difference in rates of ECE participation observed in placebo states and estimated for their synthetic controls. The gap value for each time point is equal to the rate of ECE participation in the placebo minus the rate of ECE participation in the synthetic control.

**Figure 4.**

*ECE Participation Rates in California and Synthetic CA Plotted from 1996-2008*[12]




**Figures 4a – 4g.**

*ECE participation rates: Placebos and their Synthetics*

**Figure 4a.**

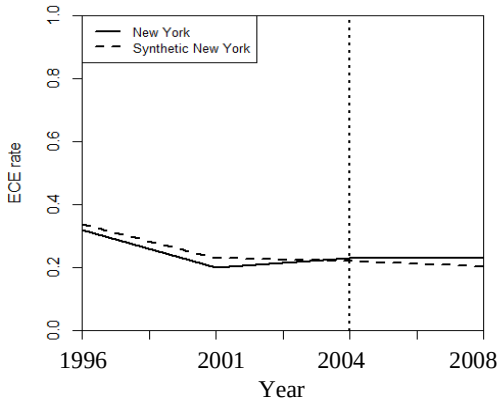
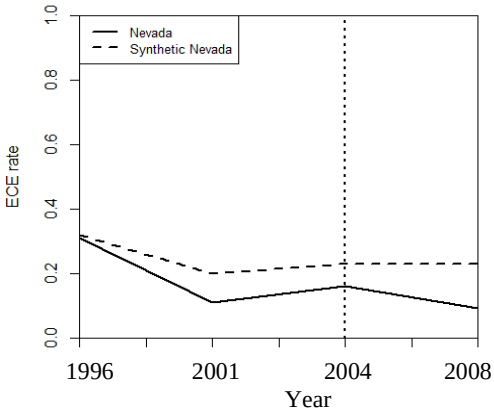



**Figure 4b.**




[12] The dashed line represents the time point at which California would have enacted its DL policy (2004)

**Figure 4c.**

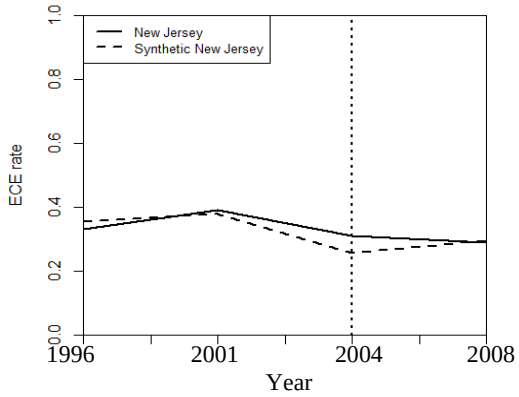



**Figure 4d.**

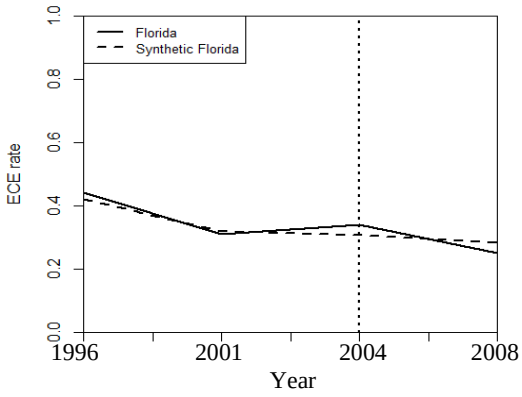



**Figure 4e.**

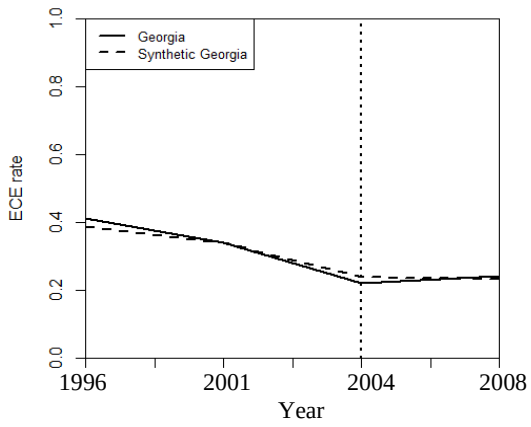



**Figure 4f.**

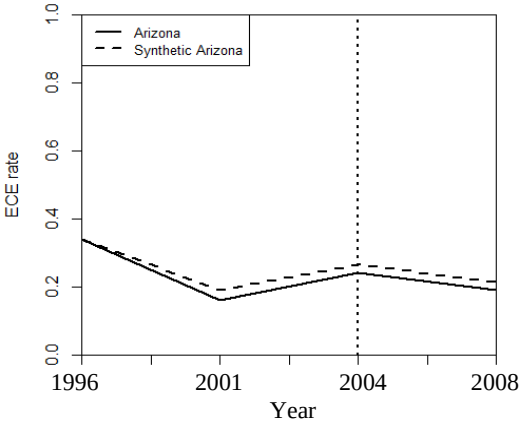



**Figure 4g.**

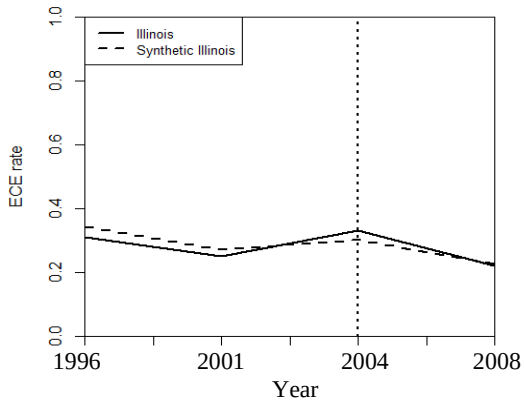


Table 8

*Rates of Participation in ECE and Gaps in Participation between California and its Synthetic Control*

| | Pre- Policy | | | Post-Policy |
|---|---|---|---|---|
| | 1996 | 2001 | 2004 | 2008 |
| California | 0.3 | 0.21 | 0.24 | 0.23 |
| Synthetic CA | 0.32 | 0.2 | 0.25 | 0.24 |
| Gap in Participation Rate | -0.02 | 0.01 | -0.01 | -0.01 |

*Note.* Gaps in participation represent the percentage point difference in rates of ECE participation observed in California and estimated for synthetic CA. The gap value for each time point is equal to the rate of ECE participation in California minus the rate of ECE participation in synthetic CA.

Table 9

*Rates of Participation in ECE and Gaps in Participation between CA Placebo States and their Synthetic Controls*

| | Pre- Policy | | | Post-Policy |
|---|---|---|---|---|
| | 1996 | 2001 | 2004 | 2008 |
| New York | 0.32 | 0.20 | 0.23 | 0.23 |
| Synthetic NY | 0.34 | 0.23 | 0.22 | 0.20 |
| Gap in Participation | -0.02 | -0.03 | 0.01 | 0.03 |
| Georgia | 0.41 | 0.34 | 0.22 | 0.24 |
| Synthetic GA | 0.39 | 0.34 | 0.24 | 0.23 |
| Gap in Participation | 0.02 | 0.00 | -0.02 | -0.01 |
| Florida | 0.44 | 0.31 | 0.34 | 0.25 |
| Synthetic FL | 0.42 | 0.32 | 0.31 | 0.28 |
| Gap in Participation | 0.02 | -0.01 | 0.03 | -0.03 |
| New Jersey | 0.33 | 0.39 | 0.31 | 0.29 |
| Synthetic NJ | 0.35 | 0.38 | 0.26 | 0.30 |
| Gap in Participation | -0.02 | 0.01 | 0.05 | -0.01 |
| Illinois | 0.31 | 0.25 | 0.33 | 0.22 |
| Synthetic IL | 0.34 | 0.27 | 0.30 | 0.23 |
| Gap in Participation | -0.03 | -0.02 | 0.03 | -0.01 |
| Arizona | 0.34 | 0.16 | 0.24 | 0.19 |
| Synthetic AZ | 0.34 | 0.19 | 0.26 | 0.21 |
| Gap in Participation | 0.00 | -0.03 | -0.02 | -0.02 |
| Nevada | 0.31 | 0.11 | 0.16 | 0.09 |
| Synthetic NV | 0.35 | 0.20 | 0.24 | 0.20 |
| Gap in Participation | -0.04 | -0.09 | -0.08 | -0.11 |

*Note.* Gaps in participation represent the percentage point difference in rates of ECE participation observed in placebo states and estimated for their synthetic controls. The gap value for each time point is equal to the rate of ECE participation in the placebo minus the rate of ECE participation in the synthetic control.

Table 10

*Regression Analysis Exploring the Association of Access to a DL and ECE Participation Rates in Washington*

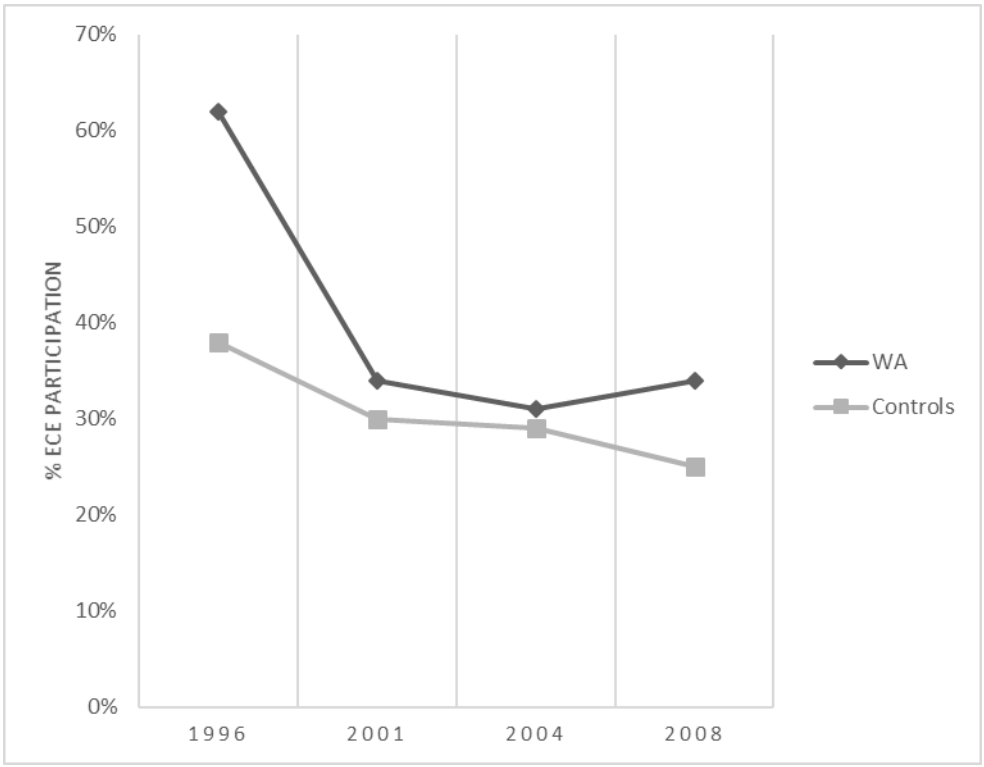
| | *β* | *SE(B)* | *t* | |
|---|---|---|---|---|
| (Intercept) | 0.49 | 0.02 | 21.87 | *** |
| Access to a driver's license | 0.08 | 0.05 | 1.72 | |
| %Non-citizens | -0.48 | 0.12 | -3.86 | *** |
| %Hispanic or Latino | -0.08 | 0.02 | -3.64 | *** |
| Time | -0.04 | 0.01 | -5.06 | *** |
| Model | | | | |
| *F* | | 16.44 | *** | |
| Adjusted $R^2$ | | 0.27 | | |

*Notes*. $N$ = 169, df = 4, 165, representing 46-50 states across four time points.

*$p$<.05, **$p$<.01, ***$p$<.001

**Figure 5.**

*ECE Participation Rates in Washington Plotted in Comparison to the Average of All Control States (1996 – 2008)*




*Notes.* Controls included all 26 states that were used in synthetic control models and excluded New Mexico and Utah. California was also included in controls for Washington.

Table 11

*Binary Logistic Regression to Evaluate the Association of DL Access and Household-Level Likelihood of ECE Participation*

| | ***ß*** | ***SE(ß)*** | ***OR*** | **[95% CI]** |
|---|---|---|---|---|
| Household lives in State with DL access | -0.09 | 0.16 | 0.91 | [0.60: 1.49] |
| Age of Head of Household | 0.007 | 0.005 | 1.01 | [1.00: 1.02] |
| Monthly Household Income | 0.004* | 0.001 | 1.00 | [0.99: 1.002] |
| Head of Household is Unemployed | -1.21*** | 0.10 | 0.30 | [0.10: 0.50] |
| Head of Household has a HS diploma/GED | 0.10*** | 0.02 | 1.11 | [1.07: 1.15] |
| Household Identifies as Hispanic or Latino | -0.56*** | 0.13 | 0.57 | [0.32: 0.79] |
| Household is Linguistically Isolated | -0.60* | 0.23 | 0.55 | [0.10: 1.00] |
| Time in the United States | 0.0001 | 0.001 | 1.00 | [0.99: 1.002] |
| ***$X^2$*** | **506.83*** ** | | | |
| ***Nagelkerke $R^2$*** | **0.16** | | | |

*Notes.* ****p*<.001, ***p*<.01, **p*<.05

Amount paid for ECE per week was not included because it was highly non-normal. Citizenship was also not included because there is no variability in this sample.

