Three Papers on Impacts of Regulatory Policies on Well-being of Vulnerable Populations

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Abstract

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This dissertation investigated the impacts of regulatory policies on well-being of immigrant families and low-income families, which offers evidence for policymakers to evaluate the necessity of employing harsh measures. In the first paper, I used the nationally representative National Health Interview Survey (2000-2012) to study the health and mental health impacts of local immigration enforcement policies, under Section 287(g) of the Illegal Immigration Reform and Immigrant Responsibility Act and the Secure Communities Program. I found some evidence of local immigration enforcement policies negatively impacting the mental health and self-rated health of Latino immigrants. In the second paper, I explored relationships between participation in the Temporary Assistance for Needy Families (TANF) program and parental investments in children, and how stringencies in state TANF policy requirements impacted the relationships. I used the 2004 and 2008 panels of Survey on Income and Program Participation (SIPP) and found that TANF participation was associated with increased family meal times and decreased incidences of family outings and reading time. TANF participation was not associated with other areas of parenting (e.g., extracurricular activity participation, family rules on watching TV, positive parenting, parenting stress, and parental expectation). Also, stringent state TANF policy characteristics were not associated with negative parenting behaviors. In the last paper, I investigated how the stringencies of state TANF policy were associated with single mothers' long-term trajectories of welfare use, labor supply, and earned income. I used the 1996, 2001, and 2004 panels of SIPP data (1996-2007), covering the decade following TANF implementation. Findings indicated that stringent state TANF policies were strongly related to single mothers' lower likelihood to participate in TANF; however, single mothers used other welfare programs (e.g., SNAP and SSI) to the same extent as single mothers living in states with less stringent TANF policies. Also, stringent policies did not lead to higher levels of labor supply or earned income.

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Lastly and most importantly, I am very grateful to my parents, Chien-Min Wang and Yow-Sheue Chen, and my sister and her family for raising me and supporting me to pursue my work. A special thank you to my husband, Li Lo, for being there for me every day and his unlimited encouragement and support. I also thank my family, friends, and cohort members (Tina, Hans, Felix, Shilpi, Jordan, and Will) for their love and support. I could not have made this without your wonderful presence in my life.

I constantly wonder why I am so lucky to have this opportunity to be trained in social policy research at Columbia, and the only answer that makes sense to me is that God or a higher power wants me to do something good in this profession. Moving on to the next stages of my career, I will aspire to nurture students and do relevant research to the best of my ability.

Introduction

This dissertation investigates impacts of regulatory policies on well-being of population groups that are vulnerable and generally framed as "undeserving" in policy discourse. Specifically, I examine impacts of two regulatory policies on families in need of welfare and families with undocumented immigrants (Schneider & Ingram, 1997). The first set of policies under examination is the local immigration enforcement policies, under Section 287(g) of the Illegal Immigration Reform and Immigrant Responsibility Act and the Secure Communities Program. These immigration enforcement policies have expanded the terrain of immigration enforcement to county and state jurisdiction in identifying the undocumented immigrants. Latino immigrants are disproportionately targeted and affected in the enforcement process. Prior literature documented the policy effects of state and local enforcement on earnings, employment, and settlement patterns of undocumented immigrants. In the first paper, I specifically study the health and mental health impacts of local and state enforcement policies on Latino immigrant adults aged 18 to 60, using a nationally representative dataset, National Health Interview Survey (2000-2012). This paper is the first to estimate the health effects of immigration enforcement policies at the national level, and findings offer evidence to assess the full range of costs and benefits of these policies.

The second policy that I study is the Temporary Assistance for Needy Families (TANF) that imposed work requirements, time limits and sanctions on noncompliance to work requirements to the poor seeking cash welfare. For low-income families, stringent state policy requirements denote extra levels of psychological stress and stigma in addition to being in economic hardship. The second and the third papers of my dissertation are devoted to investigating impacts of stringent policies on the well-being of children and households headed by single mothers. Specifically, the second paper examines impacts of TANF participation on the

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parental investments in children and whether TANF participation in states with more stringent

policy requirements leads to negative parental investments. This aim uses data from Child

Wellbeing Topical Modules of the Survey of Income and Program Participation (2004-2006 and

2009-2011) and employs individual fixed effect models. This paper extends prior literature in

covering less examined outcomes such as family interactions and environment and examining

impacts of TANF participation using updated data from 8-13 years post-welfare reform.

In the third paper, I compare employment, earnings, and welfare use long-term

trajectories of low-skilled single mothers living in states with lenient versus stringent TANF

policy requirements from 1996 to 2007 using the SIPP data. This paper aims to explore whether

more stringent state TANF policies are associated with single mothers being more self-sufficient

in working more, earning more, and using welfare less in the long-run. Findings from this study

contribute to our knowledge on long-term trajectories following lenient and stringent welfare-to-

work policy requirements.

Implication

Population groups that are socially constructed negatively and possess weak political

power often face regulatory and punitive policy tools (Schneider & Ingram, 1993). These

population groups are framed as undeserving, dishonest, or selfish and have limited wealth and

resources to mobilize for actions to guard their interests (Schneider & Ingram, 1997). Examples

of these vulnerable groups include welfare recipients, undocumented immigrants, and criminals.

On the contrary, population groups that are positively constructed and have strong political

power, such as veteran and the elderly, often face beneficiary public policies. Given that these

"undeserving" population groups lack public support to repeal punitive and regulatory policy

measures, it is crucial for social workers and social policy researchers to monitor impacts of such

measures on well-being of the disadvantaged populations. These efforts are in line social workers' commitment to social justice and the mission to advocate for the disadvantaged. Evidence from evaluating impacts of regulatory policies may provide powerful leverage to reevaluate the necessity of punitive measures. Against this backdrop, the three papers in this dissertation contribute to the body of work in evaluating impacts of regulatory policies on well-being of vulnerable populations.

References

Schneider, A., & Ingram, H. (1993). Social construction of target populations: Implications for politics and policy. *American Political Science Review, 87*(02), 334-347.

Schneider, A., & Ingram, H. (1997). *Policy Design for Democracy*. Lawrence, Kansas: University Press of Kansas.

Paper 1: Health Effects of Local Immigration Enforcement on Latino Immigrants in the US

Abstract

Backgrounds: I study the effect of local immigration enforcement that has escalated fear and risk of deportation among the undocumented on the health and mental health outcomes of Latino immigrants living in the United States. In 1996, the US government passed the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA). Section 287(g) of IIRIRA grants state and local jurisdictions the choice to enter into agreements with Immigration and Customs Enforcement to participate in the enforcement of federal immigration laws. The number of localities pursuing 287(g) agreements has increased from two in 2002 to 76 in 2009 across 26 states. Since 2008, the Secure Communities Program (SC) gradually replaced 287(g) and was implemented in all counties nation-wide in 2013. As a result, tens of thousands of undocumented immigrants were removed annually from prison or during policing operations.

Data and Methods: I use the restricted-use National Health Interview Survey (NHIS) data (2000-2012) and link county-level 287(g) and SC policy variables to study the effect of local immigration enforcement on the health and mental health outcomes of Latino immigrants. Health is measured by self-rated health, and mental health is measured by Kessler-6 Psychological Distress Scale. The analytic sample is restricted to adults aged 18-60 born in Latin America living in households with at least one noncitizen family member. Ordinary least square models with county and year fixed effects are used to measure the health effects.

Results and Conclusion: I found some evidence of local immigration enforcement policies adversely impacting mental health and self-rated health of Latino immigrants. There is little national-level scientific research on how immigration policy environment affects immigrant health, in general, and how state- and local-activism on immigration enforcement has influenced the health and mental health of immigrant families. This research bridges this critical knowledge gap and offers evidence to assess the full range of costs and benefits of immigration enforcement policies.

Introduction

Over the past decade, the terrain of immigration enforcement in the United States has expanded from national borders to local and state jurisdictions, resulting in increased arrests on grounds of immigration status and national origin (Lacayo, 2010). Surveys has shown that Latino immigrants report being subject to racial profiling during police patrolling or other police activities (Lacayo, 2010). Previous research documents that local and state government participation in immigration enforcement has affected immigrant settlement patterns, their employment and earnings, and patterns of farm labor use and farm profitability (Pham and Van, 2010; Capps, Rosenblum, Rodriquez, and Chishti. 2011; Kostandini, Mykerezi, and Escalante, 2013; Watson, 2013). How local immigration enforcement has influenced the health and mental health of the undocumented and their families remains an understudied area of research (Hardy et al., 2011).

Involvement of local and state governments in immigration enforcement intensifies fears of deportation and is likely to leave a negative impact on the physical as well as mental health of undocumented immigrants and their family members, many of whom may be legal residents. Local enforcement is also likely to make undocumented immigrants and their families more vulnerable to workplace exploitation. As a coping mechanism, they may adopt certain unhealthy behaviors (e.g. smoking, alcohol consumption), risking long term health.

Understanding the health consequences of local immigration enforcement is important to inform debates on immigration reforms. Extant research has shown that local immigration enforcement measures escalate stress and anxiety levels of immigrants and deter them from seeking health services (Rhodes et al., 2015; Hacker et al., 2011). These studies are local or state level and use qualitative approaches (Rhodes et al., 2015; Hacker et al., 2011). There is little

systematic national research on health and mental health impacts of local enforcement. In this paper, I bridge this knowledge gap by studying the effects of local immigration enforcement on health and mental health outcomes of Latino immigrant adults in households with non-citizen members, a population that has a high propensity of being affected by enforcement policies (Zong & Batalova, 2016). Specifically, I study the effects of local enforcement resulting from Section 287(g) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) and the Secure Communities program. I take advantage of the geographic (county-level) and temporal variation in the implementation of Section 287(g) and the Secure Communities program to study their impacts on health. The empirical analysis is based on the National Health Interview Survey (NHIS) (2000-2012) that provides rich information on health and mental health conditions. The restricted use NHIS data allow me to link the county- and state-level policy variables to the individual-level data to study the policy effects.

I adopt a comparison group research design to test if time-varying factors correlated with country/state level enforcement policies confound the estimated effects. I run models on U.S. born non-Hispanic White, who are unaffected by enforcement policies. The validity of this research design requires that the estimated effects of enforcement policy on the comparison group are modest and insignificant. If not, that would imply that there are time-varying factors correlated with enforcement policies that affected the health outcomes of the comparison group and that these same factors may also be confounding the estimates of the effects of the policies on Latino immigrants.

The legislative debates on immigration enforcement are carried out with the implicit assumption that enforcement only affects the undocumented and not their family members, who are in a vast majority US citizens or permanent legal residents. The local immigration

enforcement policies that I study are not designed with any explicit intent of influencing the health outcomes of immigrant families. Partly for this reason the health consequences of immigration enforcement have not been thoroughly studied or discussed. However, given the far reaching impact that immigration enforcement has on the lives of the undocumented and their families, their health consequences are likely to be non-negligible and critical in capturing the full range of costs and benefits of immigration enforcement policies.

Local Immigration Enforcement Policies – Section 287(g) and Secure Communities

In 1996, with the stated goal to increase public safety and remove illegal immigrants who committed serious offenses, the Illegal Immigration Reform and Immigrant Responsibility Act, Section 287(g) granted state and local jurisdictions the option to participate in enforcement of federal immigration laws. Because participation in Section 287(g) has been voluntary, some localities decided to participate while others opted out. Localities opting to participate signed a Memorandum of Understanding with Immigration and Customs Enforcement (ICE) that required establishing a supervisory structure to support localities and train local officials to enforce immigration laws. Section 287(g) involves two types of enforcement agreements: Task Force Enforcement (TF) allows state and local law enforcement officers to screen for immigration status in the field during policing operations (street screening) and Jail Enforcement (JE) that allows local enforcement officials to screen for immigration status in jails. Local participation in Section 287 (g) was negligible in the first decade of after its passage. In 2002, Florida Department of Law Enforcement and in 2003 Alabama Department of Public Safety were the first two localities to sign 287(g) agreements with ICE. Local participation in 287(g) slowly picked up in 2005 and the number peaked in 2009, when the number of localities participating in the program rose to 76 (See Figure 1). Twenty-four jurisdictions signed Task Force Enforcement

agreements, 47 signed Jail Enforcement agreements, and 5 agreements involved both TF and JE.[1]

These state- and local-level TF agreements cover 22% (690 counties) of all 3140 counties, and

JE agreements cover 3% (106 counties) of all counties (See Figure 2).

From 2006 to 2012, local officials deputized under 287(g) arrested 256,330

undocumented immigrants (ICE FOIA, 2015). In 2008, the number of removals under 287(g)

represents 9.5% of all ICE immigrant removals (Lacayo, 2010). Some of these removals were

based on minor traffic offenses such as driving without driver's license or driving under the

influence of alcohol or drugs (Vaughan & Edwards, 2009). In addition, anecdotal evidence

suggested that Latinos were subject to racial profiling and were increasingly pulled over and

interrogated for minor offenses as an excuse to check their documentation status (Lacayo, 2010).

In the 2008 National Survey of Latinos administered by Pew Hispanic Center, nearly 10% of

Hispanic adults (both native-born and immigrants) reported that they had been asked by the

police or other authorities about their immigration status in the past year, and 35% of native-born

Hispanic citizens said that they worried "a lot or some" about deportation of relatives, or friends

(Lopez & Minushikin, 2008; Lacayo, 2010). In short, escalation in local immigration

enforcement activities has disproportionately affected the lives of Latino families.

Interior immigration enforcement took another turn in 2008 with the launch of the Secure

Communities program (SC) that required matching fingerprints of all arrested individuals with

the ICE database to screen for immigration violations. Whereas Section 287(g) was designed to

engage local law enforcement in immigration enforcement, Secure Communities allowed ICE a

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[1] In this study, TF is defined as whether having TF agreements in counties, and JE is defined as whether having JE agreements in counties. In this case, localities that have both TF and JE are coded as 1 for both policy variables. In Appendix Table A, I conducted sensitivity analyses using two additional sets of policy coding. One, coding having TF agreements as 1 and having JE yet not having TF policies as 0. Two, coding having TF agreements and not having JE as 1, and having JE agreements as 0.

technological presence in local law enforcement agencies. Under SC, when a person is arrested or in jail for a criminal offense, the state and local authorities are required to submit fingerprints to the Federal Bureau of Investigation (FBI), which the latter shares with ICE to check against immigration databases to identify (removable) undocumented individuals (ICE, 2015). Compared to 287(g), Secure Communities expedites enforcement without imposing additional requirements on local law enforcement. Unlike 287(g), participation in Secure Communities was not voluntary. It was gradually rolled out across counties, from covering 14 counties in 2008 to nation-wide in 2013 (See Figure 2).