Table 12

*Post-Hoc Regression Analysis of the Association of Access to a DL and ECE Participation Rates in New Mexico*

| | ***β*** | ***SE(B)*** | ***t*** | |
|---|---|---|---|---|
| (Intercept) | 0.43 | 0.03 | 16.49 | *** |
| %Non-citizens | -0.49 | 0.13 | -3.82 | *** |
| %Hispanic or Latino | -0.08 | 0.02 | -3.68 | *** |
| Access to a driver's license (Treatment) | 0.11 | 0.07 | 1.57 | |
| Pre- or post-policy (Time) | -0.07 | 0.02 | -4.47 | *** |
| Treatment*Time | -0.17 | 0.09 | -1.80 | |
| Model | | | | |
| *F* | | 11.72 | *** | |
| Adjusted $R^2$ | | 0.24 | | |

*Notes*. $N$ = 169, df = 5, 164, representing 46-50 states across four time points.

*$p$<.05, **$p$<.01, ***$p$<.001

Table 13

*Post-Hoc Regression Analysis of the Association of Access to a DL and ECE Participation Rates in Utah*

| | *β* | *SE(B)* | *t* | |
|---|---|---|---|---|
| (Intercept) | 0.34 | 0.01 | 34.81 | *** |
| %Non-citizens | -0.38 | 0.13 | -2.95 | ** |
| %Hispanic or Latino | -0.09 | 0.02 | -3.75 | *** |
| Access to a driver's license (Treatment) | -0.11 | 0.06 | -1.85 | |
| Pre- or post-policy (Time) | -0.05 | 0.02 | -2.72 | ** |
| Treatment*Time | -0.03 | 0.12 | -0.31 | |
| Model | | | | |
| *F* | | 8.59 | *** | |
| Adjusted $R^2$ | | 0.18 | | |

*Notes*. $N$ = 169, df = 5, 164, representing 46-50 states across four time points.

*$p$<.05, **$p$<.01, ***$p$<.001

# APPENDICES

## Appendix A

**Definitions of Types of Immigrants and Non-Immigrants**

| Term | Definition |
|---|---|
| Immigrant | Every person who is not a citizen or national of the United States and does not fall into one of the categories of nonimmigrants as defined by the Immigration and Nationality Act (INA) §101(a)(15) (e.g., ambassadors, public ministers, career diplomats). |
| *Lawful Permanent Resident (LPR)*; Green card holder* | Any person with the status of having been lawfully accorded the privilege of residing permanently in the United States as an immigrant in accordance with the immigration laws, such status not having changed. Lawful Permanent Residents are granted a permanent resident card, commonly called a green card as proof of LPR status. |
| *Undocumented Immigrant; Unauthorized Immigrant; Illegal Alien* | Any non-citizen, non-national of the United States who enters the country without permission and/or inspection or has fallen "out of status" (e.g., has overstayed a visa, has let necessary paperwork expire). Undocumented immigrants are deportable if apprehended. |
| Nonimmigrant* | Any person who is not a citizen or national of the United States that has been granted the right to reside in the United States temporarily, such as workers and students. |

*Note: Table produced using information from United States Citizenship and Immigration Services (www.uscis.gov)*
**These are general definitions. LPRs and nonimmigrants can be further categorized by visa type; for example, for LRPs there are 5 types of work visas, and for nonimmigrants there are 3 types of student visas.*

## Appendix B

### Driver's License Policy Specifics by State

| State | Bill | Year Enacted | Effective | Summary |
|---|---|---|---|---|
| California | A 60 | 2013 | 1/1/2015 | This law requires the Department of Motor Vehicles to issue driver's licenses to individuals who are ineligible for a Social Security Number, if the required documentation is provided (Foreign passport, consular card, federal electoral card - certain countries). No one may discriminate against a holder of an AB-60 License, or use this license to attempt to question the holder's citizenship or immigration status. |
| Colorado | S 251 | 2013 | 8/1/2014 | This law allows individuals to qualify for a driver's license, instruction permit or identification card, despite the individual not being lawfully present or being only temporarily lawfully present in the United States if certain conditions are met, such as providing state tax returns. |
| Connecticut | H 6495 | 2013 | 1/1/2015 | This law provides driver's licenses to applicants who submit a valid foreign passport or consular identification and proof of residency, regardless of legal presence in the United States. Applicants must file to legalize as soon as he or she is eligible. |
| Delaware | S 59 | 2015 | 12/27/2015 | This law creates the means for an undocumented immigrant to obtain a driving privilege card in Delaware. A driving privilege card or permit applicant must provide the state with satisfactory documentary evidence and that the applicant has filed a Delaware income tax return or resided in Delaware and been claimed as a dependent by an individual who has filed a state income tax return for the preceding two years. The card is not considered a valid form of identification due to the applicant's inability to prove legal presence in the US. |
| Hawaii | H 1007 | 2015 | 1/1/2016 | This law authorizes the issuance of driver's licenses to residents of Hawaii who cannot provide proof of authorized presence in the US. Applicants must provide satisfactory |

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| | | | | proof of identity and Hawaii residency. |
| Illinois | S 957 | 2012 | 11/28/2013 | This law allows the Secretary of State to issue a temporary visitor's driver's license to an individual who has resided in Illinois for a specified time but is ineligible to obtain a Social Security number, and unable to prove lawful presence. A valid, unexpired foreign passport or consular identification document from their country of citizenship are acceptable forms of identification. |
| Maryland | S 715 | 2013 | 1/1/2014 | This law authorizes the issuance of driver's licenses to those who do not have lawful status or a valid SSN. New applicants must provide evidence that the applicant has filed two years of Maryland income tax returns or proof of residency have been claimed as a dependent by an individual who has filed Maryland income tax returns. The licenses are not valid for federal identification purposes. |
| New Mexico | H 173 | 2003 | 2003 | This law allows the Department of Motor Vehicles to accept tax identification numbers as a substitute for a SSN regardless of immigration status. |
| Nevada | S 303 | 2013 | 1/1/2014 | This law creates a driver's authorization card and allows applicants, regardless of legal status, to provide birth certificates or passports issued by a foreign country as proof of identity. This law also prohibits the release of information related to legal status for purposes relating to the enforcement of immigration laws. |
| Utah | S 227 | 2005 | 3/8/2005 | This law establishes a one year driving privilege card for unauthorized immigrants. Applicants without a SSN must prove Utah residency for six months and provide a tax identification number. The card is expressly prohibited from being used for any identification purposes by a governmental entity. |
| Vermont | S 38 | 2013 | 1/1/2014 | This law allows those Vermont residents unable to establish lawful presence in the United States to be eligible for a motor vehicle operator's privilege card or alternate identification card. |

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| Washington | H1444 | 1993 | 7/25/1993 | This law allows driver's license applicants without SSNs to provide alternate documentation to show proof of residence in the state of Washington such as home utility bills and tax identification numbers. |
| District of Columbia | B 275 | 2013 | 5/1/2014 | This law creates a limited purpose driver's license, permit, or identification card for District residents who have not been assigned SSNs or cannot establish legal presence in the United States. |

*Note: Table reproduced and updated from the National Conference of State Legislatures (www.ncsl.org)*

## Appendix C: Timeline of U.S. Immigration Policy

| Year | Act | Description |
|---|---|---|
| 1790 | Naturalization Act of 1790 | Established rules for naturalized citizenship as per Article 1, Section 8 of the U.S. Constitution. The act placed no restrictions on immigration, however citizenship was limited to white persons. |
| 1795 | Naturalization Act of 1795 | Lengthened the residency requirement for naturalization. |
| | Naturalization Act of 1798 | Required residency for 14 years for naturalization. |
| 1798 | Alien Enemies Act | Authorized the President of the United States to deport any resident immigrant from countries with which the U.S. was at war. No sunset provision was put in place for this act, therefore it is still intact (50 U.S.C. § 21). |
| 1802 | Naturalization Law of 1802 | Repealed the 14 year residency requirement of 1798. |
| 1870 | Naturalization Act of 1870 | Extended the naturalization process to "aliens of African nativity and persons of African descent." Other non-white persons were excluded. |
| 1875 | Chy Lung vs. The United States | The Supreme Court rules that whereas the Constitution delineates that foreign affairs fall under the power of the legislative branch of government, immigration is a federal matter reserved for congress. The ruling was in response to border and port states implementing varying immigrant policies in the post-Civil war era when anti-immigrant sentiment was high. |
| | Page Act | The first federal immigration policy that prohibited the entry of immigrants considered "undesirable." Undesirable at this time referred to individuals from Asia coming to be contract laborers. |
| 1882 | Chinese Exclusion Act | The birth of "illegal immigration" in the United States. The act restricted the immigration of Chinese laborers for 10 years and prohibited Chinese naturalization. It also created deportation procedures for illegal Chinese. It was a response to the perceived threat of cheap labor coming from China. |
| 1882 | Immigration Act of 182 | A fifty cent head tax was levied on each immigrant. The following "inadmissible classes" were blocked or excluded from entry to the United States: idiots, lunatics, convicts, and persons likely to become a public charge. |
| 1885 | Alien Contract Labor Law | Prohibited the importation and migration of foreigners under contract or in agreement to perform labor in the U.S. |
| 1891 | Immigration Act of 1891 | The first comprehensive set of immigration laws for the United States. A Bureau of Immigration was created within the Treasury Department as immigration matters were highly tied to labor. The Bureau of Immigration had the power to deport unlawful immigrants and a superintendent of immigration was empowered to enforce immigration law. |
| 1892 | Geary Act | Extended and strengthened the Chinese Exclusion Act |

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| 1898 | The United States vs. Wong Kim Ark | The Supreme Court rules that a child of Chinese descent born in the U.S. - whose parents were subjects of the emperor of China, but who were domiciled in the U.S. as permanent residents at the time of the child's birth, and who were not employed in any diplomatic capacity to the emperor of China - is a citizen of the United States. |
| 1903 | Immigration Act of 1903 | Added four inadmissible classes: Anarchists, people with epilepsy, beggars, and importers of prostitutes. |
| 1906 | Naturalization Act of 1906 | Standardized the naturalization process and made some knowledge of English a requirement of citizenship. It also established a Bureau of Immigration and Naturalization. |
| 1907 | Immigration Act of 1907 | Restricted immigration for certain classes of disabled and diseased persons. |
| 1917 | Barred Zone Act | Restricted immigration from Asia by creating an Asiatic barred zone and introduced a reading test for all immigrants over 14 years of age with exceptions for children, wives, and elderly family members. |
| 1918 | Immigration Act of 1918 | Expanded provisions of anarchist exclusion. |
| 1921 | Emergency Quota Act | Limited the number of immigrants from any country to 3% of those already in the U.S. according to the 1910 census. (An unintentional consequence of this legislation was increases in illegal immigration. People who did not make the quotas migrated to Mexico or Canada and subsequently crossed the borders in to the U.S. illegally). |
| 1922 | Cable Act | Reversed the former immigration laws regarding marriage whereby a women lost her citizenship if she married a foreign man. (The same restriction was never put in place for U.S. men who married foreign women). |
| | Johnson-Reed Act | Imposed the first permanent numerical limit on immigration and began a national origin quota system. |
| 1924 | National Origins Formula | Capped total annual immigration at 150,000. Immigrants fell into two categories: those from quota nations and those from non-quota nations. Immigrant visas from quota nations were restricted to the same ratio of residents from the country of origin out of 150,000 as the ratio of foreign-born nationals in the U.S. from that country. The percentage of 150,000 was the relative number of visas a particular nation received. Contiguous countries to the U.S. were considered non-quota countries. Laborers from Asiatic nations were excluded but exceptions existed for certain professionals, clergy, and students. |
| 1934 | Equal Nationality Act of 1934 | Allowed for foreign-born children of American mothers and immigrant fathers who had entered the U.S. before age 18 and lived in the U.S. for at least 5 years to apply for citizenship for the first time. |
| 1930's | | Federal officials deported tens of thousands (estimated more than 400,000) Mexicans and Mexican-Americans. Many, mostly children, were U.S. citizens. Applications for legal admission increased following WWII as did illegal immigration. The main source of illegal immigration was fraudulent marriage. Japanese immigration became disproportionately female as more women left Japan betrothed to emigrant men they had never met. |
| 1942 | The Bracero Program | A series of bi-lateral agreements between the U.S. and Mexico that allowed millions of Mexican men to come to the United States to work on short-term, mostly agricultural contracts. Between 1942 and 1964, 4.6 million contracts were signed making it the largest U.S. contract labor program. |

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| 1943 | Chinese Exclusion Repeal | Repealed the Chinese Exclusion Act and permitted Chinese nationals in the country to become citizens. |
| 1952 | McCarran-Walter Act | Set a quota for immigrants with skills needed in the U.S. and increased the power of the government to deport illegal immigrants suspected of communist sympathies. |
| 1953 | Kwong Hai Chew vs. Colding | The Supreme Court rules that once an immigrant lawfully enters and resides in this country s/he becomes invested with the rights guaranteed by the Constitution to all people within our borders. |
| 1954 | Operation Wetback | Immigration and Naturalization Services rounded up and deported undocumented immigrants in selected areas of California, Arizona and Texas along the border. U.S. border patrol estimated that more than 1.3 million either left voluntarily or were deported. |
| 1965 | Hart-Cellar Act | Repealed national origin quotas and initiated the family visa system as well as a visa system for workers (skills). The act set a quota for western hemisphere immigration and a 20,000 per country limit for eastern hemisphere immigrants. |
| 1970's | | The United States estimates that the total number of undocumented immigrants in the country is 1.1 million or half of one percent of the total U.S. population. |
| 1980's | | An additional 1.3 million undocumented immigrants enter the U.S. |
| 1982 | Plyler vs. Doe | The Supreme Court rules that undocumented immigrants are also within the jurisdiction of states and therefore receive equal protection of law and due process of law. |
| 1986 | Immigration Reform and Control Act | (IRCA) Created sanctions for knowingly hiring undocumented workers and increased border enforcement. Amnesty was granted to undocumented immigrants already living in the U.S. |
| 1990's | | Over 5.8 million undocumented immigrants entered the U.S. in the 1990's. Mexico rose to the head of the list of sending countries followed by the Philippines, Vietnam, the Dominican Republic and China. |
| 1990 | Immigration Act of 1990 | Increased ceilings for immigration and created a diversity admissions category. The number of visas for priority workers and for foreign professionals with U.S. job offers was tripled. |
| 1990 | The United States vs. Verdigo-Urquidez | The Supreme Court reiterates their ruling on Kwong Hai Chew vs. Colding that undocumented immigrants who are in the U.S. are invested with the same rights guaranteed by the U.S. Constitution. |
| 1996 | Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA) | Put in place phone verification for worker authentication by employers and further increased border enforcement. The act made access to welfare more difficult for legal permanent residents and legal immigrants in the United States. In addition, the Reed Amendment attempted to deny visas to former U.S. citizens but was never enforced. |
| Post 9/11/2001 | | The United States estimates that 3.1 million undocumented immigrants entered the U.S. between 2000 and 2005. From 1998 to 2001, Mexicans accounted for 68% of undocumented immigrants. That number rose to 78% between 2001 and 2005 mostly due to stricter security measures put in place following 9/11. |
| 2002 | Enhanced Border Security and Visa Entry Reform Act | Placed more agents at the southern border. Required schools to report foreign students attending classes to the federal government and stipulated that foreign nationals in the U.S. will be required to carry identification with biometric technology. |

| | | |
|---|---|---|
| 2005 | REAL ID Act | Required the use of IDs meeting certain security standards to enter government buildings, board planes, and to open bank accounts. Created more restrictions to claim political asylum. Severely curtailed Habeas Corpus1 relief for immigrants and increased immigration enforcement mechanisms. The act established standards for state-issued drivers' licenses and cleared the way for the building of barriers at U.S. borders. |

*Note.* Table produced using information from the United States Department of Homeland Security (dhs.gov), and the United States Citizenship and Immigration Services (USCIS) History Office and Library.

[1] The Writ of Habeas Corpus requires that a person under arrest be brought before a judge or into a court of law to secure the person's release unless lawful grounds are shown for detention.

## Appendix D: Political Contexts in states analyzed in the current study

Prior to the 1990's when undocumented immigration, especially from Latin America, increased rapidly, most states did not have policies that either banned or allowed undocumented immigrants to access DLs. In the 1990's, a time of high nativism (Pan, 1993), many states began implementing policies that required proof of legal status in order to obtain a DL, or required that an SSN be provided (Johnson, 2004). In 2005, the federal government passed the REAL ID Act, obligating states to require proof of citizenship or legal immigration status. To date, 12 states and the District of Columbia have expanded DL privileges to undocumented immigrants. There were two states that enacted policies between 1996 and 2008, the time period for which data existed to analyze DL policies for undocumented immigrants for the purposes of this study. Those states, referred to throughout as target states, were New Mexico and Utah. Washington enacted the first DL policy in 1993. Pre-policy data did not exist to analyze Washington before and after its DL policy, but it was used solely for the purposes of a between states comparison. California passed a similar policy in 2004, but never enacted it. California was used as a comparative control case in this study. Tables 1 and 2 provide an overview of the political climate in each target state (Table D1) and in demographically similar states that were used as placebo states in this study (Table D2) during the time period assessed for the purposes of the current study.

### *Washington*

Washington was the first state to enact a policy that explicitly expanded DL privileges to undocumented immigrants in 1993 (NCSL, 2016). The policy (H1444)

required that the Washington Department of Motor Vehicles accept alternative documentation to show proof of residence for those applicants without a SSN (e.g., a home utility bill). In Washington, undocumented immigrants have access to a DL that is identical to DLs for U.S. citizens and legal permanent residents. One of the primary influencing factors in the passing of H1444 in Washington was the agricultural industry in the state. Individuals who owned or managed orchards lobbied in favor of the policy in a time of heightened anti-immigrant sentiment (CITE). The policy has remained in place since 1993.

***New Mexico***

New Mexico was the second state to enact a policy explicitly expanding access to DLs to undocumented immigrants in 2003 (NCSL, 2016). The New Mexico policy (H173) states that applicants may provide a tax identification number in place of an SSN in order to obtain a DL regardless of immigration status (NCSL, 2016). The DL that is available to undocumented immigrants in New Mexico is identical to the DLs carried by U.S. citizens and legal permanent residents. In addition to consistent Democratic Party control during this time period, and a Hispanic population that made up nearly half of the total population in 2000 and 2010, the DL policy was supported by a prominent immigrant rights group, *Somos un Pueblo Unido*. Today, New Mexico's Republican governor has tried several times to repeal the DL policy, claiming that criminals from other states will try to come to New Mexico if they know they can obtain a DL (Crawford, 2013; Washington Post, 2011; 2016). With the support of a large share of the population, the Democratic-controlled state legislature has not passed any of the governor's proposed repeals to the DL policy, ant it has not

been altered since its enactment in 2003. It was estimated in 2016 that around 90,000 New Mexicans were eligible annually to obtain the DL (New Mexico Department of Motor Vehicles, 2016). In addition, it was reported that when the law was first enacted, the rate of uninsured driver's dropped from 33% to 9% (Attanasio, 2015).

### *California*

In 2004, California passed a policy that expanded access to DLs to undocumented immigrants after explicitly barring undocumented immigrants from obtaining DLs in 1993, however the 2004 policy was never enacted (Clark, 2011). The policy was abandoned when the federal government passed the REAL ID Act in 2005. For purposes of the current study, California was analyzed as a control case and provided a comparison state in which all conditions for passing the DL policy were in place, but the policy never became effective. Therefore, California provided a way to explore whether it was the DL policy or the prerequisite conditions of passing such a policy in a state that influenced ECE enrollment rates. California had a consistent, Democratic-controlled legislature during this time period. The Latino citizen-age voting population (i.e., eligible Latino voters, with a larger population making it more likely that politicians will consider potential backlash) in California was estimated to be over 5,000,000 and nearly one-third of the total population was Hispanic/Latino. Furthermore, California's state legislature is considered to have high legislative professionalism (NCSL, 2015) meaning that the demographic makeup of the electorate is more likely to be tracked and reported to congressmen and considered in policy making decisions (CITE).

### *Utah*

In 2005, Utah enacted a policy that expanded DL access to undocumented immigrants. The strictest of the DL policies reviewed for this study, Utah's policy (S 227) allows undocumented immigrants to obtain a one-year driving privilege card if they can prove Utah residency for at least six months and provide a tax identification number (NCSL, 2016). Tax identification numbers are available to nonresident and resident immigrants, their spouses and dependents who cannot obtain a social security number (Internal Revenue Service, 2017). In addition, the law explicitly prohibits any government entity to accept the DL as a valid form of identification. The DL given to undocumented immigrants displays a large, red "P" on the card to indicate that it is strictly a driving privilege card. Utah was consistently a Republican-controlled state with a very small Latino citizen-age voting population and with very low legislative professionalism (NCSL, 2015). Expanding legal access for DLs to undocumented immigrants was endorsed as an issue of public safety and in an effort to ensure that all drivers were insured (Katz, 2007). The large, red "P" on the DL was seen as a compromise to appease the most conservative among the legislature. Although immigrant rights groups in the state opposed the issuance of a markedly different DL to undocumented immigrants, leaders of such groups and the state attorney general have stated publicly that discrimination from police has not been widespread (Katz, 2007). In 2014, it was estimated that more than 35,000 undocumented immigrants held a state DL (Davidson, 2014).

**Table D1. Political context of Target States**

| | Washington | California | Utah | New Mexico |
|---|---|---|---|---|
| Year of DL Policy Change | 1993 | 2004 | 2005 | 2003 |
| Party control | | | | |
| *1996* | Split | Dem | Rep | Dem |
| *2001* | Split | Dem | Rep | Dem |
| *2004* | Dem | Dem | Rep | Dem |
| *2008* | Dem | Dem | Rep | Dem |
| Share of the population that is Hispanic (%) | | | | |
| *1990* | 4.40 | 25.80 | 4.90 | 38.20 |
| *2000* | 7.50 | 32.40 | 9.00 | 42.10 |
| *2010* | 11.20 | 37.60 | 13.00 | 46.30 |
| Change in Hispanic population 2000 to 2008 (%) | 44.60 | 22.90 | 61.00 | 17.90 |
| Non-citizens 1996 - 2008 (%) | 10.00 | 32.00 | 6.30 | 11.50 |
| Estimated Latino CVAP 2005 to 2009 | 213,425 | 5,117,250 | 97,805 | 511,720 |
| Term limits (Year enacted) | Y (1992) N (1998 and later) | Y (1996) | Y (1994-2003) N (2003 and later) | N |
| Legislative professionalism[1] | Moderate | High | Very Low | Low |

[1]*Based on rankings by the National Conference of State Legislatures (NCSL, 2014) taking into account average time on the job, compensation and total staff.*

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## Appendix E: SIPP Sampling and Methodology

Conducted by the United States Census Bureau, the Survey of Income and Program Participation (SIPP; 1984-1993; 1996, 2001, 2004, 2008, 2014) is a longitudinal survey representative of the non-institutionalized U.S. population. It began in 1984 with the goal of capturing information on earned income, income from government programs and assets, employment patterns and labor force participation (US Census Bureau, 2016). From when it began in 1984 until 1993, a new SIPP sample (called a panel) was initiated each year and followed for around three years. The survey was conducted in waves, meaning that participants were interviewed every four months and asked about the previous four months. At each wave, all participants were asked a core set of questions that were consistent from wave to wave, as well as questions from topical modules that varied from wave to wave (SIPP User's Guide, 2008).

Between 1993 and 1996, the Census Bureau carried out an extensive review of the SIPP and subsequently, a redesign was conceptualized to improve the SIPP and reduce cost. Beginning with the 1996 SIPP, a new panel was introduced every four years with minimal overlap between panels (i.e., the aim was to have just one panel in the field at any given time). Each panel was supposed to have 8 waves, however, for several panels there were more or less than 8 waves of interviews. As a result of the 1996 redesign, the Census Bureau also began to oversample low-income households for more reliable analyses (U.S. Census Bureau, 1998). Due to budgetary constraints, the SIPP was re-engineered again before 2014. The primary changes to the 2014 redesign were that each wave was 12 months instead of 4 months, and topical modules

were shortened and administered at each of the 4 (1-year) waves (SIPP User's Guide, 2016). The following will provide detailed information on (1) the SIPP sampling design, (2) SIPP core and topical module content, and (3) interviewing procedures.

## SIPP Sampling Design

The Census Bureau uses a multi-stage, stratified integrated sample design, based primarily on the decennial census of population to provide samples for all of its major household surveys, including the SIPP. The SIPP sampling universe consists of the civilian, non-institutionalized population of the United States according to the most recent census (i.e., the 1980 Census was used for SIPPs 1984-1993; the 1990 Census was used for SIPPs 1996-2001; 2000 Census was used for SIPPs 2004-2008; and 2010 Census was used for SIPP 2014). The selection of a SIPP sample occurs in three stages: (1) selection of primary sampling units (PSUs), (2) selection of address units in sample PSUs, and (3) determination of persons and households to be included in the panel (SIPP User's Guide, 2001, 2008, 2016).

### Selection of Primary Sampling Units

The SIPP utilizes a multistage, stratified sample of housing units. In the first stage, the frame for selecting primary sampling units (PSUs) consists of a listing of all U.S. counties and independent cities along with their corresponding population counts. Single counties are used as long as they have a population of at least 7,500. When this population threshold is not met, adjacent counties are combined to form a PSU. PSUs containing 100,000 or more housing units are considered self-representing (SR) and are always included in the SIPP sample (i.e., housing units will be sampled from these PSUs). PSUs with less than 100,000 housing units are considered non-self-

representing (NSR) and are grouped with other similar NSR PSUs based on measures of poverty and demographics. NSR PSUs are selected for the SIPP sample at a probability proportionate to their size (U.S. Census Bureau, 1998). All NSR PSUs are grouped into strata and two NSR PSUs are selected from each stratum for use in the SIPP sample. Therefore, all SR PSUs and two NSR PSUs from each stratum are the frame from which all addresses are selected.