In 2015, SC was replace by the Priority Enforcement Program (PEP). PEP follows the similar procedures as Secure Communities and differs from SC in that PEP focuses on individuals convicted of significant criminal offenses or those who pose a threat to public safety. PEP only seeks to transfer individuals who have been convicted of an offense listed under the Department of Homeland Security civil immigration enforcement priorities. These priorities are participation in an organized criminal gang to further the illegal activity of the gang, or posing a danger to national security (ICE, 2016). Overall, the evolution of local immigration policies from Section 287(g), SC, to PEP show traces of ICE's efforts to respond to the concern about racial profiling and to reduce the incidence of removing individuals based on minor crimes (ICE, 2015; 2016).

Previous research has shown that stricter local immigration control policies have contributed to a decline in immigrants' economic opportunities, lowering their employment and wages (Kostandini, Mykerezi, & Escalante, 2013; Pham & Van, 2010; Gentsch & Massey, 2011). These policies also lead to a reduction in remittances (Amuedo-Dorantes & Puttitanun, 2013) and a drop in the rate of immigrants' claim on national origin discrimination in the work

place, which may deteriorate the work conditions faced by immigrant workers (Gleeson, 2014). Enforcement policies also showed to have mixed impacts on crime rates, where no effect was reported in Prince William County, Virginia (Koper et al., 2013) and a higher rate of police arrests on grounds of immigration status and national origin was found in Davidson County, Tennessee, a new immigrant gateway city (Donato & Rodriquez, 2014). Studies also reported that 287(g) did not significantly affect undocumented immigrants' migration patterns. Task Force Enforcement policies increased the outflow of non-citizens with some college education, missing the intended policy target (Watson, 2013). Parrado (2012) also found that 287(g) did not affect the size of Mexican immigrant population outside of large cities such as Dallas, Los Angeles, Riverside, and Phoenix.

Immigration Enforcement and Health

Immigration is a stressful undertaking with negative psychosocial impacts (Vega & Amaro, 1994; Jasso et al., 2004). It is associated with increased stress, fear, and uncertainty. For families with undocumented members, the negative health effects of migration are more intense and complicated (Sullivan & Rehm, 2005; Delva et al., 2013). Repeated exposure to prejudice, discrimination, and exploitation on account of immigration status, and concerns about disclosure and deportation, of oneself or a family member, are likely to leave a negative impact on the physical as well as mental health of the undocumented and their family members (Vega & Amaro, 1994; Cavazor-Rehg et al., 2007; Sullivan & Rehm, 2005).

Immigration enforcement policies may further affect health status of undocumented immigrants and their families through several mechanisms. First, immigration enforcement policies increase risk of deportation and are likely to increase the stress, fear, and anxiety of undocumented immigrants and their family members, which may adversely affect their health

outcomes. Second, economic consequences of immigration enforcement on the undocumented, such as fewer job opportunities, increased exploitation at work, decreased earning, or facing a bread winner being deported would also have negative health and mental health effects. Third, immigrants have reported to minimize their time driving on the road to reduce their chances of being stopped by a police. This avoidance to travel may reduce social interaction, social support, and health service utilization (Rhodes et al., 2015; Hardy et al., 2011). Fourth, the increase in immigration enforcement may escalate immigrants' levels of mistrust toward public institutions, lowering their health and social service utilization rates (Watson, 2014; Padraza & Zhu, 2015; Rhodes et al., 2015; Cavazos-Rehg, Zayas & Spitznagel, 2007). Finally, to cope with the escalated psychological and economic burden associated with the increased risk and exploitation, immigrants may adopt certain behaviors that may be unhealthy (e.g. smoking, alcohol consumption), risking long term health.

Extant research on impacts of local immigration enforcement policies on health generally focus on regional case studies and often utilize qualitative research methods, and their findings support most mechanisms described above (Rhodes et al., 2015; Hardy et al., 2011; Hacker et al., 2011). Rhodes and colleagues (2015) utilized qualitative interviews and focus groups to study impacts of Section 287(g) in local counties in North Carolina on Hispanic immigrants, Hacker et al. (2011) used focus groups to study impacts of ICE activities on health in Everett, Massachusetts, and Hardy et al. (2011) conducted semi-structured interviews and focus groups to study impacts of the SB 1070 in Arizona, a bill that made failure to possess immigration documents a crime and expanded police power to detain potentially undocumented resident. Respondents in these studies stated that they avoid using health care and other social services because of the threat of police enforcement while driving, their lack of trust in public institutions,

and ineligibility for state-issued driver's licenses (Rhodes et al., 2015; Hacker et al., 2011; Hardy et al., 2011). They also do not seek care when needed, delay preventive services, have incomplete sequence of care, reduce their utilization in both preventive care and curative care, and increase the use of nonstandard and unsafe contingencies for care (Rhodes et al., 2015; Hacker et al., 2011; Hardy et al., 2011). Anecdotal evidence also suggests that reduced mobility limits immigrants' physical activity and influences food purchases and consumption behaviors (e.g., "people go to the nearest place to get whatever they can find to eat (pp. 1251, Hardy et al., 2011)"), which may have long-term impacts on physical health (Hardy et al., 2011; Hacker et al., 2011). Also, respondents reported deterioration in mental health among family members resulting from high levels of fear associated with immigration enforcement. These mental health impacts include isolation, frustration, decreased self-esteem, anxiety, and depression, and these adverse psychological effects compromise physical health, showing symptoms of hair loss and hypertension (Rhodes et al., 2015; Hardy et al., 2011; Hacker et al., 2011). Although these studies documented immigrants' experiences under local immigration enforcement at a state or local scale, they are limited in their scope to depict health impacts of enforcement policies at the national level.

This study extends prior research in that it is the first study to use nationally representative data to study health impacts of local immigration enforcement policies. I examine the extent to which the mental health and health status of Latino immigrant families has been affected due to the immigration enforcement initiatives across hundreds of counties across the U.S. The scale of the examination offers more generalizable evidence for immigration reform policy debates. Findings from the study can shed light to health consequences of adopting exclusionary immigration policies.

The primary hypothesis of the current study is as follows: local immigration enforcement policies (Section 287(g) and SC) that marginalize and exclude the undocumented, will intensify the stress, fears, and uncertainties of immigration, adversely affecting the health outcomes of not only the undocumented, but also of their family members, who may be U.S. citizens or legal permanent residents. To study the health impacts, I take advantage of the "natural experiments" created by variations in the local immigration enforcement policy across geographic locations (state and local jurisdictions) and years. A number of specification checks, described in the empirical strategies section, are applied to test the causality of these effects.

Methods

Samples and Research Designs

The goal of this study is to examine health impacts of local immigration enforcement on not only the undocumented immigrants, who are directly affected by local immigration enforcement, but also their family members and friends living in the same household who may be legal immigrants or US citizens. The main analysis is conducted on two samples of adults aged 18 to 60 born in Latin America (Latino immigrants hereafter): those in households with at least one non-citizen member and those in households with only non-citizen family members (and no citizen family members).[2]

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[2] I also repeat the analysis on two additional samples: non-Latino foreign born adults (non-Latino immigrants hereafter), and US-born Latino adults. Results are included in the Appendices B and C. Non-Latino immigrants have a lower propensity to be undocumented compared Latino immigrants, and they are less likely to be targeted during the enforcement practice by appearance. However, the hostility towards immigrants may still adversely affect their well-being, and there could still be some non-Latino undocumented immigrants captured in the survey. Hence, I hypothesize that the health effects on non-Latino immigrants will be modest. US-born Latinos are not targeted by enforcement policies since they cannot be deported. Yet, they may be subject to racial profiling in daily lives in the immigration enforcement practices, and they may have undocumented family members or friends who are directly affected by intensified enforcement. I hypothesize that their distress regarding the hostile policy environment towards their racial group and their fear for undocumented family members or friends being identified and deported may compromise their health and mental health. So, although US-born Latino immigrants are not the target group of local immigration enforcement policies, there can be unintended modest policy effects among US-born Latino adults.

Latino immigrant families are the focus of this study since 77 percent of all undocumented immigrants in the US come from Latin America, with Mexico being the largest country of origin (56% of all undocumented immigrants), followed by Guatemala (6%), El Salvador (4%), and Honduras (3%) (Zong & Batalova, 2016).[3] These countries also represent the leading countries of origin of apprehended undocumented immigrants (Zong & Batalova, 2016). Also, it is estimated that about 47% of foreign born Latinos or 68% of non-citizen Latinos in the US are undocumented in 2012 (U.S. Census Bureau, 2012; Zong & Batalova, 2016).[4] Restricting samples of analysis to Latino immigrants in households with at least one non-citizen or without any citizen allows this study to capture adults living in households most affected by the enforcement policies. I hypothesize that local immigration enforcement policies adversely affect the health and mental health of Latino immigrants in households with at least one citizen, and effects will be even stronger for those living in households where all members are non-citizens, since they are more likely to be undocumented and hence have a higher propensity to be directly affected by enforcement policies.

A primary challenge in any nation-wide study on the undocumented in the U.S. is that national data sources do not provide information on the legal status of foreign-born persons, so it is impossible to determine whether an immigrant respondent is undocumented or a legal resident. Although researchers have explored strategies to impute legal status from survey data (Hall, Greeman, & Farkas, 2010), the most suitable health data set for this study, NHIS, does not

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[3] In all analyses on Latino immigrants, this study controls for region of origin: Mexico, Central America, and South America. In Table 8, I further conducted sensitivity analyses using Mexican immigrants as the analytic samples. The results are similar to those from Latino immigrants.

[4] In 2012, the number of undocumented immigrants in the US was estimated to be 11.4 million, and 77% of them come from Latin America (Zong & Batalova, 2016). This suggests that approximately there were 8.8 million Latino undocumented in the US in 2012 (11,400,000 x 0.77 = 8,778,000). The number foreign born and non-citizen population who identified as Latino in 2012 was 18,579,270 and 12,977,027, respectively (U.S. Census Bureau, 2012). This leads to estimations that 47% of foreign born Latinos (8,778,000 / 18,579,270 = 0.472) or 68% of non-citizen Latinos (8,778,000 / 12,977,027 = 0.676) in the US are undocumented.

collect necessary information to replicate these imputation strategies. In this paper, I have tried to address this limitation by identifying groups that have a high likelihood to be undocumented. I acknowledge that there may be some individuals in the targeted group/s that are unaffected by enforcement, which would result in estimates biased towards zero.

I begin with the following regression equation:

$$H_{ict} = \beta_c + \beta_t + \chi_1 TF_{ct} + \chi_2 JE_{ct} + \chi_3 SE_{ct} + P_{ct}\varphi + X_{ict}\Delta + u_{ict} \qquad (1)$$
$i = 1, \ldots, \text{N (persons)}$
$c = 1, \ldots, 306 \text{ (counties)}$
$t = 2000, \ldots, 2012 \text{ (years)}$

where H_{ict} represents a health outcome of individual i (or a mental health outcome; described in detail in the Measures section); TF_{ct} is coded as 1 if county c has a Task Force Enforcement agreement with ICE in year t, otherwise 0; JE_{ct}, equals to 1 if county c has a Jail Enforcement agreement with ICE in year t, otherwise 0; and SE_{ct} equals to 1 if county c has a Secure Communities agreement in year t, otherwise 0. The equation includes a full set of county fixed effects (β_c) and year fixed effects (β_t); time-varying county characteristics (P_{ct}) such as county unemployment rate in year t, county poverty rate in year t, whether the county is located in a state that provides in-state tuition subsidy to the undocumented residents in year t, whether the county is located in a state that allows undocumented immigrants to obtain driver's license in year t, whether the county is located in a state that has Omnibus Bills passed in year t,[5] and whether the county is located in a state that passed E-Verify in year t; individual characteristics

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[5] Omnibus bills across states generally "require law enforcement to attempt to determine the immigration status of a person involved in a lawful stop; allow state residents to sue state and local agencies for noncompliance with immigration enforcement; require E-Verify; and make it a state violation for failure to carry an alien registration document (NCSL, 2012)." In some states, the regulations are further to the areas of driver's license/IDs (e.g., driver's licenses or IDs issued to foreign nationals shall distinguish between lawful permanent residents and temporary immigrants), business or public records transactions (e.g., made it a felony for an alien not lawfully present to enter into business transactions with government, such as applying for or renewing a motor vehicle license plate or a business license), harbor/transport/rental agreements (e.g., made it illegal for a person to transport an alien; conceal, harbor or shield an alien), or public benefits (e.g., denying the provision of public benefits to undocumented immigrants) (NCSL, 2012).

$(X_{it})^6$ such as age, sex, marital status, education level, household size, family income, citizenship status, years lived in the US, cohort of arrival, and region of origin; whether the interview was conducted in English and u_{ict} as unobserved characteristics.

The identifying assumption in equation (1) is that there are no time-varying factors correlated with enforcement policy. Conditional on the validity of this assumption, estimated effect of enforcement policy variables would yield the effect of enforcement policies on the health and mental health of Latino immigrants. Note that I include a rich set of time-varying county effects (P_{ct}). However, there may still be other time-varying factors correlated with enforcement policies that may confound the estimated effects. To address this issue, I estimate equation (1) using a sample of US born non-Hispanic White adults, who are unlikely to be affected by enforcement policies. For the identifying assumption to be valid, the estimated effects of the policies should be negligible on this group.