**Selection of Addresses in Sample PSUs**

The survey population for the SIPP consists of adults (persons age 15 and older) in the civilian, non-institutionalized population of the U.S. To represent this population, a sample of addresses is selected from each of the sample PSUs (i.e., all SR PSUs and two NRS PSUs from each stratum) using five, non-overlapping sampling frames. Around 90% of the addresses included in the SIPP come from the largest two sampling frames – Address Enumeration Districts (EDs) and Area Enumeration Districts (Enumeration Districts are similar to Census tracts and created using political or geographical boundaries) (SIPP User's Guide, 2001, 2008, 2016).

The Address ED framework consists of a list of addresses in all EDs which were located in permit-issuing areas, and for which at least 96% of the addresses in the ED are complete, having a street name and house number. In each sample PSU, addresses in these EDs are divided into clusters, each containing two neighboring housing units. Samples of those housing clusters are then selected and assigned to the SIPP panel (Shapiro, 1983c, 1984). The Area ED framework consists of all other EDs in which more than four percent of addresses were incomplete, or that were located in areas where building permits were not issued or available. Most of these EDs are in

rural areas (US Census Bureau, 2016). For address selection in the Area ED framework, EDs in sample PSUs are divided into blocks in which four housing units are expected. Sample blocks are selected and all sample blocks are visited prior to interviewing. During this visit, existing addresses are listed and then divided into clusters of four housing units. Clusters from each block are then assigned to the panel.

Beginning with the 1996 panel, all panels oversampled low-income addresses in these first two sampling frames (Address ED and Area ED). Therefore, for these years, all PSU's were further stratified into high and low poverty strata. For the 1996, 2001, 2004 and 2008 panels, high-poverty strata were sampled at a rate of 1.7 to 1 compared to low-poverty strata (SIPP User's Guide, 2008). For the 2014 panel, high-poverty strata were sampled at a rate of 1.47 to 1 compared to low-poverty strata (SIPP User's Guide, 2016). This resulted in an 18% increase in low-income households in these SIPP panels. In addition, in the 2014 panel there was an expansion sample of 13,800 housing units including addresses from Alabama, Arizona, Arkansas, Georgia, Illinois, Indiana, Kentucky, Louisiana, Michigan, Mississippi, New Mexico, North Carolina, Ohio, Pennsylvania, South Carolina and Tennessee. The size of expansion in each state was determined by the amount of sample needed in order to reach a target coefficient of variation of 6% of the estimate of low-income in each state (US Census Bureau, 2016).

The other three sampling frameworks contribute less than 10% of addresses included in the panel. Around 8 to 9% of these addresses come from the New Construction Frame (NCF). The NCF is updated continuously and contains a list of addresses of structures for which permits have been issued. In sampling the NCF,

permit-issuing offices are treated like EDs. Clusters of four housing units are formed. Housing units within clusters always have in common their permit-issuing office and date of issuance (SIPP Users' Guide, YEAR). For each new panel, a sample of clusters is selected very shortly before interviewing begins so that NCF is as up to date as possible. The other two sampling frames are the Special Places Frame, consisting of non-institutional group quarters (housing units with a shared kitchen or common lounge area shared by nine or more occupants who are unrelated to the head of household), and the Coverage Improvement Frame, consisting of addresses missed in the census. From each of these two frames, a sample of addresses is selected for the panel (SIPP Data Quality Profile, 1998).

**Determination of Persons and Households and Interview Procedures**

Although sampling ends at addresses, the unit of observation in the SIPP is not addresses, but persons age 15 and older and units such as families and households. Therefore, once the final sample of all addresses is selected for the first wave of interviewing, a specific set of rules is followed in order to establish who is part of the household. In addition, rules have been established to determine who the Census Bureau continues to follow and interview after the first wave and when changes occur in household composition.

At wave one, the interviewer visits the sampled address, compiles a household roster, and attempts to interview all members of the household who are age 15 and older. The interviewer's first task is to determine whether each person present at the address is a household member. In most cases, a household member is defined as someone who sleeps in the household a majority of the time. Once the household has

been determined, interviews take place with each member. The preference of the Census Bureau is that all household members over age 15 answer for themselves, however proxy interviews on behalf of another member are permitted. Based on answers to given by each household member over 15, the interviewer also identifies a reference person for the household. The reference person is usually the owner or renter of the housing unit.

Beginning at the second wave, and in all subsequent waves, the interviewer updates the household roster by listing all people living or staying at the address, including anyone who has joined the household (e.g., new spouse or baby). The interviewer also records the date that each new household member entered the household. The interviewer then verifies that the information collected previously still applies for those living at the address and completes the questionnaire for all members of the household above age 15. The interviewer also collects certain information about all children under 15 in the household beginning at wave two. Once information has been verified and any new survey items have been collected from existing household members, the interviewer then collects information for all new household members, and notes anyone who left the household, the dates they left, and their new address if it is known.

Movers are interviewed at their new address, along with other household members who are living there if the new address is known. When an original sample member moves into a household with other individuals, these individuals become part of the SIPP sample, just as when new individuals move into or join a SIPP sample household. If all original sample members move from the address where a SIPP

interview originally took place, SIPP does not collect data from new persons living at this address. If the entire household moves, the interviewer attempts to find them at their new address. If the address is more than 100 miles away, the interviewer attempts to contact them by telephone. If the household cannot be reached, they are dropped from the sample. In addition, SIPP does not interview original sample members if they move out of the US, become members of the military, or become institutionalized (e.g., nursing home, prison). The Census Bureau attempts to track these individuals, but does not interview them. If the return to the non-institutionalized, civilian population, interviews resume. Children (persons under 15) are followed as long as they remain with the original sample persons. Children under 15 who move unaccompanied are no longer associated with the household; however children who turn 15 and move away from the original household are followed.

The SIPP interview process, rules and procedures have been consistent over the years, however significant changes began in 2004 with the use of feedback or dependent interviewing. In this method, information from the previous interviews carries forward into the current survey instrument to streamline interviewing procedures and maximize data quality. This process helps to limit a common problem with longitudinal surveys, "seam bias." Seam bias is the phenomenon by which life events and changes are disproportionately reported at the seam (i.e., between waves). They key to countering seam bias is having overlapping periods. Dependent interviewing automatically includes a portion of the next reference period. The 2014 SIPP panel uses this method for over 500 items.

**SIPP Survey Content**

All years and versions of the SIPP have covered the same content, though the actual arrangement of questions and sections have been structured differently. For example, prior to 1996, the core content was presented in four sections rather than two sections as has been used since 1996. In all panels prior to 2014, a core survey was administered at all waves as well as rotating topical modules that varied in content from wave to wave. In 2014, all survey content was administered at each wave including most of the original topical module content.

**Core Content**

Core SIPP content is asked at the start of every interview at every wave. The interviewer verifies basic demographic information about each household member and checks facts previously recorded about the household. Core content includes two major sections and several smaller sections. The first major section is employment and earnings. This section includes questions on each household member's labor force status for each week of the four-month reference period (i.e., the previous four months prior to the interview), characteristics of employers, self-employment, unemployment compensation, type(s) of work performed, dates of employment, time spent looking for work, moonlighting, usual hours worked, and the current employment status for up to two jobs or businesses per household member. The second major section, program income, general Income, and asset Income, includes questions on income and benefits from programs (social security, SNAP, welfare, retirement, disability, survivor income, unemployment insurance, worker's compensation, severance pay, lump-sum payments from pension or retirement, child support, and alimony payments). It also includes questions regarding who is covered

under each program and how payments are received from each income source. Finally, this section asks about bonds, stocks, 401(k)s, 403(b)s, thrifty plans, rental property, and mutual funds. The smaller sections of the core content include items on health insurance ownership and coverage, education and attainment, energy assistance, and school lunch and school breakfast program participation.

**Topical Module Content**

Topical modules were designed to gather specific information on a wide variety of subjects. Topical modules are not repeated in each wave. Certain modules are administered at each wave following the core content of the SIPP survey. There are around 20 topical modules used throughout the duration of almost all SIPP panels. For the purposes of the proposed study, the Child Care and Migration History modules will be used. The frequency and timing of these modules varies by SIPP panel (see Table 1). Each module is described below.

*Child Care* The Child Care module aims to collect information about all childcare arrangements for all children under 15 years of age from mothers, single fathers, or guardians regardless of labor force status. Prior to 1993, this information was only collected from one to two children of mothers, single fathers, or guardians who were working, in school, or looking for a job. For each child, parents or guardians are asked, '*During a typical week last month, please tell me if you used any of the following individuals or arrangements to look after [child name] on a regular basis (i.e., at least once per week during the past month).'* Respondents have the option to select from the child's other parent or stepparent, a brother or sister age 15 or older, a brother or sister under age 15, a grandparent, any other relative, a family

daycare provider caring for two or more children outside of the home, a childcare or daycare center, a nursery or preschool, a federally supported Head Start program, or a non-relative such as a friend, neighbor, sitter, nanny, or aupair. For all relatives and non-relatives identified as sources of care, the respondent is asked, *'Did [child name's] other parent/sibling/grandparent, etc. care for him/her in [child name's] home, the home of [the relative/non-relative], or someplace else?'* In addition, respondents report how many hours each child spends in each form of care reported, and the cost of each form of care per child. When respondents report that at least one child attends childcare, daycare, nursery school, and/or preschool, respondents are asked, '*When [child name] attended childcare/daycare/nursery school/preschool, was this at a work or school, a church or religious organization, or someplace else?'* Hours spent in care and cost per child are also collected for these forms of care. The 2014 panel is the only one that does not include questions on the hours spent in each form of care.

In addition, respondents are asked if anyone helped pay for all or part of the cost of any child care arrangements for each child, including government agencies, employers, relatives and or friends. SIPP also asks respondents to rate their satisfaction with each form of care (from 1 (very satisfied) to 5 (very dissatisfied)). Respondents then report if they are on a waiting list for a child care arrangement for any child, if problems obtaining child care are preventing the reference household person or any person in the household from obtaining work, more work hours, going to school, or going to school more hours. As a final item, respondents are asked, '*considering all of your children, how much time, if any, was lost in total from your*

*job/school/job search, because of failures in child care arrangements or because you could not find a child care provider?* Respondents can provide their answer as a number of hours, days, weeks or months.

*Migration History* The Migration History module consists of 24 items and collects from each respondent age 15 and older information on place of birth, places they lived, and how long they lived in each location. In addition, those persons born in a foreign country are asked about their citizenship status, permanent resident status and when they came to the United States. This specific line of questioning allows for the legal status of all foreign-born non-citizens to be identified with a high degree of confidence. The questions are as follows: (1) *Are you a U.S. citizen?*, (2) *when you moved to the U.S. to live, what was your immigration status* (family-sponsored permanent resident, employment-based permanent resident, other permanent resident, non-immigrant (student, diplomat), other), and (3) *has your status been changed to permanent resident?* Non-citizen, non-LPR arrivals who have not adjusted are assumed to be undocumented immigrants. The 2014 SIPP does not include the final questions in this sequence about the adjustment of status. All foreign-born respondents are also asked to report that country where they were born, the countries in which they have lived, the country from which they moved to the U.S., and in what year they came to the U.S.

**The Current Study**

The current study used core content, the migration history module, and the child care module of the SIPP from 1996, 2001, 2004, and 2008. The reason for using these panels is that they are inclusive of all SIPP panels administered during the time

period during which most state polices pertaining to driver's license access for undocumented immigrants have become effective (see Table 1c). Only the first wave of the 2014 SIPP became available this year, which asks respondents about demographics, migration history, and child care during the months from February, 2013 through February 2014. However, there were only 516 undocumented households with children in this panel. Among those, only 232 households had information about ECE enrollment. This was too small of a sample to create reliable state-level estimates. Therefore, states with DL policies that became effective after 2008 could not be assessed as part of this study.

**Table E1.** Frequency and Timing of SIPP Topical Modules

| Panel* | Wave1 Eligible Households | # of Waves | Childcare Wave(s) | Reference Months: Childcare | Migration Wave | Reference Months: Migration |
|---|---|---|---|---|---|---|
| 1996 | 40,188 | 12 | 4, 10 | Dec, 96 - Jun, 97; Dec, 98 - Jun, 99 | 2 | April, 96 - Oct, 96 |
| 2001 | 50,500 | 9 | 4 | Oct, 01 - Apr, 02 | 2 | Feb, 01 - Aug, 01 |
| 2004 | 51,379 | 12 | 4, 8 | Oct, 04 - Apr, 05; Feb, 06 - Aug, 06 | 2 | Feb, 04 - Aug, 04 |
| 2008 | 52,031 | 16 | 5, 8 | Sep, 09- Mar, 10; Sep. 10, Mar, 11 | 2 | Sept, 08 - Mar, 09 |
| 2014[1] | 42,491 | 4 | 1 | Feb, 13-Feb, 14 | 1 | Feb, 13-Feb, 14 |

**Note. For 1996 - 2008, interviews were conducted every 4 months; for 2014, interviews were conducted every 12 months*

*[1] 2014 data was not used because the number of undocumented households in the dataset was 516. The number of undocumented households with children that responded to the childcare module was 232. This sample size was not large enough to create state level estimates.*

## Appendix F: Synthetic Control Methods

### Introduction

Often, social scientists are interested in research questions around the influence of historical events, widespread societal changes, or policy interventions on aggregate units such as neighborhoods, states or countries (Abadie, Diamond & Hainmueller, 2011). Traditionally, methods such as comparative case studies have been used in order to assess questions of this nature. In comparative case studies, outcomes for the treated group are compared to outcomes for groups that were not exposed to the intervention of interest (i.e., control groups) (Abadie, Diamond & Hainmueller, 2010). The reasoning behind this is to use the outcome observed for the control group to estimate the outcome one would have observed for the treatment group if the treatment group had not been exposed to the intervention of interest. One limitation of comparative case studies has been that the selection of the control group is left up to the analyst, leaving room for error and a lack of confidence in the degree to which the control group can act as a reasonable proxy for the treated group (Abadie, Diamond & Hainmueller, 2011).