One possible confounder of the empirical specification in the above equation is other county-specific or state-specific time-varying factors correlated with the policy variables (TF_{ct}, JE_{ct}, and SE_{ct}) that may affect the health outcomes of Latino immigrant adults. I address this issue in two ways. One, I include a set of county-specific time-varying factors (denoted by P_{ct}) described above – namely county unemployment rate, county poverty rates, and other local immigration policies (e.g., Dream Act, driver's license, Omnibus Bills, E-Verify). These variables control for the time-varying economic and policy environments that may be correlated

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[6] The detailed coding of these controls are as follow: age ((omitted category 19-24), 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-60), gender (male), marital status (married), education level (less than 9 years, 9-12 years (no high school degree), (omitted category: high school degree or GED), some colleges or more), household size dummies (1, 2, (omitted category: 3-4), 5+), log family income, language of interview (not English), years since immigration (0-5, 6-10, 11-15, (omitted category: 15+)), cohort of arrival ((omitted category before 1987), 1987-1991, 1992-1996, 1997-2001, 2002-2012), citizenship status, and regions of origin ((omitted category: Central America), Mexico, South America).

with the enforcement policy variables and influence the health and mental health of Latino immigrants. Two, I repeat the analysis on US born non-Hispanic White adults, who are unlikely to be affected by the policies. The estimated effect of the policies should be negligible on this group. If not, that would indicate that the research design adopted here is not appropriate to measure the effect of enforcement policies.

Another possible threat to the above specifications could arise if the population most affected by local and state immigration enforcement decided to return to their countries of origin or relocated in another locality with a lesser threat of local enforcement. Watson (2013) found that while 287(g) did not result in voluntary emigration, Task Force enforcement increased the probability of relocating within the U.S. and the effect was greater among non-citizens with at least some college education. There is not much we can do address this problem. Assuming that those who decided to relocate were also most adversely affected by policies, the estimates of χ_1, χ_2, and χ_3 would be biased towards zero.

Another source of bias could arise if local enforcement resulted in increased positive health/mental selection of new immigrants – i.e. new immigrants being healthier than immigrants who arrived in the U.S. before enforcement policies were enacted in 2002. I conducted a sensitivity analysis restricting to the target samples to pre-2002 arrivals to address this bias. Results from this analysis were similar to those from larger sample suggesting that bias on account of healthy migration in counties with stringent enforcement policies is modest or non-existent in our analysis.

Differential non-response rates in survey among affected population constitute an additional source of bias. The NHIS survey asks respondents to provide their social security number (SSN). Although respondents could refuse to provide such information and indeed more

than 60% of Latino immigrants have done so (Carter-Pokras & Fischer, 2010), this request may increase the probability of undocumented immigrants and their family members refusing to participate in the survey. Furthermore, the non-response patterns may be correlated with the policy variables. That is, the survey response rates could be lower among immigrants after the implementation of local immigration enforcement policies in counties. Higher non-response among affected population is likely to yield estimates that are biased towards zero.

Data

The empirical analysis requires merging the Section 287(g) and Secure Communities policy variables to the National Health Interview Survey (NHIS) data (2000-2012). The NHIS data offer the advantage of having a relatively large sample size and oversampling Hispanic population, which is essential given that this study focuses on Latino immigrants. Also, the NHIS is rich in measures of health and mental health (detailed in the measures section).

Because of confidentiality and disclosure rules, the National Center for Health Statistics (NCHS) does not provide state/county level identifiers in the public use NHIS. All analysis for this paper has been conducted on the restricted use NHIS that contains data on state/county level identifiers at the NY Census Data Center upon approval from the NCHS Research Data Center, who also enabled merging of policy variables by county and year with the micro-level NHIS data.

I use three enforcement policy variables: whether a county had Task Force agreement with ICE in year t, whether a country had Jail Enforcement with ICE in year t, and whether a county has a Secure Communities initiative in year t. Other time-varying county variables that are merged with the NHIS are: unemployment rate and poverty rate by county and year as well as the other policy variables (e.g., Dream Act, driver's license, omnibus bills and E-Verify) by

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state and year. The restricted use NHIS data also provide detailed information on the year of immigrant entry in the US and their country of birth, which are used to construct detailed control variables on the cohort of arrival, years since immigration, as well as regions/country of origin.

The sample sizes for Latino immigrant adults in households with some non-citizens in NHIS (2000-2012) are 71,241 for the self-rated health measure and 24,210 for the mental health and physical health conditions collected in the Sample Adult module. The corresponding sample sizes for Latino immigrants in households with only non-citizen family members (no citizen members) are 18,948 and 7,680. A power analysis suggests that, in a model with 353 controls (including dummies for counties) that explains 10% of variability in an outcome, a sample size of 1280 can have 90% power with a significance level of 0.05 to detect an R-Squared of 0.01 attributed to three of the key policy variables (Cohen, 1988). Since the sample sizes in different sample specifications are larger than 1280, this study has more than 90% power to detect the policy effects.

Because Latino immigrants cluster in a small number of counties in the US, in order to avoid spurious results on account of a small number of observations in a few counties, the empirical analysis is based on counties with at least 20 observations of Latino immigrants. Figure 3 shows the proportion of counties nationally that had each type of enforcement policies by year, and the proportions in NHIS counties as well as NHIS counties with at least 20 Hispanic non-citizen observations.

Multiple sources have been used to compile data on the histories of policies and contextual economic environment. Data on local enforcement policies by county and year are obtained from the Immigration and Customs Enforcement (ICE) through a FOIA request as well as by collecting and comparing current and historical tables and Memorandum of Understanding

Agreements from the ICE website, ICE screenshots from other websites, and published reports (ICE, 2010; 2011; 2012; 2014; Justice Strategies, 2007; American Immigration Lawyers Association, 2008; 2009; Dream Activist, 2008; DHS, 2010; Lacayo, 2010; Apsan Law Offices, LLC, 2010; Kostandini et al., 2013). The initiation dates of Secure Communities program are obtained through a publicly available document (ICE, 2013). The state Dream Act state policy data were compiled through various published papers (Wong & Shen, 2002; Kaushal, 2008; Dougherty & Nienhusser, 2010; Russell 2011; Dain, 2014). Information on state policies relevant to undocumented immigrants such as eligibility to obtain driver's license, Omnibus Bills, and E-Verify was obtained from the National Conference of State Legislatures (NCSL) websites (NCSL, 2012; NCSL, 2015a, 2015b). The county-level unemployment rates and poverty rates are taken from the Area Resource Files (released by Health Resources and Services Administration of the Department of Health and Human Services).

Measures

I study several dimensions of health and mental health of Latino immigrants (Table 2). Each individual in NHIS is asked to scale his/her subjective health status as excellent, very good, good, fair and poor, which I use to create two measures of self-reported health. Poor health is equal to 1 if the respondent reported their health as poor or fair, otherwise 0. Good health is defined as equal 1 if the respondent reported their health as very good or excellent, otherwise 0. Self-rated health is a valid measure of overall health as it strongly predicts serious, chronic conditions, disability, health service utilization, mental illnesses as well as mortality (Goldstein, Siegel, & Boyer, 1984; Burström & Fredlund, 2001; Wu et al., 2013). It is also strongly associated with many health risk factors, such as income inequality, life and work pressure, poor spiritual status, and poor interpersonal relationships (Shibuya, Hashimoto, & Yano, 2002;

Mansyur et al., 2008; Wu et al., 2013). Self-rated health is also a reliable measure of health as its

test-retest reliability is as good as or better than the reliability of many objective health condition

questions (e.g., asthma, backache, and headaches/migraine) (Lundberg & Manderbacka, 1996).

The NHIS provides detailed data on the mental health of adult respondents in its Sample

Adult module. From each family in the NHIS, one sample adult (aged 18 or more) is randomly

selected as a Sample Adult to answer questions, including those on respondent's mental health. I

used the following seven questions as the measures for mental health: In the past 30 days, how

often did you feel so sad so that nothing could cheer you up? In the past 30 days, how often did

you feel nervous? In the past 30 days, how often did you feel restless and fidgety? In the past 30

days, how often did you feel hopeless? In the past 30 days, how often did you feel that

everything was an effort? In the past 30 days, how often did you feel worthless? In all, how often

did these feelings (expressed in the previous six questions) interfere with your life and activities?

Respondents are asked to provide answers to these questions on a scale of 0 to 4 (none of the

time, a little of the time, some of the time, most of the time, and all of the time). The first six

questions belong to the Kessler 6 (K6) scale (Pratt & Dey, 2007). I construct a measure (scale) of

the psychological distress among adults to examine the effect of local enforcement policies on

the psychological functioning. The possible range of the score is 0 through 24, with the higher

score representing the worse mental health status. The internal consistency of items in the scale

is high (Cronbach's $\alpha = 0.88$), indicating good reliability. I also recode the mental health score in

to a dichotomous measure, 1 indicating had experienced some mental health distress (scored 6 or

above on the K6 scale) and 0 otherwise (Sakurai et al, 2011). Additionally, I study the effect of

local enforcement policies on responses to each of the seven questions relating to respondent's

mental health in the past 30 days. Experiencing a given outcome some to all of the time is coded as 1, and none to a little of the time is coded as 0.

Results

Table 1 presents the demographic characteristics of adults aged 18 to 60 during 2000-2001, before the implementation of enforcement policies. The primary interest is in Latino immigrants in households with at least one non-citizen family member. This demographic group has a high probability of being undocumented or having an undocumented family member. I also study Latino immigrant adults with no citizen family members. While this second group of Latino immigrants has a higher probability of being undocumented or having undocumented family members, the restriction reduces the sample size, which may reduce our ability to detect small size effects. For comparison, I also present the descriptive statistics of US-born non-Hispanic Whites, a group that is unlikely to be affected by enforcement measures.

Latino immigrants in households with some or all non-citizen family members have a more disadvantageous socioeconomic status compared to US-born Whites. Over 77 percent of Latino immigrant adults do not have college education compared to 36 percent for US-born Whites. Latino immigrants are younger, more likely to be male, have larger household sizes but lower average incomes than White families. Approximately two thirds of Latino samples were interviewed in a language other than English, whereas only 15 of US-born Latinos were not interviewed in English.

Table 2 presents the mean health outcomes of the target and the comparison groups in the base years of 2000-2001. There are two main points to note. One, Latino immigrants are two to three percentage points (33 to 50%) more likely to report fair to poor health and 10 to 13 percentage points (14 to 18%) less likely to report to have excellent or very good health

compared with US-born Whites. Two, the overall mental health (based on the mental health score) of Latino immigrants is better than that of US-born Whites and they are less likely to report that their mental health conditions interfere with life and activities. However, on two specific conditions, Latino immigrants reported having worse conditions than US born whites (whether the respondent felt sad all or some of the times; whether the respondent felt hopeless all or some of the time.

Tables 3-5 present the effects of local immigration enforcement policies on the health and mental health outcomes of Latino immigrants. All models control for age ((omitted category 19-24), 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-60), gender, marital status (whether married), education level (less than 9 years, 9-12 years (no high school degree), (omitted category: high school degree or GED), some colleges or more), household size dummies (1, 2, (omitted category: 3-4), 5+), log family income, and county and year fixed effects. The foreign-born Latino samples further controls for years since immigration (0-5, 6-10, 11-15, (15+ omitted category)), cohort of arrival ((omitted category before 1987), 1987-1991, 1992-1996, 1997-2001, 2002-2012), citizenship status, and regions of origin. Additionally, model 2 controls for the following county/state controls: county unemployment rate, county poverty rate, whether the state of residence has legislations related to undocumented immigrants (Dream Act, driver's license, omnibus bills and E-Verify) in year t. Standard errors clustered on county of residence are in parenthesis. All models are estimated with ordinary least squares.

Table 3 presents the effects of local immigration enforcement policies on two self-rated health outcomes: has fair/poor and very good/excellent health. Estimates suggest that SC increased the likelihoods of Latino immigrants in households with non-citizens rating their overall health as fair or poor by 1.5 ($p<0.1$) to 2.8 ($p<0.05$) percentage points (17 to 35 percent),

while JE lowered Latino immigrants' probabilities of reporting very good or excellent health by 3.7 ($p<0.05$) to 7.5 ($p<0.01$) percentage points (6 to 12 percent). Note that the inclusion of time-varying county variables in Model 2 does not substantially change the estimated effects of the enforcement measures. Wald tests reject the hypothesis that estimated effects of SC are statistically the same as the estimated effects of TE or JE when the outcome is fair/poor health. When excellent/very good health is the outcome, a Wald test rejects the hypothesis that the estimated effects of JE is statistically no different from the estimated effect of SC. Estimated coefficients from a similar analysis using the sample of US-born Whites are modest and statistically insignificant.

Table 4 has estimates of the effect of local immigration enforcement policies on mental health scores, with higher values indicating higher levels of mental health distress. Results suggest that TF deteriorated the mental health of Latino immigrants in households with one or more non-citizen family members by 19 ($p<0.05$) to 21 ($p<0.1$) percent (=0.46/2.18 to 0.41/2.18). When the sample group is narrowed to Latino immigrants in households with no citizen, a group most likely to be affected by local immigration enforcement policies, the adverse effect of TF is stronger. TF increased the mental health distress among this group by 31 ($p<0.05$) to 40 ($p<0.01$) percent (=0.71/2.26 to 0.91/2.26). Results from Wald tests suggest that in some models the negative impacts of TF are stronger than SC or JE. Findings from the analysis on US-born Whites suggest that enforcement policies had no effect on their mental health.

In Table 5, I present estimates of the effects of local immigration enforcement policies on a range of mental health outcomes beyond the K6 scale. The dependent variables, listed as bolded headings in each box, are based on questions relating to mental health status of the respondents in the past 30 days. Here I present findings from the model that controls for time-

varying county characteristics (model 2), which is the preferred model. The first outcome is a dichotomized outcome recoded from the mental health scale, with a score above or equal to 6 points defining as having some mental health distress (Sakurai et al, 2011). The second outcome, "any mental health limitation", is also a dichotomous outcome indicating whether mental health conditions interfere with life or activities some to a lot of the time. For the additional six mental health outcomes comprised the mental health scores (K6 scale), experiencing a given outcome (e.g. sad, nervous, hopeless) some to all of the time is coded as 1, and none to a little of the time is coded as 0.

Results in Table 5 suggest that TF has a negative effect of many measures of mental health of Latino adult immigrants; the effect sizes are larger (point estimates) when the samples are restricted to Latino immigrants in all-non-citizen families. TF increased likelihoods of Latino immigrants experiencing some mental health distress by 2.9 ($p<0.1$) to 8.1 ($p<0.01$) percentage points. TF also increased feelings of nervousness, hopelessness, worthless, restless, everything is an effort, and mental health conditions interfering with lives. In addition, SC is marginally associated with increased feelings of sadness and nervousness. Contrary to my hypothesis, JE lowered the experience of having some mental health distress or feeling sad, nervous, or hopeless. The enforcement policy effects on the non-Hispanic Whites, the comparison group, are generally negligible, which is expected as they are least likely to being affected by enforcement policies.

Sensitivity Analysis

Table 6 checks the robustness of findings on the main outcomes, mental health distress scores and self-rated health, among Latino immigrants. All sensitivity analyses are conducted using models with a full set of controls, including county/state characteristics. First, the sample

inclusion criteria in the main analyses is adults living in the 306 counties with at least 20 Latino non-citizens across survey years. I examine whether findings from this study is sensitive to the cutoff criteria on minimum observation in a county. The first sensitivity test examines policy effects on Latino immigrants living in the 189 counties with at least 50 Latino non-citizens and finds that the policy effects are similar, if not larger, across mental health and self-rated health outcomes when compared to models using 20 Latino non-citizens as the cutoff.

Second, NHIS regularly adjusts its sampling plan according to updated information from the recent Census. The redesign during the study period (2000-2012) happened in 2006. Some counties were a part of NHIS samples prior to 2006 but not after, and some counties were sampled by NHIS after but not prior to 2006. Given that the empirical strategy in this study relies on within county comparison using county fixed effects, and the year of 2006 is at a time when counties are starting to adopt Section 287(g) policies, having enough observations prior to and after the policy change in each county is ideal for investigation. I conduct sensitivity analyses restricting the samples to those in counties covered by NHIS throughout every year between 2000 and 2012 (which is about 70% of the total NHIS samples). Results from the second "all years" sensitivity tests reveal that the policy effects when using this sample are similar or slightly larger.

Third, immigration enforcement may affect the location choice of immigrants after the policy implementation (Watson, 2013). It may serve the interests of undocumented immigrants with poorer health to not residing in counties with local immigration enforcement policies. If this positive health selection pattern among immigrant samples indeed exists, it will bias the policy effect towards zero. I check whether the negative effects of enforcement on new immigrants settling in counties with enforcement policies bias the results. Findings from the third sensitivity

restricting the samples to those who arrived before 2002, the year when the first Section 287(g) agreement was signed, revealed that policy effects are similar and larger in size across three outcomes.

Fourth, in this set of sensitivity analysis, I restrict the observations to a time period before the Great Recession to describe the policy effects ruling out the influence of Great Recession on health and mental health. Results suggest that the adverse mental health effects of TF and JE's effects on reduced likelihood of having good health remain robust in this specification. One additional worth-noting finding is that, although JE reduced the likelihood to have excellent health, it also improved mental health functioning during the period between 2000 and 2008.

In the fifth sensitivity analysis, I restrict the samples to adult immigrants born in Mexico, since immigrants from Mexico represent the largest immigrant group in the US and more than half of the undocumented immigrants in the US are from Mexico (Passel & Cohn, 2011; Zong & Batalova, 2016). In the sixth sensitivity analysis, I restrict the samples to Latino and Mexican non-citizens, since non-citizens represent a group likely to be directly affected by the immigration enforcement practice. These analyses allow this study to further understand the robustness of findings across different sample definitions. Results from these analyses are similar to findings reported for Latino immigrants in households with some non-citizens except for two points. First, in addition to JE, TF also significantly lowered the propensity of Mexican immigrants to have very good or excellent health. Second, mirroring what was shown in the analyses on a period between 2000 and 2008 among Latino immigrant samples, JE marginally improved the mental health among Mexican immigrants while significantly decrease their likelihood to have great health.

In Table 7, I repeat the main analyses on self-rated health and mental health scores in Tables 3 and 4 (model 2 with county/state controls) after controlling for whether counties have had an unsuccessful request to form any type of 287(g) agreements with ICE in year *t*. More than one hundred unsuccessful 287(g) requests were filed by county, city or state governments. These requests were either denied by ICE or withdrawn by local jurisdictions. The analyses so far defined enforcement policies based on effective dates and counties with no enforcement policy including those with denied/withdrawn requests for enforcement were the omitted category. Requests for 287(g) agreements (withdrawn or denied) are indicative of a certain discriminatory environment against the undocumented in these counties. Controlling for whether counties had requested to sign 287(g) in year *t* with ICE both accounts for the effects of requests when examining policy effects and identifying health effects of discriminatory policy climates in the absence of actual policy implementation.

Findings from models controlling for 287(g) requests show that 287(g) requests reduced the likelihood of having excellent and very good health among Latino immigrants in households with some non-citizens. 287(g) requests also increased the levels of mental health distress for Latino immigrants in households with all non-citizens. In addition, after controlling for 287(g) request (namely, separating effects of requests from policy effects), the association between TF and having poor/fair health went from not significant to marginally significant.

Discussion and Conclusion

This study investigates the health and mental health effects of local immigration enforcement policies, including Task Force Enforcement (TF) and Jail Enforcement (JE) agreements under Section 287(g) of the IIRAIRA and the Secure Communities (SC) program, using the National Health Interview Survey (NHIS) for 2000-2012. I find that SC increased the

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risk of Latino immigrants in households with non-citizens rating their overall health as fair or poor by 1.5 to 2.8 percentage points (17 to 35 percent), and JE lowered their probability of reporting very good or excellent health by 3.7 to 7.5 percentage points (6 to 12 percent). Estimates indicate that TF deteriorated the mental health distress scores of Latino immigrants in households with non-citizens by 19 to 40 percent, or increased their likelihood to have some mental health distress by 2.9 to 8.1 percentage points. The same analyses were conducted on a group that was unaffected by the policies, US-born non-Hispanic Whites, and the policy effects on this group were overall modest or null, providing support for the validity of research design. I also administered a series of sensitivity tests and found that findings from this study are robust across various sample specifications.

There is one additional finding that is worth-noting in this study. In the analyses that controlled for whether a county had made an unsuccessful request to form a 287(g) agreement with ICE in a given year, there is evidence suggesting that the request alone escalated the mental health distress for Latino immigrants (and, as shown in Appendix Table C, even for US-born Latinos, a group that would not be directly affected by the enforcement policy had the agreements been signed). Even though these requests did not result in signed 287(g) agreements with ICE, climates associated with the request (e.g., discriminatory or hostile atmosphere towards immigrants or Latino ethnic groups, an increased possibility that an interior enforcement policy will eventually pass in the future) affected their mental health well-being.

The adverse effects of local immigration enforcement policies on self-rated health and mental health distress are alarming since these measures have implications for long-term health. Prior studies have documented strong associations between mortality and self-rated health or mental health distress (Burström & Fredlund, 2001; DeSalvo et al., 2006; Pratt, 2009). Studies

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have also shown that mental health distress, poor self-rated health, and other physical health conditions all demand higher health care expenditures compared to populations not experiencing these conditions (Brown et al., 2002; Martin et al., 2008; DeSalvo et al., 2009; Pirraglia et al., 2011; Bernard, Farr, & Fang, 2011). Heightened health care costs along with burden of poor health may exacerbates lives in Latino communities living in low-income neighborhoods.

Findings from this study should be interpreted with caution due to four limitations. First, although this study presented the health and mental health impacts of local immigration enforcement policies, there is limited understanding on pathways or mechanisms through which TF, JE, and SC differentially or similarly affect health. Future studies on mechanisms of how enforcement policies affect health and mental health could help identify potential points of entry to provide interventions to prevent adverse health effects. Second, although NHIS provides ideal data for the inquiry of this study as it is the principal source of information on the health of the US population (Centers of Disease Control and Prevention, 2015), NHIS has the limitation of not collecting sufficient information that can help identify legal status, such as visa category upon entry. Third, this study is unable measure the scale of potential biases stemming from policy effects on migration and non-response among Latino immigrants. Fourth, the policy measure in this study relies on using a dummy to indicate whether a county was influenced by an enforcement policy. Enforcement policy implementation practices likely vary by localities. Future studies using other avenues to capture the intensity of enforcement can depict other dimensions of policy effects.

Despite these limitations, this study offers the first evidence that examines health effects of local immigration enforcement policies using nationally representative data. This study extends prior literature and shows that adverse health effects of local immigration enforcement

went beyond certain geographical regions (e.g., Arizona or North Carolina) and were not limited to anecdotal evidence on personal experience (Rhodes et al., 2015; Hardy et al., 2011; Hacker et al., 2011). Local immigration enforcement policies affected lives of immigrants in counties across the country, and adverse effects of enforcement manifested in not only mental health but also self-rated health. The knowledge on health and mental health consequences of immigration enforcement offers evidence for cost and benefit calculation of immigration enforcement initiatives and informs the debates on immigration reform.

References

American Immigration Lawyers Association. (2008). Historical screenshots of ICE 287(g) fact sheets. Retrieved from: http://www.ailadownloads.org/advo/AILA-287gFactSheet.pdf

American Immigration Lawyers Association. (2009). ICE announcement press release. Retrieved from: http://www.aila.org/content/default.aspx?docid=30324

Amuedo-Dorantes, C, & Puttitanun, T. (2014). Remittances and immigration enforcement. *IZA Journal of Migration, 3*(6).

Apsan Law Offices, LLC. (2010). Historical screenshots of ICE 287(g) fact sheets. Retrieved from: http://www.apsanlaw.com/law-261.Section-287g-Immigration-and-Nationality-Act---Delegation-of-Immigration-Authority.html

Bernard, D. S., Farr, S. L., & Fang, Z. (2011). National estimates of out-of-pocket health care expenditure burdens among nonelderly adults with cancer: 2001 to 2008. *Journal of Clinical Oncology, 29*(20), 2821-2826.

Borjas, G. J., & Katz, L. F. (2007). The Evolution of the Mexican-Born Workforce in the United States. In *Mexican Immigration to the United States* ed. by G. J. Borjas. Chicago, IL: University of Chicago Press.

Brown, M. L., Riley, G. F., Schussler, N., & Etzioni, R. (2002). Estimating health care costs related to cancer treatment from SEER-Medicare data. *Medical Care, 40*(8), IV-104.

Burström, B., & Fredlund, P. (2001). Self rated health: Is it as good a predictor of subsequent mortality among adults in lower as well as in higher social classes? *Journal of Epidemiology and Community Health, 55*(11), 836-840.

Butcher, K. F., & Piehl, A. M. (1998). Cross-city evidence on the relationship between immigration and crime. *Journal of Policy Analysis and Management, 17*(3), 457-493.

Capps, R., Rosenblum, M. R., Rodriquez, C., & Chishti, M. (2011). Delegation and Divergence: A Study of 287(g) State and Local Immigration Enforcement. Washington, DC: Migration Policy Institute Report.

Carter-Pokras, O., & Fischer, A. H. (2010). Improvements in Latino Health Data. In Aguirre-Molina, M., Borrell, L. N., & Vega, W. (2010). Health Issues in Latino Males: A Social and Structural Approach (pp. 53-65). Piscataway, NJ: Rutgers University Press.

Cavazos-Rehg, P. A., Zayas, L. H., & Spitznagel, E. L. (2007). Legal Status, Emotional Well-being, and Subjective Health Status of Latino Immigrants. *Journal of the National Medical Association, 99*(10), 1126-1131.

Centers for Disease Control and Prevention. (2015). About the National Health Interview Survey. Retrieved: http://www.cdc.gov/nchs/nhis/about_nhis.htm

Cho, Y., Frisbie, W. P., Hummer, R. A., & Rogers, R. G. (2004). Nativity, Duration of Residence, and the Health of Hispanic Adults in the United States. *International Migration Review, 38*(1), 184-211.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. 2nd ed. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Cox, A. B., & Miles, T. J. (2013). Policing immigration. *University of Chicago Law Review, 80*, 87-136.

Dain, E. (2014). In-State Tuition Laws and College Enrollment of Undocumented Hispanic Students. Retrieved from: http://www.e-ir.info/2014/03/27/in-state-tuition-laws-and-college-enrollment-of-undocumented-hispanic-students/

Delva, J., Horner, P., Sanders, L., Martinez, R., Lopez, W. D., & Doering-White, J. (2013). Mental health problems of children of undocumented parents in the United States: A hidden crisis. *Journal of Community Positive Practices, 13*(3), 25-35.

Department of Homeland Security. (2010). Performance of 287(g) Agreements. Retrieved: http://www.oig.dhs.gov/assets/Mgmt/OIG_10-63_Mar10.pdf

DeSalvo, K. B., Bloser, N., Reynolds, K., He, J., & Muntner, P. (2006). Mortality prediction with a single general self-rated health question. *Journal of General Internal Medicine, 21*(3), 267-275.

DeSalvo, K. B., Jones, T. M., Peabody, J., McDonald, J., Fihn, S., Fan, V., ... & Muntner, P. (2009). Health care expenditure prediction with a single item, self-rated health measure. *Medical Care, 47*(4), 440-447.

Donato, K. M., & Rodríguez, L. A. (2014). Police arrests in a time of uncertainty: The impact of 287(g) on arrests in a new immigrant gateway. *American Behavioral Scientist*.

Dougherty, K. J., Nienhusser, H. K., & Vega, B. E. (2010). Undocumented immigrants and state higher education policy: The politics of in-state tuition eligibility in Texas and Arizona. *The Review of Higher Education, 34*(1), 123-173.

Dream Activist. (2008). Historical screenshots of ICE 287(g) fact sheets. Retrieved from: http://www.dreamactivist.org/ice-program-287g-is-your-community-participating/

Duncan, B., Hotz, V. J., Trejo, S. J. (2006). Hispanics in the US Labor Market. In Hispanics and the Future of America. Washington, Washington DC: National Academies Press.

Gentsch, K., & Massey, D. S. (2011). Labor market outcomes for legal Mexican immigrants under the new regime of immigration enforcement. *Social Science Quarterly, 92*(3), 875-893.

Gleeson, S. (2014). Brokering immigrant worker rights: An examination of local immigration control, administrative capacity and civil society. *Journal of Ethnic and Migration Studies*.

Goldstein, M. S., Siegel, J. M., & Boyer, R. (1984). Predicting changes in perceived health status. *American Journal of Public Health, 74*(6), 611-614.

Hacker, K., Chu, J., Leung, C., Marra, R., Pirie, A., Brahimi, M., ... & Marlin, R. P. (2011). The impact of immigration and customs enforcement on immigrant health: perceptions of immigrants in Everett, Massachusetts, USA. *Social Science & Medicine, 73*(4), 586-594.