In order to address these limitations, synthetic control methods were developed (Abadie & Gardeazabal, 2003; Abadie et al., 2010). Synthetic control methods are best suited to use linear panel data and employ a difference-in-differences framework whereby effects of any unobserved variables on the outcome of interest are allowed to vary with time (Abadie et al., 2010). Synthetic control methods also allow for the creation of a data-driven control-group called a synthetic control unit (SCU). The SCU is defined as "a weighted average of all available control units that approximates the most relevant characteristics of the treated unit prior to the treatment" (Abadie &

Gardeazabal, 2003). It is often quite difficult in practice to find a single unexposed/untreated unit that sufficiently approximates the most important characteristics of the treated unit, and the motivation behind the use of a SCU is that a combination of units is better able to approximate the unit exposed to the event of interest (Abadie, Diamond & Hainmueller, 2010). Synthetic control methods determine the most appropriate combination of available controls and also make clear the relative contribution of each of the potential control units entered into the model, forcing researchers to acknowledge and attend to the relative degree of similarity between the SCU and the treated unit (Abadie et al., 2010).

In order to implement synthetic control methods in R, the package, Synth can be installed (R Development Core Team, 2011; http://CRAN.R-project.org/package=Synth). The package Synth (1) constructs the synthetic control unit, (2) allows the user to organize the data in a format needed to run the synthetic control analysis, and (3) produces tables and figures that summarize the data and illustrate results. Each step will be discussed in more detail in the following sections.

**Synthetic Control Unit Procedure**

Each treated unit must be analyzed separately. For each analysis, then, there is one treated unit and a "donor pool" of potential control units that were not exposed to the treatment. Therefore there are $J + 1$ units with one treated unit (unit *i)* and $J$ remaining control units that can contribute to the SCU. In addition, the intervention of interest occurs at time $T_0 + 1$ with the pre-intervention time period denoted as 1, 2, …, $T_0$ and the post-intervention period denoted as $T_0 + 1$, $T_0 + 2 \ldots T$. The outcome that would be observed for unit $i$ at time $t$ in absence of the treatment is denoted as $Y_{it}^{N}$.

The outcome that would be observed if unit *i* is exposed to the intervention is denoted as $Y_{it}^{I}$. The goal of the analysis is to estimate the effect of the target policy, historical event, or societal change for the treated unit in the post-intervention time period (i.e., the difference between the two potential outcomes defined above; $\alpha_{1t} = Y_{it}^{I} - Y_{it}^{N}$). Importantly, the outcome $Y_{it}^{N}$ is not observed for the treated unit in the post-intervention period. This is the outcome that will be estimated using the synthetic control unit that is derived from the data by solving an optimization equation.

In order to construct a synthetic control that resembles the treated unit as much as possible in all relevant pre-intervention characteristics, a vector $U_i$, is created using all observed covariates for each of the potential control units. The covariates used are typically a set of predictors known to be associated with the outcome variable of interest (Abadie, Diamond & Hainmueller, 2010). In addition, a ($T_0$ x 1) vector, $K = (k_{1, \ldots,} k_{T0})$' is used to represent linear combinations of pre-intervention outcomes where:

$$\bar{Y}_i^K = \sum_{s=1}^{T_0} k_s \, Y_{is}$$

These linear combinations, *M*, of pre-intervention outcomes are used to control for variables that are likely to change over time and are also likely to influence the outcome of interest (Abadie et al., 2010). Once the vector of observed pre-intervention predictors, $U_i$, has been established, a *J* x 1 vector of weights $W = (w_2, \ldots, w_{j+1})$' is created, where each *W* represents one weighted average of control units (i.e., one potential synthetic control unit). Weights are selected by package Synth with respect to the outcome predictors ($U_i$) and linear combinations of pre-intervention outcome values (*M*) so that the ultimate synthetic control unit best approximates the

unit of interest that was actually exposed to the intervention (Abadie & Gardeazabal, 2003). This is formally expressed as:

Package Synth selects weights $W^* = w_2^* + \ldots + w^*_{j+1}$

Such that:

$$\sum_{j=2}^{J+1} w_j^* \bar{Y}_j^{K_1} = \bar{Y}_1^{K_1} \ldots \sum_{j=2}^{J+1} w_j^* \bar{Y}_j^{K_M} = \bar{Y}_1^{K_M}$$
$$\sum_{j=2}^{J+1} w_j^* \bar{Y}_j^{K_1} = \bar{Y}_1^{K_1} \ldots \sum_{j=2}^{J+1} w_j^* \bar{Y}_j^{K_M} = \bar{Y}_1^{K_M}$$

And such that: $\sum_{j=2}^{J+1} w_j^* U_j = U_1 \sum_{j=2}^{J+1} w_j^* U_j = U_1$

Essentially this is an attempt to ensure the pre-intervention characteristics of the treated unit and the available untreated units match as closely as possible. Then an estimator is yielded for each of the time periods, $T_0 + 1$, $T_0 + 2$, …$T$:

$$\hat{\alpha}_{1t} = Y_{1t} - \sum_{j=2}^{J+1} w_j^* Y_{jt}$$

The estimator, $[\hat{a}_{1t}]$, is the value assigned as the projected outcome of interest of the SCU at each time point examined. To use the estimator in the synthetic control method, a distance between the treated unit and the SCU must be determined. In order to determine the distance (i.e., similarity) between the SCU and the target state, we combine the demographic and descriptive characteristics of the treated unit in the *K x 1* matrix, $X_1$, and the values of the same set of demographics of the control units in the *K x J* matrix, $X_0$. In order to create the most similar synthetic control unit, the synth( ) function chooses the vector $W^*$ to minimize this distance between characteristics of the treated unit ($X_1$) and those estimated for the SCU ($X_0$) subject to the weighted constraints (i.e., $||X_1 – X_0W||$). Specifically, the synth( ) function solves for a $W^*$ that minimizes the mean square prediction error (MSPE) of the synthetic control estimator:

$$||X_1 - X_0W||_v = \sqrt{(X_1 - X_0W)'V(X_1 - X_0W)}$$

$V$ is defined as a ($k$ x $k$) symmetric, positive matrix which is introduced to allow different weights to be applied to the variables in $X_0$ and $X_1$ depending on their predictive power in terms of the outcome of interest. The goal for $V$, then, is to assign weights such that the MSPE of the synthetic control estimator is minimized. Although the user can opt to define $V$, the process is implemented by default in the Synth( ) function, and utilizing the default data-driven procedure is recommended (Abadie et al., 2010). In this procedure, $V^*$ is selected among all positive definite and diagonal matrices such that the MSPE of the outcome variable is minimized over the user-defined pre-intervention period. In other words, $Z_1$ is the ($T_p$ x 1) vector with the values of the outcome variable for the treated unit over the course of the pre-intervention period, and $Z_0$ is the ($T_p$ x J) matrix for the control units, where $T_p$ ($1 \leq T_p \leq T_0$) is the number of pre-intervention periods over which MSPE is minimized. Then $V^*$ is chosen to minimize:

$$\arg\min(Z_1 - Z_0W^*(V))'(Z_1 - Z_0W^*(V))$$

where $V$ is the set of all positive definite and diagonal matrices and the weights for the synthetic control are given by $W^*$. Synth( ) then solves a nested optimization problem that minimizes equation (2) for $W^*(V)$ given by equation (1).

Currently, a test of statistical significance does not exist for synthetic control methods. However, synthetic control methods facilitate inferential techniques. It is suggested that researchers using synthetic control methods proceed by conducting placebo tests. This is carried out by randomly reassigning the intervention across units

(i.e., to a control unit in which the same intervention did not occur). Comparing the primary analysis with the placebo test informs researchers about the rarity and magnitude of the treatment effect that was observed in the treated unit (Abadie et al., 2010).

**Application to the Current Study**

For purposes of the current study, the treatment units were Washington, New Mexico, Utah, and California, all of which experienced a change in policy regarding the issuance of driver's licenses to undocumented immigrants during the time period for which SIPP data were obtained (1996 – 2008). The one exception was Washington, which has issued driver's licenses to undocumented immigrants since 1993. Therefore, no change took place during the time period for which data were available. In California, a policy was passed and signed by the governor in 2004 that expanded DL access to undocumented immigrants. However, in 2005 when the federal government passed the REAL ID Act, California eliminated the new policy and it was never enacted in the state. In New Mexico and Utah DL policies were passed and enacted in 2003 and 2005 respectively. These two states, then, provided a pre- and post-policy comparison.

The data were obtained from the SIPP, whereby household-level responses from each panel year were used to create a state-level database compatible with synthetic control methods. This database consisted of the outcome variable of interest (i.e., ECE enrollment rate among undocumented households with three- to five-year-old children), the covariates used to match potential control states to each target state (i.e., state-level access to childcare assistance, average weekly cost of ECE, the

proportion of the state that identifies as Hispanic/Latino, the proportion of the state that speaks a language other than English at home, the average age of the head of household, the proportion of the state that identified as non-citizens, the average monthly household income, , the proportion of the population with at least a high school diploma/GED, and the proportion of households that are linguistically isolated). A value for each one of these covariates was estimated for each state at each of the four time points (1996, 2001, 2004 and 2008). These values were used to match target states to potential control states and to subsequently create an optimal synthetic control unit for each of the target states examined through the methods described above.

Once the SCUs were created, synthetic control methods were conducted using each target state and its corresponding SCU determined by the Synth( ) function. In addition, placebo tests were conducted in which the intervention was randomly assigned to the highest weighted control state in each target state's SCU (e.g., Arizona for Utah). Inferences were made using the comparisons between each target state and its SCU and the placebo test along with consideration of the social and historical context within each state during the time period examined.

## Appendix G

## Sample Code for Synthetic Control Method and Placebo Test

```
dataprep.out <-
        dataprep(foo = stately,
                predictors = c("slaca", "ececost", "HispLat", "nonENG", "AgeHHead", "noncits",
"income", "timeinUS", "Hsdegged",
                                                        "lingiso", "runemploy"),
                                        predictors.op = "mean",
                                        time.predictors.prior = 1:2,
                                dependent = "ecerate",
                unit.variable = "FIPS",

                time.variable = "year",
                treatment.identifier = 31,
                controls.identifier = c(3, 6, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 28, 30, 32,
33, 37, 38, 40, 43, 45),
                time.optimize.ssr = 1:4,
                time.plot = 1:4
                )

##################################################
### chunk number 4: x matrix (predictors, treated)
##################################################
 dataprep.out$X1

##################################################
### chunk number 5: z matrix (outcome, treated)
```

```
#####################################################
 dataprep.out$Z1

#####################################################



#####################################################
### chunk number 7: run synth
#####################################################
 synth.out <- synth(data.prep.obj = dataprep.out,
                    method = "BFGS")

#####################################################
### chunk number 8: gaps btwn T and SCU by timepoint
#####################################################
 gaps <- dataprep.out$Y1plot - (dataprep.out$Y0plot %*% synth.out$solution.w)
 gaps[1:4, 1]

#####################################################
### chunk number 9: predictors t vs. SCU vs. mean
#####################################################
 synth.tables <- synth.tab(dataprep.res = dataprep.out,
                           synth.res = synth.out
                           )
print(synth.tables)
#####################################################
### chunk number 10:
#####################################################
```

```
 names(synth.tables)


####################################################
### chunk number 11:
####################################################
 synth.tables$tab.pred[1:20, ]


####################################################
### chunk number 12: state weights
####################################################
 synth.tables$tab.w[1:50, ]


####################################################
### chunk number 13: plot treated v. scu on ECE over time
####################################################
 path.plot(synth.res = synth.out,
          dataprep.res = dataprep.out,
                                      tr.intake = 2.85,
          Ylab = "ECE rate",
          Xlab = "year",
          Ylim = c(0,1),
          Legend = c("New Mexico","Synthetic New Mexico"),
                                        Legend.position = "topleft"

)
#########################################################
###PLACEBOS, TEXAS / Virginia
#########################################################
```

```
dataprep.out <-
        dataprep(foo = stately,
                predictors = c("slaca", "ececost", "HispLat", "nonENG", "AgeHHead", "noncits",
"income", "timeinUS", "Hsdegged",
                                                        "lingiso", "runemploy"),
                                        predictors.op = "mean",
                                        time.predictors.prior = 1:2,
                                    dependent = "ecerate",
                unit.variable = "FIPS",

                time.variable = "year",
                treatment.identifier = 43,
                controls.identifier = c(3, 6, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 28, 30, 32,
33, 37, 38, 40, 45),
                time.optimize.ssr = 1:4,
                time.plot = 1:4
                )

#####################################################
### chunk number 4: x matrix (predictors, treated)
#####################################################
 dataprep.out$X1

#####################################################
### chunk number 5: z matrix (outcome, treated)
#####################################################
 dataprep.out$Z1
```

```
#####################################################



#####################################################
### chunk number 7: run synth
#####################################################
 synth.out <- synth(data.prep.obj = dataprep.out,
                    method = "BFGS")

#####################################################
### chunk number 8: gaps btwn T and SCU by timepoint
#####################################################
 gaps <- dataprep.out$Y1plot - (dataprep.out$Y0plot %*% synth.out$solution.w)
 gaps[1:4, 1]

#####################################################
### chunk number 9: predictors t vs. SCU vs. mean
#####################################################
 synth.tables <- synth.tab(dataprep.res = dataprep.out,
                           synth.res = synth.out
                           )
print(synth.tables)
#####################################################
### chunk number 10:
#####################################################
 names(synth.tables)
```

```
#####################################################
### chunk number 11:
#####################################################
 synth.tables$tab.pred[1:20, ]


#####################################################
### chunk number 12: state weights
#####################################################
 synth.tables$tab.w[1:50, ]


#####################################################
### chunk number 13: plot treated v. scu on ECE over time
#####################################################
 path.plot(synth.res = synth.out,
          dataprep.res = dataprep.out,
                                        tr.intake = 2.85,
          Ylab = "ECE rate",
          Xlab = "year",
          Ylim = c(0,1),
          Legend = c("Texas","Synthetic Texas"),
                                          Legend.position = "topleft"

)


dataprep.out <-
             dataprep(foo = stately,
                    predictors = c("slaca", "ececost", "HispLat", "nonENG", "AgeHHead", "noncits",
"income", "timeinUS", "Hsdegged",
```

```
                                                    "lingiso", "runemploy"),
                                        predictors.op = "mean",
                                        time.predictors.prior = 1:2,
                                    dependent = "ecerate",
            unit.variable = "FIPS",


            time.variable = "year",
            treatment.identifier = 45,
            controls.identifier = c(3, 6, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 28, 30, 32,
33, 37, 38, 40, 43),
            time.optimize.ssr = 1:4,
            time.plot = 1:4
            )

##################################################
### chunk number 4: x matrix (predictors, treated)
##################################################
 dataprep.out$X1

##################################################
### chunk number 5: z matrix (outcome, treated)
##################################################
 dataprep.out$Z1

##################################################


##################################################
```

```
### chunk number 7: run synth
#####################################################
 synth.out <- synth(data.prep.obj = dataprep.out,
                    method = "BFGS")

#####################################################
### chunk number 8: gaps btwn T and SCU by timepoint
#####################################################
 gaps <- dataprep.out$Y1plot - (dataprep.out$Y0plot %*% synth.out$solution.w)
 gaps[1:4, 1]

#####################################################
### chunk number 9: predictors t vs. SCU vs. mean
#####################################################
 synth.tables <- synth.tab(dataprep.res = dataprep.out,
                           synth.res = synth.out
                           )
print(synth.tables)
#####################################################
### chunk number 10:
#####################################################
 names(synth.tables)

#####################################################
### chunk number 11:
#####################################################
 synth.tables$tab.pred[1:20, ]
```

```
#####################################################
### chunk number 12: state weights
#####################################################
 synth.tables$tab.w[1:50, ]


#####################################################
### chunk number 13: plot treated v. scu on ECE over time
#####################################################
 path.plot(synth.res = synth.out,
          dataprep.res = dataprep.out,
                                        tr.intake = 2.85,
          Ylab = "ECE rate",
          Xlab = "year",
          Ylim = c(0,1),
          Legend = c("Virginia","Synthetic Virginia"),
                                           Legend.position = "topleft"
)
#####################################################
### chunk number 14: plot of gaps in ece between treated and SCU
#####################################################
 gaps.plot(synth.res = synth.out,
          dataprep.res = dataprep.out,
          Ylab = "gap in ECE rate",
          Xlab = "year",
          Ylim = c(-.5,.5),
          Main = NA  )
```

# Appendix H

## Covariate Descriptive Statistics

**Table H1. Normality of ECE participation (DV) and covariates used in SCM**

| | *N* | *M* | *SD* | Skew | Kurtosis |
|---|---|---|---|---|---|
| All states (1996 - 2008) | 186 | 0.32 | 0.12 | 0.25 | -0.12 |
| *1996* | 45 | 0.4 | 0.1 | 0.05 | -0.36 |
| *2001* | 45 | 0.32 | 0.12 | 0.23 | -0.14 |
| *2004* | 48 | 0.29 | 0.09 | -0.04 | 1.02 |
| *2008* | 48 | 0.28 | 0.11 | 0.67 | -0.1 |
| Accessibility of childcare assistance | 186 | 3.17 | 1.17 | -0.10 | -0.92 |
| Weekly cost of early care and education (USD) | 185 | 34.94 | 52.73 | 9.25 | 105.66 |
| Hispanic or Latino (%) | 170 | 47.00 | 33.00 | 0.04 | -1.27 |
| Speak language other than English at home (%) | 131 | 82.00 | 21.00 | -1.96 | 4.61 |
| Head of household Age (years) | 170 | 32.61 | 5.59 | 1.46 | 7.13 |
| Non-citizens (%) | 186 | 7.00 | 6.00 | 1.76 | 3.74 |
| Monthly income (USD) | 186 | 4314.54 | 1646.10 | 0.74 | 0.73 |
| Time in the U.S. (higher value = less time) | 117 | 14.77 | 2.22 | 0.32 | 0.74 |
| High school degree or higher (%) | 186 | 83.00 | 12.00 | -0.92 | 1.77 |
| Households linguistically isolated (%) | 141 | 9.00 | 10.00 | 1.21 | 1.44 |
| Unemployment (%) | 185 | 28.00 | 21.00 | 0.40 | -0.54 |

**Table H2. All States (1996)**

| | *N* | *M* | *SD* | Median | Skew | Kurtosis |
|---|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 45 | 3.29 | 1.20 | 3.00 | -0.32 | -0.89 |
| Weekly cost of early care and education (USD) | 45 | 38.72 | 97.31 | 20.87 | 5.84 | 34.46 |
| Hispanic or Latin@ (%) | 38 | 47.00 | 37.00 | 50.00 | -0.02 | -1.61 |
| Speak language other than English at home (%) | 0 | NA | NA | NA | NA | NA |
| Head of household Age (years) | 38 | 31.20 | 5.66 | 31.16 | 0.18 | 0.07 |
| Non-citizens (%) | 45 | 8.00 | 7.00 | 5.00 | 1.37 | 1.49 |
| Monthly income (USD) | 45 | 3433.72 | 1425.92 | 3265.43 | 0.71 | 0.82 |
| Time in the U.S. (higher value = less time) | 0 | NA | NA | NA | NA | NA |
| High school degree or higher (%) | 45 | 83.00 | 11.00 | 87.00 | -0.28 | -0.89 |
| Households linguistically isolated (%) | 0 | NA | NA | NA | NA | NA |
| Unemployment (%) | 45 | 42.00 | 17.00 | 42.00 | 0.39 | 2.04 |

Table H3. All States (2001)

| | *N* | *M* | *SD* | Median | Skew | Kurtosis |
|---|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 45 | 3.29 | 1.20 | 3.00 | -0.32 | -0.89 |
| Weekly cost of early care and education (USD) | 45 | 31.97 | 19.70 | 32.00 | 0.19 | -0.43 |
| Hispanic or Latin@ (%) | 44 | 39.00 | 30.00 | 33.00 | 0.44 | -0.92 |
| Speak language other than English at home (%) | 43 | 75.00 | 26.00 | 83.00 | -1.48 | 1.75 |
| Head of household Age (years) | 44 | 34.59 | 6.43 | 33.95 | 0.44 | -0.92 |
| Non-citizens (%) | 45 | 9.00 | 8.00 | 6.00 | 1.29 | 1.17 |
| Monthly income (USD) | 45 | 4522.24 | 1592.48 | 4154.00 | 0.80 | 0.05 |
| Time in the U.S. (higher value = less time) | 37 | 13.76 | 2.41 | 14.00 | 0.41 | 0.29 |
| High school degree or higher (%) | 45 | 83.00 | 11.00 | 83.00 | -0.07 | -1.02 |
| Households linguistically isolated (%) | 45 | 6.00 | 8.00 | 4.00 | 1.31 | 0.96 |
| Unemployment (%) | 44 | 40.00 | 17.00 | 42.00 | 0.05 | 0.15 |

Table H4. All States (2004)

| | *N* | *M* | *SD* | Median | Skew | Kurtosis |
|---|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 48 | 2.98 | 1.16 | 3.00 | 0.12 | -1.01 |
| Weekly cost of early care and education (USD) | 47 | 26.69 | 17.38 | 24.42 | 1.02 | 1.60 |
| Hispanic or Latin@ (%) | 44 | 49.00 | 31.00 | 48.00 | 0.06 | -1.15 |
| Speak language other than English at home (%) | 44 | 90.00 | 14.00 | 94.00 | -1.80 | 3.25 |
| Head of household Age (years) | 44 | 31.21 | 3.70 | 31.52 | -0.75 | 0.99 |
| Non-citizens (%) | 48 | 5.00 | 4.00 | 4.00 | 0.91 | 0.26 |
| Monthly income (USD) | 48 | 4357.82 | 1816.77 | 4155.21 | 1.15 | 1.41 |
| Time in the U.S. (higher value = less time) | 41 | 14.84 | 1.59 | 14.63 | -0.02 | -0.60 |
| High school degree or higher (%) | 48 | 81.00 | 15.00 | 83.00 | -1.39 | 2.47 |
| Households linguistically isolated (%) | 48 | 12.00 | 11.00 | 8.00 | 1.16 | 1.37 |
| Unemployment (%) | 48 | 17.00 | 19.00 | 13.00 | 1.41 | 1.05 |

**Table H5. All States (2008)**

| | *N* | *M* | *SD* | Median | Skew | Kurtosis |
|---|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 48 | 3.12 | 1.14 | 3.00 | 0.10 | -0.88 |
| Weekly cost of early care and education (USD) | 48 | 42.24 | 34.88 | 34.60 | 1.47 | 2.68 |
| Hispanic or Latin@ (%) | 44 | 52.00 | 33.00 | 58.00 | -0.29 | -1.24 |
| Speak language other than English at home (%) | 44 | 81.00 | 19.00 | 88.00 | -1.86 | 5.14 |
| Head of household Age (years) | 44 | 33.24 | 5.66 | 32.44 | 2.53 | 10.89 |
| Non-citizens (%) | 48 | 6.00 | 4.00 | 5.00 | 0.89 | 0.14 |
| Monthly income (USD) | 48 | 4902.94 | 1395.21 | 4806.82 | 0.37 | 0.12 |
| Time in the U.S. (higher value = less time) | 39 | 15.66 | 2.24 | 15.00 | 0.73 | 0.40 |
| High school degree or higher (%) | 48 | 84.00 | 11.00 | 83.00 | -0.73 | 0.52 |
| Households linguistically isolated (%) | 48 | 9.00 | 9.00 | 8.00 | 0.76 | -0.52 |
| Unemployment (%) | 48 | 15.00 | 17.00 | 10.00 | 1.11 | 0.19 |

**Table H6. Descriptive Statistics: New Mexico and its Placebo States**

| New Mexico (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 4 | 3.25 | 0.96 | -0.32 | -2.08 |
| Weekly cost of early care and education (USD) | 4 | 30.82 | 4.94 | -0.40 | -1.83 |
| Hispanic or Latin@ (%) | 4 | 92.00 | 16.00 | -0.75 | -1.69 |
| Speak language other than English at home (%) | 3 | 98.00 | 4.00 | -0.38 | -2.33 |
| Head of household Age (years) | 4 | 34.12 | 5.64 | -0.10 | -1.89 |
| Non-citizens (%) | 4 | 10.00 | 3.00 | 0.60 | -1.78 |
| Monthly income (USD) | 4 | 4475.27 | 2523.96 | 0.71 | -1.71 |
| Time in the U.S. (higher value = less time) | 3 | 13.12 | 2.27 | -0.37 | -2.33 |
| High school degree or higher (%) | 4 | 58.00 | 19.00 | -0.20 | -1.86 |
| Households linguistically isolated (%) | 3 | 14.00 | 17.00 | 0.24 | -2.33 |
| Unemployment (%) | 4 | 42.00 | 16.00 | -0.34 | -1.95 |
| Texas (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 4 | 4.00 | 0.00 | 0.00 | 0.00 |
| Weekly cost of early care and education (USD) | 4 | 29.52 | 6.94 | -0.50 | -1.80 |
| Hispanic or Latin@ (%) | 4 | 79.00 | 2.00 | 0.45 | -1.88 |
| Speak language other than English at home (%) | 3 | 84.00 | 9.00 | 0.34 | -2.33 |
| Head of household Age (years) | 4 | 33.55 | 2.20 | 0.58 | -1.82 |
| Non-citizens (%) | 4 | 14.00 | 3.00 | 0.16 | -2.02 |
| Monthly income (USD) | 4 | 3556.71 | 748.62 | 0.40 | -1.98 |
| Time in the U.S. (higher value = less time) | 3 | 14.38 | 0.94 | 0.36 | -2.33 |
| High school degree or higher (%) | 4 | 70.00 | 4.00 | -0.38 | -1.85 |
| Households linguistically isolated (%) | 3 | 11.00 | 10.00 | -0.38 | -2.33 |
| Unemployment (%) | 4 | 52.00 | 5.00 | 0.36 | -1.84 |
| Virginia (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 4 | 3.00 | 1.15 | 0.00 | -2.44 |
| Weekly cost of early care and education (USD) | 4 | 39.46 | 5.36 | 0.23 | -2.07 |
| Hispanic or Latin@ (%) | 4 | 36.00 | 30.00 | 0.64 | -1.77 |
| Speak language other than English at home (%) | 3 | 73.00 | 9.00 | -0.12 | -2.33 |
| Head of household Age (years) | 4 | 33.44 | 2.75 | 0.57 | -1.78 |
| Non-citizens (%) | 4 | 7.00 | 3.00 | 0.45 | -1.84 |
| Monthly income (USD) | 4 | 5803.44 | 1379.69 | -0.57 | -1.83 |
| Time in the U.S. (higher value = less time) | 3 | 12.68 | 2.21 | 0.02 | -2.33 |
| High school degree or higher (%) | 4 | 92.00 | 3.00 | -0.54 | -1.82 |
| Households linguistically isolated (%) | 3 | 3.00 | 3.00 | -0.21 | -2.33 |
| Unemployment (%) | 4 | 22.00 | 19.00 | -0.01 | -2.33 |