Hall, M., Greenman, E., & Farkas, G. (2010). Legal status and wage disparities for Mexican immigrants. Social Forces, 89(2), 491-513.

Hardy, L. J., Getrich, C. M., Quezada, J. C., Guay, A., Michalowski, R. J., & Henley, E. (2012). A call for further research on the impact of state-level immigration policies on public health. *American journal of public health, 102*(7), 1250-1253.

ICE. (2016). Priority Enforcement Program. Retrieved from https://www.ice.gov/pep#wcm-survey-target-id

ICE. (2015). Secure Communities. Retrieved from https://www.ice.gov/secure-communities

ICE. (2014). Freedom of Information Act (FOIA) Library. Retrieved from:
http://www.ice.gov/foia/library/

Immigration Custom Enforcement (ICE). (2013). Secure Communities Activated Jurisdictions (as of January 22, 2013). Washington, DC: ICE.

ICE. (2012). Freedom of Information Act (FOIA) Library. Retrieved from:
http://cdn.ca9.uscourts.gov/datastore/library/2013/06/24/Lopez-Valenzuela_Section%20287(g).pdf

ICE. (2011). Freedom of Information Act (FOIA) Library. Retrieved from:
http://archive.today/H8hx

ICE. (2010). 287(g) – Identified aliens for removal. Retrieved from:
http://www.ice.gov/doclib/foia/reports/287g-masterstats2010oct31.pdf

Jasso, G., Massey, D. S., Rosenzweig, M. R., & Smith. J. P. (2004). Immigrant Health—Selectivity and Acculturation. In *Critical Perspectives on Racial and Ethnic Differences in Health in Late Life*. Washington DC: The National Academies Press.

Justice Strategies. (2007). Historical screenshots of ICE 287(g) fact sheets. Retrieved:
http://www.justicestrategies.org/sites/default/files/ICE-287gMemo-09062007.pdf

Kaushal, N. (2008). In-state Tuition for the Undocumented: Education Effects on Mexican Young Adults. *Journal of Policy Analysis and Management, 27*(4), 771-792.

Kostandini, G., Mykerezi, E., & Escalante, C. (2013). The impact of immigration enforcement on the U.S. farming sector. *American Journal of Agricultural Economics*.

Koper, C. S., Guterbock, T. M., Woods, D. J., Taylor, B., & Carter, T. J. (2013). The Effects of Local Immigration Enforcement on Crime and Disorder. *Criminology & Public Policy, 12*(2), 239-276.

Lacayo, A. E. (2010). The impact of Section 287(g) of the Immigration and Nationality Act on the Latino community. Washington, DC: National Council of La Raza.

Lopez, M. H., Minushkin, S. (2008). 2008 National Survey of Latinos: Hispniacs see their situation in U.S. deteriorating; Oppose key immigration enforcement measures. Washington, DC: Pew Hispanic Center.

Lundberg, O., & Manderbacka, K. (1996). Assessing reliability of a measure of self-rated health. *Scandinavian Journal of Public Health, 24*(3), 218-224.

Mansyur, C., Amick, B. C., Harrist, R. B., & Franzini, L. (2008). Social capital, income inequality, and self-rated health in 45 countries. *Social Science & Medicine, 66*(1), 43-56.

Martin, B. I., Deyo, R. A., Mirza, S. K., Turner, J. A., Comstock, B. A., Hollingworth, W., & Sullivan, S. D. (2008). Expenditures and health status among adults with back and neck problems. *JAMA, 299*(6), 656-664.

National Conference of State Legislatures. (2012). State Omnibus Immigration Legislation and Legal Challenges. Retrieved from: http://www.ncsl.org/research/immigration/omnibus-immigration-legislation.aspx

National Conference of State Legislatures. (2015a). States offering driver's licenses to immigrants. Retrieved from: http://www.ncsl.org/research/immigration/states-offering-driver-s-licenses-to-immigrants.aspx

National Conference of State Legislatures. (2015b). State E-Verify action. Retrieved from: http://www.ncsl.org/research/immigration/state-e-verify-action.aspx

Padraza, F. I., & Zhu, L. (2015). Immigration Enforcement and the "Chilling Effect" on Latino Medicaid Enrollment. Retrieved: http://healthpolicyscholars.org/sites/healthpolicyscholars.org/files/pedrazazhu_medicaid.pdf

Parrado, E. A. (2012). Immigration enforcement policies, the economic recession, and the size of local Mexican immigrant populations. *The Annals of the American Academy, 641*, 16-37.

Passel, J. S., & Cohn, D'Vera. (2011). Unauthorized immigrant population: national and state trends, 2010. Washington, DC: Pew Hispanic Center.

Pham, H., & Van, P. H. (2010). The economic impact of local immigration regulation: an empirical analysis. *Cardozo Law Review, 485*, 687-720.

Pirraglia, P. A., Hampton, J. M., Rosen, A. B., & Witt, W. P. (2011). Psychological distress and trends in healthcare expenditures and outpatient healthcare. *The American Journal of Managed Care, 17*(5), 319.

Pratt, L. A., & Dey, A. N. (2007). Characteristics of adults with serious psychological distress as measured by the K6 scale, United States, 2001-04. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

Pratt, L. A. (2009). Serious psychological distress, as measured by the K6, and mortality. *Annals of Epidemiology, 19*(3), 202-209.

Ramirez, R. (2004). We the People: Hispanics in the United States. In Census (2000) Special Report. US Department of Commerce Economics and Statistics. US Census Bureau: Administration.

Rhodes, S. D., Mann, L., Simán, F. M., Song, E., Alonzo, J., Downs, M., Lawlor, E., Martinez, O., Sun, C. J., O'Brien, M. C., Reboussin, B. A., & Hall, M. A. (2015). The impact of local immigration enforcement policies on the health of immigrant Hispanics/Latinos in the United States. *American Journal of Public Health, 105*(2), 329-337.

Rumbaut, R. G. (2006). The Making of a People. In *Hispanics and the Future of America*, eds. Tienda, M., & F. Mitchell. Washington, DC: National Academies Press.

Russell, Alene. (2011). State Policies Regarding Undocumented College Students: A Narrative of Unresolved Issues, Ongoing Debate and Missed Opportunities. Retrieved from: http://www.nacacnet.org/research/KnowledgeCenter/Documents/UndocumentedCollegeStudents.pdf

Salleh, M. R. (2008). Life event, stress and illness. *Malaysian Journal of Medical Sciences*, *15*(4), 9-18.

Sakurai, K., Nishi, A., Kondo, K., Yanagida, K., & Kawakami, N. (2011). Screening performance of K6/K10 and other screening instruments for mood and anxiety disorders in Japan. Psychiatry and clinical neurosciences, 65(5), 434-441.

Shibuya, K., Hashimoto, H., & Yano, E. (2002). Individual income, income distribution, and self-rated health in Japan: cross sectional analysis of nationally representative sample. *BMJ, 324*(7328), 16.

Sullivan, M. M., & Rehm, R. (2005). Mental health of undocumented Mexican immigrants: a review of the literature. *Advances in Nursing Science, 28*(3), 240-251.

US Census Bureau. (2016). American Fact Finder. Retrieved: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

Vaughan, J. M., & Edwards, Jr., J. R. (2009). The 287(g) program: Protecting home towns and homeland. Washington, DC: Center for Immigration Studies.

Vega, W., & Amaro, H. (1994). Latino outlook: Good health, uncertain prognosis. *Annual Review of Public Health, 15*, 39-67.

Watson, T. (2013). Enforcement and immigrant location choice. NBER Working Paper 19626. Retrieved: http://www.nber.org/papers/w19626.pdf

Watson, T. (2014). Inside the Refrigerator: Immigration Enforcement and Chilling Effects in Medicaid Participation. *American Economic Journal: Economic Policy, 6*(3), 313-338.

Wong, K. K., & Shen, F. X. (2002). Politics of state-led reform in education: Market competition and electoral dynamics. *Educational Policy, 16*(1), 161-192.

Wong, T. K. (2012). 287(g) and the politics of interior immigration control in the United States: Explaining local cooperation with federal immigration authorities. *Journal of Ethnic and Migration Studies, 38*(5), 737-756.

Wu, S., Wang, R., Zhao, Y., Ma, X., Wu, M., Yan, X., & He, J. (2013). The relationship between self-rated health and objective health status: a population-based study. *BMC Public Health, 13*(1), 1.

Zong, J., & Batalova, J. (2016). Frequently Requested Statistics on Immigrants and Immigration in the United States. Washington, DC: Migration Policy Institute. Retrieved from: http://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states#Unauthorized Immigrants

Figure 1. Number of 287(g) Agreements by Type
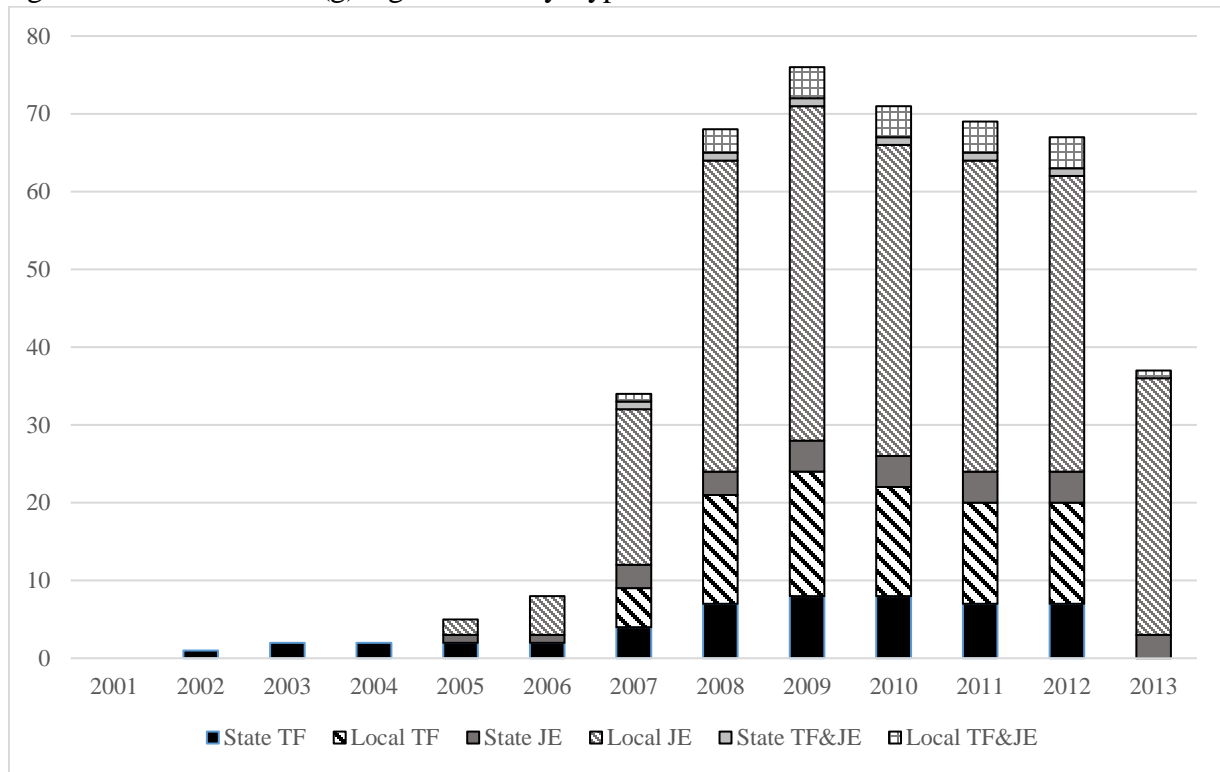
Note: TF is Task Force Enforcement and JE is Jail Enforcement.

Figure 2. Number of Counties Covered by Local Immigration Enforcement Policies
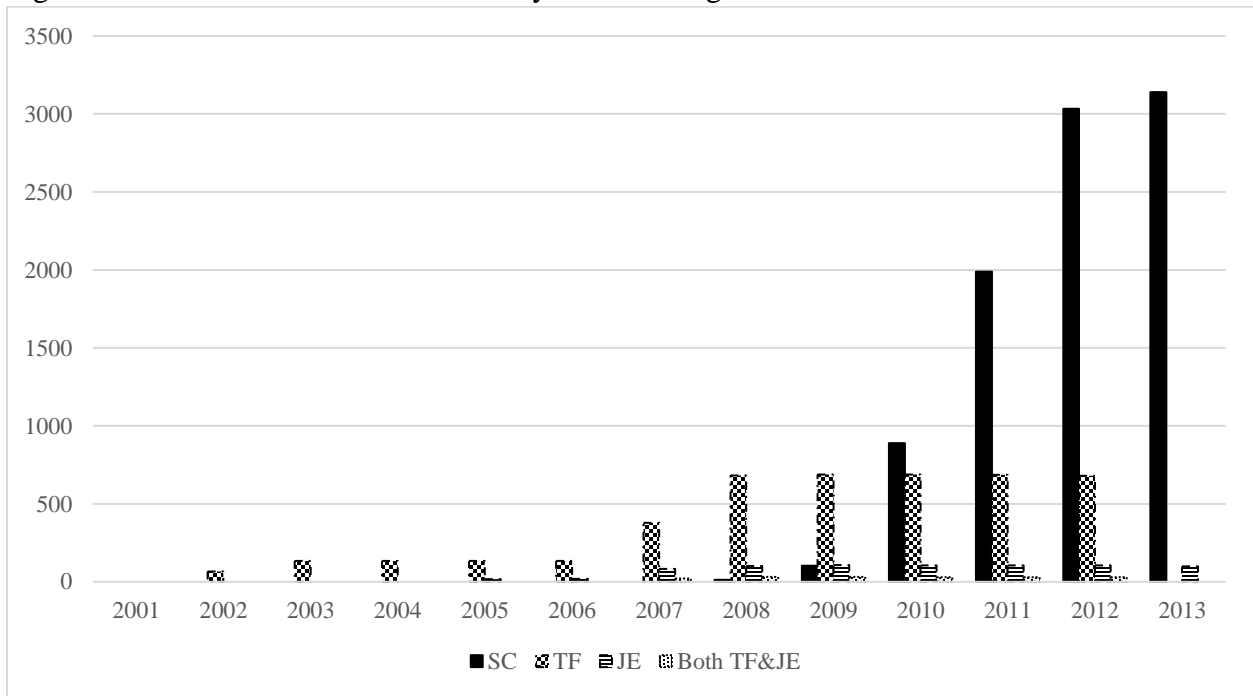
Note: SC is the Secure Communities Program, TF represents Task Force Enforcement, and JE represents Jail Enforcement. The TF number and the JE number here include counties that had both TF and JE agreements, while "Both TF & JE" bars show the magnitude of overlaps.

Figure 3. Proportion of Counties with Local Immigration Enforcement Policies
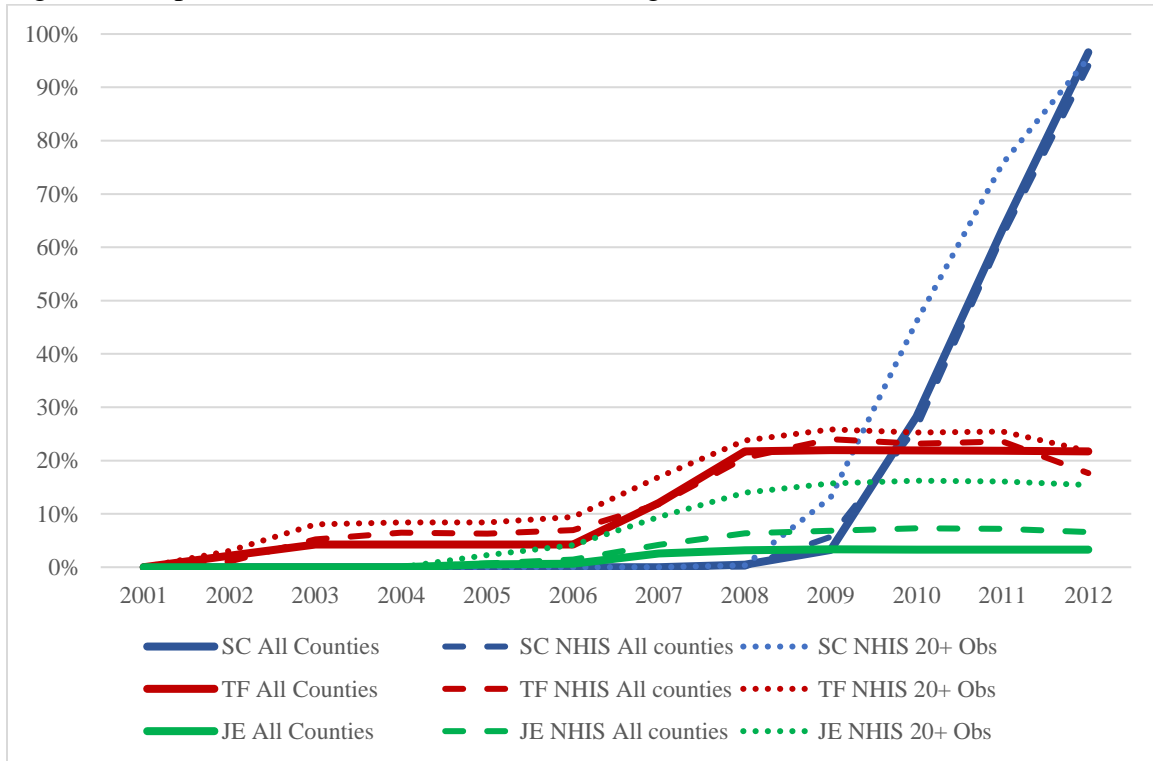
Note: SC is the Secure Communities Program, TF represents Task Force Enforcement, and JE represents Jail Enforcement.

Table 1: Descriptive Statistics of Demographic Characteristics

	Hispanic FB in HH w/ 1+ NC		Hispanic FB in HH w/ All NC		Non-Hispanic White US-born	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Age	34.89	10.56	34.30	11.28	39.44	11.47
Male	0.52	0.50	0.60	0.49	0.49	0.50
Married	0.65	0.48	0.48	0.50	0.61	0.49
Education						
Less than 9 years of education	0.37	0.48	0.38	0.48	0.01	0.10
9-12 years of education (no degree)	0.22	0.42	0.21	0.41	0.07	0.25
HS Degree or GED	0.19	0.39	0.18	0.39	0.26	0.44
Some college education or more	0.18	0.38	0.17	0.38	0.64	0.48
Unknown educational level	0.05	0.21	0.05	0.22	0.02	0.15
Household Size						
1 person	0.05	0.23	0.17	0.37	0.16	0.36
2 people	0.11	0.31	0.24	0.42	0.31	0.46
3-4 people	0.39	0.49	0.38	0.49	0.41	0.49
5 or more people	0.44	0.50	0.22	0.41	0.13	0.33
Family income	43687	34028	34684	27409	88112	53402
Interview Language – Not English	0.60	0.49	0.67	0.47	0.00	0.04

Note: NHIS (2000-2001). FB: foreign born; HH: households; NC: non-citizen. Samples include (1) adults aged 18-60 and (2) living in counties with at least 20 non-citizen Hispanic observations. Family income is shown in nominal dollars in 2000 and 2001.

Table 2: Descriptive Statistics of Health Conditions

	Hispanic FB in HH w/ 1+ NC		Hispanic FB in HH w/ All NC		Non-Hispanic White US-born	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Self-reported Health (Fair/poor)	0.09	0.28	0.08	0.27	0.06	0.24
Self-reported Health (Excellent/very good)	0.61	0.49	0.64	0.48	0.74	0.44
Total Mental Health Scores (Range: 0-24; higher values indicating higher levels of mental health distress)	2.18	3.92	2.26	4.17	2.58	3.79
Some Mental Health Distress (Dichotomous; ≥6)	0.15	0.35	0.15	0.36	0.16	0.37
Mental health conditions interfere with life & activities	0.09	0.28	0.09	0.28	0.11	0.31
In the past 30 days, did the respondent feel … (some of the time to all of the time)?						
Sad	0.14	0.34	0.15	0.36	0.12	0.32
Nervous	0.14	0.35	0.15	0.36	0.19	0.39
Hopeless	0.08	0.27	0.09	0.29	0.06	0.25
Worthless	0.05	0.22	0.05	0.23	0.05	0.22
Restless	0.12	0.33	0.13	0.34	0.20	0.40
Everything was an effort	0.09	0.29	0.10	0.30	0.14	0.35

Note: NHIS (2000-2001). FB: foreign born; HH: households; NC: non-citizen. Samples include (1) adults aged 18-60 and (2) live in counties with at least 20 non-citizen Hispanic observations.

Table 3: Self-Rated Health (NHIS 2000-2012)

Sample	Fair/Poor Health						Excellent/Very Good Health					
	Hispanic FB in HH w/ 1+ NC		Hispanic FB in HH w/ All NC		Non-Hispanic White US-born		Hispanic FB in HH w/ 1+ NC		Hispanic FB in HH w/ All NC		Non-Hispanic White US-born	
Model	1	2	1	2	1	2	1	2	1	2	1	2
Secure Communities	0.015+	0.015+	0.028*	0.028*	0.001	-0.000	-0.019	-0.019	0.006	0.006	-0.008	-0.006
(SC)	(0.008)	(0.008)	(0.013)	(0.013)	(0.004)	(0.004)	(0.022)	(0.022)	(0.034)	(0.034)	(0.007)	(0.007)
Task Force Enforcement	0.011	0.005	0.016	0.019	-0.003	-0.007+	-0.037	-0.038	-0.045	-0.057	0.001	0.001
(TF)	(0.007)	(0.008)	(0.010)	(0.013)	(0.004)	(0.004)	(0.031)	(0.031)	(0.039)	(0.041)	(0.007)	(0.007)
Jail Enforcement (JE)	0.005	0.005	0.017	0.017	-0.003	-0.003	-0.035*	-0.037*	-0.075**	-0.075**	0.007	0.006
	(0.008)	(0.007)	(0.013)	(0.013)	(0.005)	(0.005)	(0.018)	(0.018)	(0.023)	(0.023)	(0.010)	(0.009)
County poverty rates		0.002		0.001		0.002*		-0.005+		-0.007		-0.002+
		(0.001)		(0.003)		(0.001)		(0.003)		(0.004)		(0.001)
County unemployment rates		0.000		0.000		-0.001		0.002		0.001		-0.001
		(0.003)		(0.003)		(0.001)		(0.004)		(0.006)		(0.002)
Dream Act		-0.004		0.013		0.006		-0.026		-0.044		-0.014*
		(0.008)		(0.013)		(0.003)		(0.020)		(0.038)		(0.007)
Driver's license		0.000		0.096		-0.000		0.018		0.004		-0.006
		(0.042)		(0.064)		(0.008)		(0.043)		(0.117)		(0.025)
Omnibus bills		-0.021		-0.028		0.009		0.099**		0.111+		0.010
		(0.013)		(0.049)		(0.014)		(0.033)		(0.060)		(0.019)
E-Verify		0.007+		0.003		0.004*		-0.015		-0.006		-0.005
		(0.004)		(0.006)		(0.002)		(0.013)		(0.018)		(0.003)
Wald-tests												
TF vs. JE							**	**				
SC vs. TF	*		*	*			**	**				
SC vs. JE	+	+	**	**								
County Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County/State Controls		Yes		Yes		Yes		Yes		Yes		Yes
N	71241	71241	18948	18948	172185	172185	71241	71241	18948	18948	172185	172185

Note: +0.1>p≥0.05, *0.05>p≥0.01, **p<0.01. FB: foreign born; HH: households; NC: non-citizen. Each model in each column is based on a separate regression. The analysis is restricted to counties with at least 20 Latino non-citizen observations across the survey years. The samples of analyses are adults aged 18-60 years. All models control for age ((omitted category 19-24), 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-60), gender (male), marital status (married), education level (less than 9 years, 9-12 years (no high school degree), (omitted category: high school degree or GED), some colleges or more), household size dummies (1, 2, (omitted category: 3-4), 5+), log family income, language of interview (not English), and county and year fixed effects. The foreign born (FB) sample further controls for years since immigration (0-5, 6-10, 11-15, (omitted category: 15+)),

cohort of arrival ((omitted category before 1987), 1987-1991, 1992-1996, 1997-2001, 2002-2012), citizenship status, and regions of origin ((omitted category: Central America), Mexico, South America). In the second model, county/state controls account for county unemployment rate, county poverty rate, whether the state of residence has legislations related to undocumented immigrants (Dream Act, driver's license, omnibus bills and E-Verify) in year t. Standard errors clustered on county of residence are in parenthesis.

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Table 4: Mental Health Distress (the higher the worse) (NHIS 2000-2012)

Sample	Hispanic FB in HH w/ 1+ NC		Hispanic FB in HH w/ All NC		Non-Hispanic White US-born	
Model	1	2	1	2	1	2
Secure Communities (SC)	0.203	0.186	0.292	0.299	0.093	0.051
	(0.163)	(0.166)	(0.294)	(0.295)	(0.071)	(0.071)
Task Force Enforcement (TF)	0.464*	0.413+	0.707*	0.913**	0.049	0.036
	(0.182)	(0.210)	(0.338)	(0.315)	(0.096)	(0.100)
Jail Enforcement (JE)	-0.307	-0.322	-0.426	-0.354	-0.100	-0.106
	(0.245)	(0.229)	(0.287)	(0.288)	(0.128)	(0.123)
County poverty rates		0.004		-0.013		0.023
		(0.034)		(0.056)		(0.015)
County unemployment rates		0.023		0.031		-0.007
		(0.026)		(0.049)		(0.021)
Dream Act		-0.041		-0.045		0.263**
		(0.206)		(0.394)		(0.082)
Driver's license		1.184		0.208		0.033
		(0.771)		(1.324)		(0.211)
Omnibus bills		0.154		-0.894		0.610**
		(0.302)		(0.563)		(0.228)
E-Verify		0.042		-0.187+		0.032
		(0.057)		(0.104)		(0.041)
Wald-tests						
TF vs. JE	*	+		*		
SC vs. TF	*			*		
SC vs. JE						
County Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
County/State Controls		Yes		Yes		Yes
N	24210	24210	7680	7680	75090	75090

Note: +0.1>p≥0.05, *0.05>p≥0.01, **p<0.01. FB: foreign born; HH: households; NC: non-citizen. Each column in each panel is based on a separate regression. See notes in Table 3 for sample and model specifications. Standard errors clustered on county of residence are in parenthesis

Table 5: Mental Health Indicators (NHIS 2000-2012)

Sample	1 Hispanic FB in HH w/ 1+ NC	2 Hispanic FB in HH w/ All NC	3 Non-Hispanic White US-born	1 Hispanic FB in HH w/ 1+ NC	2 Hispanic FB in HH w/ All NC	3 Non-Hispanic White US-born	1 Hispanic FB in HH w/ 1+ NC	2 Hispanic FB in HH w/ All NC	3 Non-Hispanic White US-born	1 Hispanic FB in HH w/ 1+ NC	2 Hispanic FB in HH w/ All NC	3 Non-Hispanic White US-born
Outcomes	**Some mental health distress (Kessler 6 Scale ≥ 6 points)**			**Any mental health limitation**			**Sad**			**Nervous**		
SC	0.009	0.010	0.005+	0.018	0.019	0.001	0.020+	0.028	-0.002	0.022+	0.039+	0.004
	(0.015)	(0.026)	(0.003)	(0.011)	(0.023)	(0.006)	(0.011)	(0.021)	(0.006)	(0.013)	(0.024)	(0.008)
TF	0.029+	0.081**	-0.002	0.021+	0.034+	0.000	0.014	0.040	-0.005	0.028*	0.060*	0.013
	(0.015)	(0.026)	(0.003)	(0.012)	(0.020)	(0.008)	(0.014)	(0.031)	(0.006)	(0.014)	(0.030)	(0.010)
JE	-0.031+	-0.030	-0.004	-0.011	0.002	-0.009	-0.029+	-0.030	-0.006	-0.034*	-0.062**	-0.010
	(0.018)	(0.022)	(0.003)	(0.015)	(0.022)	(0.008)	(0.015)	(0.022)	(0.007)	(0.015)	(0.019)	(0.010)
N	24210	7680	75090	24240	7688	75177	24291	7714	75235	24290	7711	75244
Outcomes	**Hopeless**			**Worthless**			**Restless**			**Everything is an effort**		
SC	0.008	0.015	-0.003	0.000	0.015	0.002	0.017	0.012	0.006	0.004	0.010	0.001
	(0.009)	(0.018)	(0.004)	(0.009)	(0.016)	(0.004)	(0.013)	(0.022)	(0.008)	(0.012)	(0.022)	(0.006)
TF	0.020*	0.039*	-0.001	0.011	0.027*	-0.000	0.033*	0.063*	0.015	0.022*	0.051**	-0.000
	(0.009)	(0.017)	(0.005)	(0.007)	(0.012)	(0.005)	(0.014)	(0.026)	(0.010)	(0.010)	(0.020)	(0.008)
JE	-0.019+	-0.023+	-0.006	-0.010	-0.005	-0.007+	-0.018	-0.011	-0.003	-0.014	-0.006	0.001
	(0.011)	(0.012)	(0.004)	(0.008)	(0.011)	(0.004)	(0.012)	(0.018)	(0.012)	(0.014)	(0.017)	(0.009)
N	24273	7701	75235	24259	7699	75220	24278	7704	75240	24253	7699	75218

Note: +0.1>p≥0.05, *0.05>p≥0.01, **p<0.01. FB: foreign born; HH: households; NC: non-citizen; SC: Secure Communities; TF: Task Force Enforcement; JE: Jail Enforcement. Each model for each outcome and sample is based on a separate regression. The dependent variable, listed as column headings, is based on questions relating to mental health of the respondent in the past 30 days. The "some mental health distress" outcome is coded from the linear Kessler 6 Scale, with scores above 6 points defined as experienced some mental health distress. The outcome 'any mental health limitation' is coded as 1 if it happened some to a lot of the time and as 0 if it happened a little of the time or not at all. Experiencing a given outcome ('sad' through 'everything was an effort') some to all of the time is coded as 1, and none to a little of the time is coded as 0. See notes in Table 3 for sample specifications, and models in this table are equivalent to the Model 2 in Table 3 (controlling for county/state characteristics). Standard errors clustered on county of residence are in parenthesis.