**Table H7. Descriptive Statistics: Utah and its Placebo States**

| Utah (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 4 | 3.50 | 0.58 | 0.00 | -2.44 |
| Weekly cost of early care and education (USD) | 4 | 19.59 | 23.54 | 0.61 | -1.76 |
| Hispanic or Latin@ (%) | 4 | 61.00 | 44.00 | -0.46 | -1.89 |
| Speak language other than English at home (%) | 3 | 83.00 | 29.00 | -0.38 | -2.33 |
| Head of household Age (years) | 4 | 35.40 | 5.62 | 0.24 | -1.87 |
| Non-citizens (%) | 4 | 6.00 | 3.00 | 0.68 | -1.73 |
| Monthly income (USD) | 4 | 4406.55 | 718.27 | 0.15 | -1.91 |
| Time in the U.S. (higher value = less time) | 3 | 13.50 | 3.54 | 0.00 | -2.75 |
| High school degree or higher (%) | 4 | 92.00 | 6.00 | 0.14 | -2.07 |
| Households linguistically isolated (%) | 3 | 3.00 | 5.00 | 0.38 | -2.33 |
| Unemployment (%) | 4 | 17.00 | 19.00 | 0.50 | -1.84 |
| Arizona (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 4 | 2.75 | 0.50 | -0.75 | -1.69 |
| Weekly cost of early care and education (USD) | 4 | 14.80 | 10.89 | 0.14 | -2.18 |
| Hispanic or Latin@ (%) | 4 | 90.00 | 5.00 | 0.50 | -1.81 |
| Speak language other than English at home (%) | 3 | 90.00 | 3.00 | 0.34 | -2.33 |
| Head of household Age (years) | 4 | 31.71 | 3.92 | -0.55 | -1.79 |
| Non-citizens (%) | 4 | 12.00 | 2.00 | -0.58 | -1.77 |
| Monthly income (USD) | 4 | 3901.62 | 1165.31 | 0.63 | -1.78 |
| Time in the U.S. (higher value = less time) | 3 | 14.75 | 2.28 | 0.38 | -2.33 |
| High school degree or higher (%) | 4 | 75.00 | 3.00 | 0.35 | -1.88 |
| Households linguistically isolated (%) | 3 | 12.00 | 9.00 | 0.04 | -2.33 |
| Unemployment (%) | 4 | 44.00 | 9.00 | 0.56 | -1.79 |
| Nevada (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 4 | 4.75 | 0.50 | -0.75 | -1.69 |
| Weekly cost of early care and education (USD) | 4 | 34.48 | 27.62 | 0.37 | -2.03 |
| Hispanic or Latin@ (%) | 4 | 86.00 | 7.00 | 0.58 | -1.79 |
| Speak language other than English at home (%) | 3 | 97.00 | 2.00 | 0.38 | -2.33 |
| Head of household Age (years) | 4 | 33.75 | 1.85 | -0.22 | -1.88 |
| Non-citizens (%) | 4 | 18.00 | 9.00 | 0.16 | -1.97 |
| Monthly income (USD) | 4 | 5300.10 | 3346.37 | 0.06 | -2.25 |
| Time in the U.S. (higher value = less time) | 3 | 14.37 | 0.32 | -0.34 | -2.33 |
| High school degree or higher (%) | 4 | 71.00 | 6.00 | 0.56 | -1.85 |
| Households linguistically isolated (%) | 3 | 21.00 | 7.00 | -0.38 | -2.33 |
| Unemployment (%) | 4 | 50.00 | 30.00 | 0.06 | -2.33 |

**Table H8. Descriptive Statistics: California and its Placebo States**

| California (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 4 | 4.00 | 0.00 | 0.00 | 0.00 |
| Weekly cost of early care and education (USD) | 4 | 26.33 | 10.74 | 0.14 | -1.88 |
| Hispanic or Latin@ (%) | 4 | 78.00% | 5.00% | 0.50 | -1.81 |
| Speak language other than English at home (%) | 3 | 91.00% | 2.00% | 0.29 | -2.33 |
| Head of household Age (years) | 4 | 33.81 | 2.70 | -0.15 | -1.87 |
| Non-citizens (%) | 4 | 24.00% | 9.00% | 0.01 | -2.41 |
| Monthly income (USD) | 4 | 4303.99 | 874.93 | -0.68 | -1.73 |
| Time in the U.S. (higher value = less time) | 3 | 13.53 | 0.88 | -0.30 | -2.33 |
| High school degree or higher (%) | 4 | 66.00% | 4.00% | -0.48 | -1.92 |
| Households linguistically isolated (%) | 3 | 24.00% | 6.00% | -0.37 | -2.33 |
| Unemployment (%) | 4 | 54.00% | 5.00% | -0.45 | -1.94 |
| New York (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 4 | 3.50 | 0.58 | 0.00 | -2.44 |
| Weekly cost of early care and education (USD) | 4 | 55.41 | 30.29 | 0.63 | -1.77 |
| Hispanic or Latin@ (%) | 4 | 38.00% | 9.00% | -0.29 | -1.92 |
| Speak language other than English at home (%) | 3 | 90.00% | 2.00% | 0.29 | -2.33 |
| Head of household Age (years) | 4 | 34.60 | 1.91 | 0.01 | -2.42 |
| Non-citizens (%) | 4 | 14.00% | 5.00% | -0.01 | -2.42 |
| Monthly income (USD) | 4 | 6495.81 | 1383.64 | -0.02 | -2.23 |
| Time in the U.S. (higher value = less time) | 3 | 13.91 | 0.61 | -0.32 | -2.33 |
| High school degree or higher (%) | 4 | 89.00% | 7.00% | -0.71 | -1.72 |
| Households linguistically isolated (%) | 3 | 9.00% | 4.00% | -0.09 | -2.33 |
| Unemployment (%) | 4 | 37.00% | 27.00% | 0.02 | -2.49 |
| New Jersey (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 4 | 3.50 | 0.58 | 0.00 | -2.44 |
| Weekly cost of early care and education (USD) | 4 | 55.41 | 30.29 | 0.63 | -1.77 |
| Hispanic or Latin@ (%) | 4 | 38.00% | 9.00% | -0.29 | -1.92 |
| Speak language other than English at home (%) | 3 | 90.00% | 2.00% | 0.29 | -2.33 |
| Head of household Age (years) | 4 | 34.60 | 1.91 | 0.01 | -2.42 |
| Non-citizens (%) | 4 | 14.00% | 5.00% | -0.01 | -2.42 |
| Monthly income (USD) | 4 | 6495.81 | 1383.64 | -0.02 | -2.23 |
| Time in the U.S. (higher value = less time) | 3 | 13.91 | 0.61 | -0.32 | -2.33 |
| High school degree or higher (%) | 4 | 89.00% | 7.00% | -0.71 | -1.72 |
| Households linguistically isolated (%) | 3 | 9.00% | 4.00% | -0.09 | -2.33 |
| Unemployment (%) | 4 | 37.00% | 27.00% | 0.02 | -2.49 |

| Nevada (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 4 | 4.75 | 0.50 | -0.75 | -1.69 |
| Weekly cost of early care and education (USD) | 4 | 34.48 | 27.62 | 0.37 | -2.03 |
| Hispanic or Latin@ (%) | 4 | 86.00% | 7.00% | 0.58 | -1.79 |
| Speak language other than English at home (%) | 3 | 97.00% | 2.00% | 0.38 | -2.33 |
| Head of household Age (years) | 4 | 33.75 | 1.85 | -0.22 | -1.88 |
| Non-citizens (%) | 4 | 18.00% | 9.00% | 0.16 | -1.97 |
| Monthly income (USD) | 4 | 5300.10 | 3346.37 | 0.06 | -2.25 |
| Time in the U.S. (higher value = less time) | 3 | 14.37 | 0.32 | -0.34 | -2.33 |
| High school degree or higher (%) | 4 | 71.00% | 6.00% | 0.56 | -1.85 |
| Households linguistically isolated (%) | 3 | 21.00% | 7.00% | -0.38 | -2.33 |
| Unemployment (%) | 4 | 50.00% | 30.00% | 0.06 | -2.33 |
| Illinois (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 4 | 3.00 | 0.00 | 0.00 | 0.00 |
| Weekly cost of early care and education (USD) | 4 | 20.05 | 13.57 | 0.39 | -2.01 |
| Hispanic or Latin@ (%) | 4 | 64.00% | 13.00% | 0.60 | -1.80 |
| Speak language other than English at home (%) | 3 | 87.00% | 4.00% | -0.09 | -2.33 |
| Head of household Age (years) | 4 | 31.52 | 1.69 | -0.73 | -1.70 |
| Non-citizens (%) | 4 | 10.00% | 2.00% | 0.00 | -1.96 |
| Monthly income (USD) | 4 | 4400.64 | 1551.24 | -0.04 | -2.33 |
| Time in the U.S. (higher value = less time) | 3 | 14.45 | 0.43 | -0.08 | -2.33 |
| High school degree or higher (%) | 4 | 78.00% | 8.00% | -0.12 | -2.00 |
| Households linguistically isolated (%) | 3 | 19.00% | 12.00% | 0.14 | -2.33 |
| Unemployment (%) | 4 | 34.00% | 16.00% | 0.02 | -2.20 |
| Georgia (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 4 | 2.00 | 0.00 | 0.00 | 0.00 |
| Weekly cost of early care and education (USD) | 4 | 15.04 | 8.74 | 0.24 | -2.17 |
| Hispanic or Latin@ (%) | 4 | 52.00% | 30.00% | -0.59 | -1.82 |
| Speak language other than English at home (%) | 3 | 79.00% | 12.00% | -0.14 | -2.33 |
| Head of household Age (years) | 4 | 30.39 | 2.30 | -0.22 | -2.19 |
| Non-citizens (%) | 4 | 6.00% | 1.00% | 0.42 | -1.82 |
| Monthly income (USD) | 4 | 4284.56 | 882.36 | 0.15 | -1.90 |
| Time in the U.S. (higher value = less time) | 3 | 13.74 | 1.34 | -0.19 | -2.33 |
| High school degree or higher (%) | 4 | 74.00% | 5.00% | -0.59 | -1.81 |
| Households linguistically isolated (%) | 3 | 13.00% | 6.00% | -0.37 | -2.33 |
| Unemployment (%) | 4 | 32.00% | 14.00% | -0.34 | -2.04 |

| Florida (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 4 | 1.00 | 0.00 | 0.00 | 0.00 |
| Weekly cost of early care and education (USD) | 4 | 32.69 | 6.24 | -0.17 | -1.90 |
| Hispanic or Latin@ (%) | 4 | 58.00% | 20.00% | -0.49 | -1.89 |
| Speak language other than English at home (%) | 3 | 81.00% | 4.00% | 0.09 | -2.33 |
| Head of household Age (years) | 4 | 37.25 | 1.11 | -0.13 | -1.87 |
| Non-citizens (%) | 4 | 14.00% | 5.00% | 0.21 | -2.17 |
| Monthly income (USD) | 4 | 3741.18 | 1253.53 | 0.68 | -1.74 |
| Time in the U.S. (higher value = less time) | 3 | 15.04 | 0.40 | -0.29 | -2.33 |
| High school degree or higher (%) | 4 | 84.00% | 2.00% | 0.62 | -1.79 |
| Households linguistically isolated (%) | 3 | 14.00% | 6.00% | -0.29 | -2.33 |
| Unemployment (%) | 4 | 36.00% | 14.00% | 0.24 | -1.87 |
| Arizona (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 4 | 2.75 | 0.50 | -0.75 | -1.69 |
| Weekly cost of early care and education (USD) | 4 | 14.80 | 10.89 | 0.14 | -2.18 |
| Hispanic or Latin@ (%) | 4 | 90.00% | 5.00% | 0.50 | -1.81 |
| Speak language other than English at home (%) | 3 | 90.00% | 3.00% | 0.34 | -2.33 |
| Head of household Age (years) | 4 | 31.71 | 3.92 | -0.55 | -1.79 |
| Non-citizens (%) | 4 | 12.00% | 2.00% | -0.58 | -1.77 |
| Monthly income (USD) | 4 | 3901.62 | 1165.31 | 0.63 | -1.78 |
| Time in the U.S. (higher value = less time) | 3 | 14.75 | 2.28 | 0.38 | -2.33 |
| High school degree or higher (%) | 4 | 75.00% | 3.00% | 0.35 | -1.88 |
| Households linguistically isolated (%) | 3 | 12.00% | 9.00% | 0.04 | -2.33 |
| Unemployment (%) | 4 | 44.00% | 9.00% | 0.56 | -1.79 |