Table 6: Sensitivity Analysis I (NHIS 2000-2012)

Top panel (Models 1–3)

| | Poor/fair health | | | | | | Very good/excellent health | | | | | | Mental health distress scores | | | | | |
| | (1) 50+ observations | | (2) All years | | (3) Arrived before 2002 | | (1) 50+ observations | | (2) All years | | (3) Arrived before 2002 | | (1) 50+ observations | | (2) All years | | (3) Arrived before 2002 | |
	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC
SC	0.014	0.026*	0.013	0.025+	0.017+	0.034*	-0.021	0.012	-0.019	0.011	-0.025	0.006	0.252	0.400	0.181	0.236	0.232	0.326
	(0.009)	(0.013)	(0.009)	(0.014)	(0.009)	(0.017)	(0.023)	(0.034)	(0.023)	(0.035)	(0.019)	(0.033)	(0.168)	(0.303)	(0.170)	(0.306)	(0.171)	(0.374)
TF	0.006	0.024+	0.004	0.017	0.001	0.012	-0.051	-0.061	-0.042	-0.060	-0.024	-0.029	0.459*	1.001**	0.509*	1.003**	0.464*	1.086**
	(0.009)	(0.013)	(0.009)	(0.014)	(0.009)	(0.014)	(0.034)	(0.042)	(0.031)	(0.041)	(0.033)	(0.044)	(0.201)	(0.308)	(0.203)	(0.338)	(0.204)	(0.303)
JE	0.006	0.015	0.007	0.018	0.005	0.024+	-0.038*	-0.076**	-0.039*	-0.077**	-0.032+	-0.083**	-0.300	-0.324	-0.300	-0.300	-0.431+	-0.534
	(0.008)	(0.013)	(0.008)	(0.013)	(0.008)	(0.013)	(0.019)	(0.022)	(0.019)	(0.023)	(0.018)	(0.027)	(0.240)	(0.294)	(0.235)	(0.283)	(0.221)	(0.343)
N	67630	17806	65147	17410	62135	14629	67630	17806	65147	17410	62135	14629	22898	7215	21995	7044	20975	5918

Bottom panel (Models 4–6)

| | Poor/fair health | | | | | | Very good/excellent health | | | | | | Mental health distress scores | | | | | |
| | (4) 2000-2008 | | (5) Mexican | | (6) Non-citizens | | (4) 2000-2008 | | (5) Mexican | | (6) Non-citizens | | (4) 2000-2008 | | (5) Mexican | | (6) Non-citizens | |
	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Mexican FB in HH w/ 1+ NC	Mexican FB in HH w/ All NC	Hispanic	Mexican	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Mexican FB in HH w/ 1+ NC	Mexican FB in HH w/ All NC	Hispanic	Mexican	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Mexican FB in HH w/ 1+ NC	Mexican FB in HH w/ All NC	Hispanic	Mexican
SC	--	--	0.004	0.021	0.015+	0.005	--	--	-0.012	0.049	-0.019	-0.016	--	--	0.053	0.427	0.232	0.131
			(0.010)	(0.020)	(0.008)	(0.010)			(0.025)	(0.040)	(0.022)	(0.025)			(0.188)	(0.308)	(0.165)	(0.192)
TF	0.006	0.011	0.004	0.014	0.004	0.002	-0.038	-0.062	-0.087**	-0.124*	-0.046	-0.091**	0.497*	1.076**	0.270	0.824*	0.410+	0.248
	(0.011)	(0.015)	(0.014)	(0.021)	(0.009)	(0.013)	(0.047)	(0.053)	(0.028)	(0.049)	(0.031)	(0.029)	(0.195)	(0.302)	(0.252)	(0.330)	(0.223)	(0.283)
JE	-0.005	0.011	0.007	0.014	0.008	0.009	-0.036*	-0.097**	-0.038+	-0.093**	-0.041*	-0.042*	-0.805**	-0.789**	-0.390+	-0.544+	-0.266	-0.374
	(0.009)	(0.017)	(0.009)	(0.018)	(0.008)	(0.009)	(0.017)	(0.022)	(0.020)	(0.025)	(0.018)	(0.020)	(0.202)	(0.273)	(0.211)	(0.298)	(0.236)	(0.231)
N	52782	14845	45716	10941	63098	41624	52782	14845	45716	10941	63089	41624	18079	5959	15082	4290	21760	13859

Note: +0.1>p≥0.05, *0.05>p≥0.01, **p<0.01. FB: foreign born; HH: households; NC: non-citizen; SC: Secure Communities; TF: Task Force Enforcement; JE: Jail Enforcement. Each model for each sample is based on a separate regression. The sample of "50+ observations" represents counties with at least 50 Latino non-citizen observations across the survey years. The sample of "all years" represents counties survey by all years between 2000 and 2012. The sample of "arrived before 2002" represents immigrants arrived to the US prior to 2002. The sample of "2000-2008" represents those responded to the survey between 2000 and 2008, a period before the Great Recession happened. The sample of "Mexican" includes respondents born in Mexico. The sample of "non-citizens" includes respondents who are not citizens. The samples of analyses are adults aged 18-60 years born in Latin America. See notes in Table 3 for sample specifications, and models in this table are equivalent to the Model 2 in Table 3 (controlling for county/state characteristics). Standard errors clustered on county of residence are in parenthesis.

Table 7: Sensitivity Analysis II (NHIS 2000-2012)

Sample	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Non-Hispanic White US-born
Panel 1: Poor/Fair Health			
Secure Communities	0.014+	0.027+	-0.001
(SC)	(0.008)	(0.014)	(0.004)
Task Force	0.006	0.021+	-0.007+
Enforcement (TF)	(0.008)	(0.012)	(0.004)
Jail Enforcement	0.004	0.015	-0.003
(JE)	(0.008)	(0.012)	(0.004)
287(g) requests	0.012	0.018	0.005
	(0.008)	(0.014)	(0.004)
N	71241	18948	172185
Panel 2: Good/Excellent Health			
Secure Communities	-0.016	0.009	-0.004
(SC)	(0.022)	(0.034)	(0.007)
Task Force	-0.042	-0.060	0.002
Enforcement (TF)	(0.032)	(0.041)	(0.007)
Jail Enforcement	-0.034+	-0.071**	0.007
(JE)	(0.018)	(0.024)	(0.009)
287(g) requests	-0.039**	-0.035	-0.010
	(0.014)	(0.025)	(0.007)
N	71241	18948	172185
Panel 3: Mental Health			
Secure Communities	0.167	0.268	0.044
(SC)	(0.166)	(0.304)	(0.072)
Task Force	0.429*	0.951**	0.034
Enforcement (TF)	(0.208)	(0.310)	(0.101)
Jail Enforcement	-0.343	-0.397	-0.115
(JE)	(0.219)	(0.274)	(0.121)
287(g) requests	0.188	0.377+	0.072
	(0.159)	(0.228)	(0.077)
N	24210	7680	75090

Note: $+0.1>p\geq0.05$, $*0.05>p\geq0.01$, $**p<0.01$. FB: foreign born; HH: households; NC: non-citizen. Each column in each panel is based on a separate regression. The analysis is restricted to counties with at least 20 Latino non-citizen observations across the survey years. The samples of analyses are adults aged 18-60 years. See notes in Table 3 for sample specifications, and models in this table are equivalent to the Model 2 in Table 3 (controlling for county/state characteristics). Standard errors clustered on county of residence are in parenthesis.

Appendix Table A: Sensitivity Analysis III (NHIS 2000-2012)

Sample	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Non-Hispanic White US-born	Hispanic FB in HH w/ 1+ NC	Hispanic FB in HH w/ All NC	Non-Hispanic White US-born
Panel 1: Poor/Fair Health						
Secure Communities (SC)	0.015+	0.029*	-0.000	0.015+	0.028*	-0.000
	(0.008)	(0.013)	(0.004)	(0.008)	(0.013)	(0.004)
Any Task Force Enforcement (TF)	0.006	0.021+	-0.008+			
	(0.008)	(0.012)	(0.004)			
Any Jail Enforcement (JE)				0.006	0.018	-0.004
				(0.008)	(0.013)	(0.005)
JE (no TF)	0.006	0.016	-0.003			
	(0.008)	(0.013)	(0.005)			
TF (no JE)				0.006	0.022+	-0.004
				(0.009)	(0.013)	(0.004)
N	71241	18948	172185	71241	18948	71241
Panel 2: Very Good/Excellent Health						
Secure Communities (SC)	-0.021	0.000	-0.005	-0.019	0.005	-0.005
	(0.022)	(0.033)	(0.007)	(0.022)	(0.034)	(0.007)
Any Task Force Enforcement (TF)	-0.041	-0.061	0.002			
	(0.033)	(0.043)	(0.007)			
Any Jail Enforcement (JE)				-0.038+	-0.075**	0.006
				(0.019)	(0.025)	(0.010)
JE (no TF)	-0.032	-0.056*	0.005			
	(0.019)	(0.026)	(0.010)			
TF (no JE)				-0.027	-0.035	-0.000
				(0.032)	(0.041)	(0.008)
N	71241	18948	172185	71241	18948	71241
Panel 3: Mental Health						
Secure Communities (SC)	0.179	0.289	0.049	0.187	0.309	0.054
	(0.165)	(0.293)	(0.070)	(0.165)	(0.290)	(0.071)
Any Task Force Enforcement (TF)	0.371+	0.872**	0.015			
	(0.216)	(0.324)	(0.103)			
Any Jail Enforcement (JE)				-0.298	-0.277	-0.101
				(0.235)	(0.300)	(0.126)
JE (no TF)	-0.349	-0.375	-0.124			
	(0.231)	(0.287)	(0.124)			
TF (no JE)				0.404+	0.968**	0.040
				(0.228)	(0.328)	(0.106)
N	24210	7680	75090	24210	7680	24210

Note: +0.1>p≥0.05, *0.05>p≥0.01, **p<0.01. FB: foreign born; HH: households; NC: non-citizen. Each column in each panel is based on a separate regression. See notes in Table 3 for sample and model specifications. Standard errors clustered on county of residence are in parenthesis

Appendix Table B: Descriptive Statistics of Non-Hispanic Immigrants and Hispanic US-born

Sample	Non-Hispanic FB		Hispanic US-born	
	Mean	S.D.	Mean	S.D.
<u>Demographic characteristics</u>				
Age	38.60	11.10	33.16	11.53
Male	0.49	0.50	0.48	0.50
Married	0.69	0.46	0.47	0.50
Education				
Less than 9 years of education	0.05	0.22	0.05	0.22
9-12 years of education (no degree)	0.06	0.23	0.20	0.40
HS Degree or GED	0.19	0.39	0.34	0.47
Some college education or more	0.59	0.49	0.39	0.49
Unknown educational level	0.12	0.33	0.02	0.14
Household Size				
1 person	0.12	0.33	0.08	0.28
2 people	0.23	0.42	0.18	0.38
3-4 people	0.43	0.49	0.43	0.50
5 or more people	0.22	0.41	0.30	0.46
Family income	79898	55305	60485	43594
Interview Language – Not English	0.07	0.25	0.15	0.35
<u>Outcomes</u>				
Self-reported Health (Fair/poor)	0.06	0.24	0.09	0.29
Self-reported Health (Excellent/very good)	0.70	0.46	0.65	0.48
Total Mental Health Scores (Range: 0-24; higher values indicating higher levels of mental health distress)	2.09	3.44	2.71	4.26
Some Mental Health Distress (Dichotomous; ≥6)	0.12	0.33	0.19	0.39
Mental health conditions interfere with life & activities	0.09	0.28	0.13	0.33
In the past 30 days, did the respondent feel … (some of the time to all of the time)?				
Sad	0.13	0.33	0.16	0.37
Nervous	0.15	0.35	0.18	0.38
Hopeless	0.06	0.23	0.08	0.28
Worthless	0.04	0.20	0.06	0.24
Restless	0.12	0.33	0.19	0.39
Everything was an effort	0.12	0.32	0.16	0.37

Note: NHIS (2000-2001). FB: foreign born; HH: households; NC: non-citizen.

Samples include (1) adults aged 18-60 and (2) living in counties with at least 20 non-citizen Hispanic observations. Family income is shown in nominal dollars in 2000 and 2001.