**TableH9. Descriptive Statistics: Target States, Placebo States and States Excluded or Not Included in SCM**

| All Target States[a] (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 12 | 3.58 | 0.67 | -1.11 | -0.13 |
| Weekly cost of early care and education (USD) | 12 | 25.58 | 14.58 | 0.11 | -0.78 |
| Hispanic or Latin@ (%) | 12 | 77.00 | 28.00 | -1.56 | 1.96 |
| Speak language other than English at home (%) | 9 | 91.00 | 16.00 | -1.76 | 1.79 |
| Head of household Age (years) | 12 | 34.44 | 4.45 | 0.22 | -0.73 |
| Non-citizens (%) | 12 | 14.00 | 10.00 | 0.95 | -0.51 |
| Monthly income (USD) | 12 | 4395.27 | 1446.46 | 1.33 | 1.37 |
| Time in the U.S. (higher value = less time) | 8 | 13.37 | 1.88 | -0.30 | -1.48 |
| High school degree or higher (%) | 12 | 72.00 | 19.00 | -0.34 | -0.63 |
| Households linguistically isolated (%) | 9 | 14.00 | 13.00 | 0.21 | -1.82 |
| Unemployment (%) | 12 | 38.00 | 21.00 | -0.56 | -1.41 |
| All Placebo States[b] (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
| Access to childcare (1-5; higher value = more access) | 36 | 3.08 | 1.16 | -0.26 | -0.91 |
| Weekly cost of early care and education (USD) | 36 | 29.36 | 18.80 | 1.49 | 3.57 |
| Hispanic or Latin@ (%) | 36 | 60.00 | 25.00 | -0.39 | -1.18 |
| Speak language other than English at home (%) | 27 | 84.00 | 10.00 | -0.49 | -0.69 |
| Head of household Age (years) | 36 | 33.55 | 2.92 | -0.33 | -0.18 |
| Non-citizens (%) | 36 | 12.00 | 6.00 | 0.98 | 0.70 |
| Monthly income (USD) | 36 | 4662.48 | 1678.03 | 0.66 | -0.32 |
| Time in the U.S. (higher value = less time) | 27 | 14.17 | 1.24 | -0.43 | 1.98 |
| High school degree or higher (%) | 36 | 80.00 | 9.00 | 0.07 | -1.22 |
| Households linguistically isolated (%) | 27 | 12.00 | 8.00 | 0.41 | -0.53 |
| Unemployment (%) | 36 | 37.00 | 19.00 | 0.05 | -0.61 |

| States Excluded or Not in SCM (1996-2008) | *N* | *M* | *SD* | Skew | Kurtosis |
|---|---|---|---|---|---|
| Access to childcare (1-5; higher value = more access) | 150 | 3.19 | 1.18 | -0.07 | -0.96 |
| Weekly cost of early care and education (USD) | 149 | 36.28 | 58.00 | 8.56 | 88.36 |
| Hispanic or Latin@ (%) | 134 | 43.00 | 34.00 | 0.22 | -1.25 |
| Speak language other than English at home (%) | 104 | 81.00 | 23.00 | -1.80 | 3.41 |
| Head of household Age (years) | 134 | 32.36 | 6.10 | 1.53 | 6.29 |
| Non-citizens (%) | 150 | 6.00 | 5.00 | 2.51 | 8.38 |
| Monthly income (USD) | 150 | 4231.03 | 1632.98 | 0.76 | 0.99 |
| Time in the U.S. (higher value = less time) | 90 | 14.95 | 2.41 | 0.18 | 0.25 |
| High school degree or higher (%) | 150 | 84.00 | 13.00 | -1.09 | 2.00 |
| Households linguistically isolated (%) | 114 | 8.00 | 10.00 | 1.43 | 2.00 |
| Unemployment (%) | 149 | 26.00 | 21.00 | 0.54 | -0.39 |

[a] NM, UT, CA

[b] AZ, GA, FL, IL, NJ, NY, NV, TX, VA

# Appendix I

## Comparisons of Target States and Their Synthetic Controls

Table I1

*A Comparison of the Goodness of Fit between New Mexico and Synthetic New Mexico Based on Pre-Policy Means on Covariates*

| | New Mexico | Synthetic NM |
|---|---|---|
| | *(Observed)* | *(Estimated)* |
| Accessibility of childcare assistance | 4.00 | 3.37 |
| Weekly cost of early care and education (USD) | 28.00 | 33.20 |
| Hispanic or Latino (%) | 100.00 | 68.00 |
| Speak language other than English at home (%) | 100.00 | 75.00 |
| Head of household Age (years) | 33.88 | 33.24 |
| Non-citizens (%) | 11.50 | 14.30 |
| Monthly income (USD) | 5787.10 | 4305.27 |
| Time in the U.S. (higher value = less time) | 10.50 | 12.71 |
| High school degree or higher (%) | 60.00 | 74.20 |
| Households linguistically isolated (%) | 0.00 | 12.90 |
| Unemployment (%) | 30.00 | 45.70 |
| Mean Square Prediction Error | 0.006 | |

Table I2

*A Comparison of the Goodness of Fit between Utah and Synthetic Utah Based on Pre-Policy Means on Covariates*

| | Utah | Synthetic UT |
|---|---|---|
| | *(Observed)* | *(Estimated)* |
| Accessibility of childcare assistance | 3.67 | 3.52 |
| Weekly cost of early care and education (USD) | 8.19 | 15.43 |
| Hispanic or Latino (%) | 81.00 | 88.80 |
| Speak language other than English at home (%) | 1.00 | 94.00 |
| Head of household Age (years) | 35.76 | 31.86 |
| Non-citizens (%) | 0.06 | 14.70 |
| Monthly income (USD) | 4679.41 | 3922.14 |
| Time in the U.S. (higher value = less time) | 13.50 | 12.71 |
| High school degree or higher (%) | 0.91 | 74.20 |
| Households linguistically isolated (%) | 0.04 | 12.90 |
| Unemployment (%) | 0.23 | 45.70 |
| Mean Square Prediction Error | 0.0001 | |

Table I3

*A Comparison of the Goodness of Fit between California and Synthetic California Based on Pre-Policy Means on Covariates*

| | California | Synthetic CA |
|---|---|---|
| | *(Observed)* | *(Estimated)* |
| Accessibility of childcare assistance | 4.00 | 4.07 |
| Weekly cost of early care and education (USD) | 20.20 | 30.18 |
| Hispanic or Latino (%) | 80.50 | 52.80 |
| Speak language other than English at home (%) | 90.00 | 72.40 |
| Head of household Age (years) | 33.63 | 34.03 |
| Non-citizens (%) | 32.00 | 21.40 |
| Monthly income (USD) | 3776.20 | 3758.09 |
| Time in the U.S. (higher value = less time) | 12.54 | 14.85 |
| High school degree or higher (%) | 65.00 | 78.80 |
| Households linguistically isolated (%) | 18.00 | 11.60 |
| Unemployment (%) | 50.50 | 47.50 |
| Mean Square Prediction Error | 0.006 | |

# Appendix J

## All Placebo Tests

**Table J1. Pre-Policy Means for Texas and Synthetic Texas (NM Placebo)**

| | Texas *(Observed)* | Synthetic TX *(Estimated)* |
|---|---|---|
| Access to childcare (1-5; higher value = more access) | 4.00 | 3.63 |
| Weekly cost of early care and education (USD) | 31.20 | 30.50 |
| Hispanic or Latin@ (%) | 77.50 | 66.90 |
| Speak language other than English at home (%) | 80.00 | 82.80 |
| Head of household Age (years) | 32.79 | 33.03 |
| Non-citizens (%) | 16.50 | 16.30 |
| Monthly income (USD) | 3830.11 | 3752.36 |
| Time in the U.S. (higher value = less time) | 13.73 | 13.32 |
| High school degree or higher (%) | 67.00 | 79.70 |
| Households linguistically isolated (%) | 17.00 | 14.00 |
| Unemployment (%) | 49.00 | 48.70 |

**Table J2. Pre-Policy Means for Arizona and Synthetic Arizona (UT Placebo)**

| | Arizona *(Observed)* | Synthetic AZ *(Estimated)* |
|---|---|---|
| Access to childcare (1-5; higher value = more access) | 2.67 | 2.89 |
| Weekly cost of early care and education (USD) | 10.44 | 20.32 |
| Hispanic or Latin@ (%) | 90.33 | 70.50 |
| Speak language other than English at home (%) | 91.00 | 85.90 |
| Head of household Age (years) | 30.57 | 31.58 |
| Non-citizens (%) | 11.33 | 10.50 |
| Monthly income (USD) | 3336.25 | 4070.18 |
| Time in the U.S. (higher value = less time) | 15.44 | 14.55 |
| High school degree or higher (%) | 75.33 | 76.10 |
| Households linguistically isolated (%) | 12.50 | 13.70 |
| Unemployment (%) | 45.00 | 43.10 |

**Table J3. Pre-Policy Means for New York and Synthetic New York (CA Placebo)**

| | New York *(Observed)* | Synthetic NY *(Estimated)* |
|---|---|---|
| Access to childcare (1-5; higher value = more access) | 4.00 | 4.22 |
| Weekly cost of early care and education (USD) | 30.87 | 31.47 |
| Hispanic or Latin@ (%) | 46.00 | 52.30 |
| Speak language other than English at home (%) | 65.00 | 82.90 |
| Head of household Age (years) | 33.89 | 34.62 |
| Non-citizens (%) | 21.50 | 17.40 |
| Monthly income (USD) | 3855.27 | 3638.85 |
| Time in the U.S. (higher value = less time) | 15.12 | 13.98 |
| High school degree or higher (%) | 80.00 | 77.50 |
| Households linguistically isolated (%) | 10.00 | 13.20 |
| Unemployment (%) | 44.50 | 50.60 |

**Table J4. Pre-Policy Means for Virginia and Synthetic Virginia (NM Placebo)**

| | Virginia *(Observed)* | Synthetic VA *(Estimated)* |
|---|---|---|
| Access to childcare (1-5; higher value = more access) | 2.00 | 2.56 |
| Weekly cost of early care and education (USD) | 37.56 | 36.02 |
| Hispanic or Latin@ (%) | 47.50 | 40.00 |
| Speak language other than English at home (%) | 64.00 | 68.80 |
| Head of household Age (years) | 34.22 | 35.14 |
| Non-citizens (%) | 9.50 | 8.80 |
| Monthly income (USD) | 5338.29 | 3377.34 |
| Time in the U.S. (higher value = less time) | 10.50 | 12.06 |
| High school degree or higher (%) | 90.00 | 82.40 |
| Households linguistically isolated (%) | 4.00 | 14.60 |
| Unemployment (%) | 38.50 | 40.40 |

**Table J5. Pre-Policy Means for Nevada and Synthetic Nevada (UT Placebo)**

| | Nevada *(Observed)* | Synthetic NV *(Estimated)* |
|---|---|---|
| Access to childcare (1-5; higher value = more access) | 4.67 | 3.33 |
| Weekly cost of early care and education (USD) | 22.19 | 21.60 |
| Hispanic or Latin@ (%) | 86.67 | 84.70 |
| Speak language other than English at home (%) | 98.00 | 89.00 |
| Head of household Age (years) | 33.62 | 31.53 |
| Non-citizens (%) | 19.33 | 13.00 |
| Monthly income (USD) | 4716.91 | 3429.59 |
| Time in the U.S. (higher value = less time) | 14.25 | 14.64 |
| High school degree or higher (%) | 68.33 | 72.30 |
| Households linguistically isolated (%) | 25.00 | 14.70 |
| Unemployment (%) | 59.67 | 47.30 |

**Table J6. Pre-Policy Means for Nevada and Synthetic Nevada (CA Placebo)**

| | Nevada *(Observed)* | Synthetic NV *(Estimated)* |
|---|---|---|
| Access to childcare (1-5; higher value = more access) | 5.00 | 3.80 |
| Weekly cost of early care and education (USD) | 26.07 | 26.95 |
| Hispanic or Latin@ (%) | 88.50 | 55.80 |
| Speak language other than English at home (%) | 96.00 | 69.80 |
| Head of household Age (years) | 34.76 | 32.94 |
| Non-citizens (%) | 25.00 | 19.30 |
| Monthly income (USD) | 2536.62 | 3711.18 |
| Time in the U.S. (higher value = less time) | 14.00 | 14.78 |
| High school degree or higher (%) | 69.00 | 79.30 |
| Households linguistically isolated (%) | 25.00 | 8.80 |
| Unemployment (%) | 56.00 | 45.00 |

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