Appendix Table C: Health and Mental Health of Non-Hispanic Foreign Born and US-born Latinos (NHIS 2000-2012)

Outcomes	Fair/Poor Health		Excellent/Very Good Health		Mental health distress	
Models	1	2	1	2	1	2
Panel 1:						
Non-Hispanic Foreign Born						
Secure Communities	0.004	0.004	-0.015	-0.014	0.136	0.131
(SC)	(0.006)	(0.006)	(0.018)	(0.018)	(0.166)	(0.167)
Any Task Force Enforcement	-0.002	-0.003	-0.014	-0.012	0.147	0.136
(TF)	(0.007)	(0.007)	(0.019)	(0.018)	(0.186)	(0.188)
Any Jail Enforcement (JE)	-0.003	-0.004	-0.022+	-0.020	-0.055	-0.076
	(0.006)	(0.006)	(0.013)	(0.012)	(0.174)	(0.165)
287(g) requests		0.003		-0.015		0.141
		(0.007)		(0.016)		(0.155)
N	40629	40629	40629	40629	14687	14687
Panel 2:						
Hispanic US-Born						
Secure Communities	0.006	0.004	-0.012	-0.012	0.109	0.047
(SC)	(0.008)	(0.008)	(0.014)	(0.015)	(0.154)	(0.160)
Any Task Force Enforcement	-0.002	-0.001	-0.007	-0.006	0.149	0.225
(TF)	(0.010)	(0.011)	(0.023)	(0.023)	(0.238)	(0.236)
Any Jail Enforcement (JE)	-0.000	-0.000	0.003	0.003	-0.119	-0.100
	(0.006)	(0.006)	(0.011)	(0.011)	(0.274)	(0.254)
287(g) requests		0.005		0.003		0.385*
		(0.006)		(0.015)		(0.188)
N	49914	49914	49914	49914	17978	17978

Note: +0.1>p≥0.05, *0.05>p≥0.01, **p<0.01. Each model in each column and panel is based on a separate regression. The analysis is restricted to counties with at least 20 Latino non-citizen observations across the survey years. The samples of analyses are adults aged 18-60 years. All models control for age ((omitted category 19-24), 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-60), gender (male), marital status (married), education level (less than 9 years, 9-12 years (no high school degree), (omitted category: high school degree or GED), some colleges or more), household size dummies (1, 2, (omitted category: 3-4), 5+), log family income, language of interview (not English), county/state controls account for county unemployment rate, county poverty rate, whether the state of residence has legislations related to undocumented immigrants (Dream Act, driver's license, omnibus bills and E-Verify) in year t, and county and year fixed effects. The foreign born sample in panel 1 further controls for years since immigration (0-5, 6-10, 11-15, (omitted category: 15+)), cohort of arrival ((omitted category before 1987), 1987-1991, 1992-1996, 1997-2001, 2002-2012), citizenship status, and regions of origin ((omitted category: Europe), Russia, Africa, Middle East, Indian subcontinent, East Asia, Southeast Asia, elsewhere, unknown). Standard errors clustered on county of residence are in parenthesis.

Paper 2: TANF Participation, State TANF Requirement Stringencies, and Parental Investments

Abstract

Aim: After almost two decades since welfare reform, it is crucial to understand how participating in the Temporary Assistance to Needy Families (TANF) program is associated with parental investments, important determinants for child well-being. This study investigates this association and how different stringencies in state TANF policies on time limit and sanctions on non-compliance to work requirements impact this association.

Data and Methods: Data from the nationally-representative Survey on Income and Program Participation, 2004 and 2008 panels, provide a unique opportunity to observe parental investments at two time points. This study includes children living in households headed by women without a Bachelor degree. In order to account for pre-existing characteristics that determine TANF participation, I use individual fixed-effect models to compare individual-level changes over time.

Results and Conclusion: TANF participation was associated with increased family meal times and decreased incidence of family outings and reading time. TANF participation was not associated with other areas of parenting (e.g., extracurricular activity participation, family rules on watching TV, positive parenting in forms of praising the child or having fun time with them, parenting stress, and parental expectation). Stringent state TANF policy characteristics were not associated with negative parenting behaviors. To improve well-being of children in low-income families, social assistance programs need to consider services that could support parents to eliminate challenges to employment, to cope with life circumstances that led them to apply for welfare, and to invest in children's well-being.

Introduction

In 1996, Congress passed the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), also known as the welfare reform. The PRWORA abolished a long-standing cash-assistance program, Aid to Families with Dependent Children (AFDC), and established a new a time-limited and work-focused cash safety net program, Temporary Assistance for Needy Families (TANF) (Grogger & Karoly, 2005; Dunifon, Hynes, & Peters, 2006; Waldfogel, 2007).[7] The main goal of TANF is to promote work and reduce dependency on welfare. Under TANF, state public assistance provisions have to be contingent upon work or work-related activities. The reform also imposes time limits for receiving welfare as well as sanctions on non-compliance to work requirements. However, states could utilize their own funds to extend the welfare provision beyond the federal time limits, and states have the autonomy to decide the severity of sanctions (Dunifon et al., 2006). This creates a great variation in state TANF policies.

Despite abundant studies on impacts of welfare reform on welfare use, labor participation, and poverty, how participating in this new form of social assistance program that involves work requirements and time limits affects parental investments in children remains an important yet understudied topic (Chase-Lansdale & Pittman, 2002; Coley et al., 2007). Past literature on impacts of AFDC/TANF on children mostly focuses on outcomes such as children's cognitive development, school achievement, health status, and behavioral problems, and results from these studies are generally mixed (Grogger & Karoly, 2005; Ziliak, forthcoming). Few studies have examined impacts of AFDC/TANF on parental investments in a child in areas of family interactions, family routines, parenting stress, and parenting expectation (Chase-Lansdale

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[7] A detailed description of TANF could be found in Moffitt (2003).

& Pittman, 2002; Dunifon et al., 2006). Since parental investment is an important contributor to child outcomes, examining impacts of TANF participation on parental investments, an under-examined outcomes, may extend current knowledge and contextualize mixed findings in past literature on TANF and child well-being.

In addition, this study addresses three limitations in past literature by examining impacts of TANF participation and using more recent data from 8-13 years after the nation-wide implementation of TANF. First, most existing evidence on TANF in relation to parenting is based on experimental studies in a few states prior to TANF's nationwide implementation or observational studies that use data from a few years before and after the welfare reform (Chase-Lansdale et al., 2003; Grogger & Karoly, 2005; Dunifon et al., 2006; Coley et al., 2007; Ziliak, forthcoming). Limited evidence exists documenting impacts of TANF participation in more recent years. Second, in past literature, comparisons are generally made between those who received traditional cash assistance (cash only) and those who were subject to work-promoting measures (e.g., time limits, work requirements, sanctions, earnings supplements) in addition to receiving cash assistance (combo). Yet, comparisons between "cash only" and "combo" do not reflect opportunities available for low-income families now. A low-income family faces options of whether to abide by TANF requirements and receive cash assistance or get nothing. Third, there is a dearth of research on impacts of different state TANF requirements (Grogger & Karoly, 2005). This study aims to address these limitations by focusing on two research questions, using more recent data from 8-13 years after the welfare reform. First, what is the association between TANF participation (as a bundle of cash assistance, time limits and work requirements) and parental investments? Second, does the association between TANF

participation and parental investments differ by stringencies of states TANF policies on time limits and work sanctions?

These questions are not easy to answer because TANF participation is not random. Families receiving TANF are very likely to be fundamentally different from those not participating in TANF (e.g., less need, less knowledge about resources, stronger motivation to be self-reliant). As an attempt to derive plausible evidence to describe the sheer impact of TANF participation, this study uses the individual fixed effects (FE) models to account for time constant unobserved factors correlated with TANF participation and parental investments.

Conceptual Framework

This study examines impacts of TANF participation on parental investments to enrich our understanding of intermediary link between TANF participation and child well-being. TANF participation may influence child well-being through parental investments since the family's income and employment changes resulted from TANF receipts could affect parental investments, and parental investments in turn affect child well-being. This pathway is supported by the Family Stress Model, which depicts the entangling relationships among economic resources, economic pressure, the emotional state of caregivers, conflicts between caregivers, parenting practices, and child well-being (Conger & Elder, 1994; Conger, Rueter, & Conger, 2000; Conger et al., 2002). The Family Stress Model posits that economic hardship and family income affect the economic pressure families face (Elder & Caspi, 1998). Economic pressure influences caregivers' emotions, which lead to their relational conflict/withdrawal and changes in parental involvement. Parental involvement ultimately determines child well-being (Conger et al., 2002). Given that prior studies found mixed findings on impacts of TANF on child well-being (Grogger & Karoly, 2005; Waldfogel, 2007; Ziliak, forthcoming), untangling associations between TANF

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participation and parental involvement can help shed light on intermediate impacts of TANF participation.

TANF participation may affect parental involvements and child well-being through changing caregivers' employment status and income. Since the welfare reform, there has been an increase in single parents' labor force participation and a drop in welfare caseloads (Duncan & Chase-Lansdale, 2001; Grogger & Karoly, 2005). Employment changes may also lead to a shift in the composition of disposable family income, as income from earnings and expenditure for work-related purposes may increase and income from transfers may decrease (Grogger & Karoly, 2005). These employment and income changes may alter parental investments in children and family routines (Chase-Lansdale & Pittman, 2002; Coley et al., 2007).

Employment Effects

Parents transitioning into employment may affect parental investments and child well-being through several pathways. First, transitioning into employment may change parents' time allocation. Parents might have less time to be with their children, meet their needs, and supervise them (Brooks-Gunn et al., 2001; Duncan & Chase-Lansdale, 2001; Lichter & Jayakody, 2002). Second, parental employment may provide a positive role model to the children (Lichter & Jayakody, 2002; Chase-Lansdale & Pittman, 2002). Third, parental employment may routinize daily life and improve the structure in family lives. Parents hence are more likely to set rules and provide appropriate discipline (Lichter & Jayakody, 2002; Chase-Lansdale & Pittman, 2002). Fourth, shifting into employment may improve parental mental health as their economic burden is reduced and self-esteem and self-efficacy are improved (Brooks-Gunn et al., 2001; Lichter & Jayakody, 2002; Grzywacz & Bass, 2003). However, the stress to balance work and child care and the pressure to meet work requirements and time limits may also escalate parental stress

(Duncan & Chase-Lansdale, 2001; Lichter & Jayakody, 2002; Bitler & Hoynes, 2006). Also, parents forced into work often take low-wage jobs or jobs at odd hours, which provide little flexibility and autonomy (Morris, Duncan, & Clark-Kauffman, 2005; Waldfogel, 2007). In short, parental employment has competing implications for children's lives.

Income Effects

Pathways through which income might influence parental investments and child well-being are shown in areas of home environment, quality of child care, economic pressure, parental mental health, parent-child relationships, and neighborhood residence (Duncan & Brooks-Gunn, 2000). First, when families have more income, they are more likely to have better home learning environments (e.g., access to library card, museum visits, availability of learning oriented toys). Better home learning environments are associated with better cognitive outcomes for children (Duncan & Brooks-Gunn, 2000; Votruba-Drzal, 2003; Morris et al., 2005). Second, an income increase may accompany choosing childcare or afterschool programs of better quality (Fuller et al., 2002). Intensive early-childhood education programs for poor children have proven to increase their verbal ability and reasoning skills (Karoly et al., 1998; Peisner et al., 2001; Vandell & Pierce, 2003). Third, an increase in income may reduce family economic pressure, which is often associated with conflict between children and parents, lower school grades, reduced emotional health, or impaired social relationships (Mistry et al., 2002). Fourth, improved economic circumstances may improve parents' physical and mental health; hence, parent irritability and depressive symptoms are reduced and so are conflictual parent-child interactions (Jones & Wildman, 2008). Fifth, if an income increase could lead to a positive change in neighborhood characteristics (potentially via moving), child well-being may be improved. Poverty in neighborhoods is characterized by social organization (e.g., crime) and few quality

resources for child development (e.g., school, childcare, playgrounds, after-school programs, healthcare facilities) (Leventhal & Brooks-Gunn, 2000).

However, the income effects would only hold if welfare reform increased resources available for children. Extant literature indicates that the reform does not always lead to an increase in family income, since work participation reduces welfare transfer income (Morris et al., 2001; Blank, 2002; Grogger & Karoly, 2005; Ziliak, forthcoming). Also, when parents are employed, they might have additional expenses for work-related purposes, such as childcare, transportation, and clothing, which would reduce disposable income and shifting resources away from children (Kaushal, Gao, & Waldfogel, 2007). Furthermore, for welfare recipients whose benefits are sanctioned due to failure to meet behavioral requirements, facing reduced welfare assistance may further deteriorate their family economic condition.

In short, the extent to which employment affects parental investments in children is ambiguous since employment may improve the self-esteem and economic well-being of caregivers while also inducing stress as caregivers may lack skills to sustain stable employment (Coley et al., 2007). In terms of income effects, although an income increase allows caregivers to have more economic resources to invest in children, prior studies showed that TANF programs did not consistently lead to an increase in total family income (Coley et al., 2007).

Literature Review

Given competing influences of employment changes and ambiguous effects of TANF on income described in the previous section, it is not surprising that empirical studies show mixed findings about impacts of work-promoting welfare programs on parental investments in children. In the pre-PRWORA period, several experimental studies randomly assigned families to work-promoting welfare programs while others received the traditional AFDC program to evaluate

policy effects. In the post-PRWORA period, observational studies either compared outcomes before and after the welfare reform to examine policy impacts or used post-PRWORA longitudinal data to compare how changes in welfare participation and work status predicted outcomes. Overall, these studies found mixed program effects, and there is a dearth of study on effects of work-focused welfare programs on parental investments (Chase-Lansdale & Pittman, 2002; Coley et al., 2007).

With regards to parental investments in child care environment, studies on Pre-PRWORA programs that focused on earnings supplements, work requirements, or time limits found that most programs (the National Evaluation of Welfare-to-Work Strategies [NEWWS] in Michigan, California, and Georgia, the New Hope Program in Wisconsin, the Self-Sufficiency Project in Canada, and the full Minnesota Family Investment Program [MFIP], the Family Transition Program in Florida) increased children's participation in center-based child care and afterschool programs (e.g., attending clubs and youth groups, taking lessons, attending religious activities), with the exception that some programs that did not mandate employment service attendance found no program effect on child care (Morris et al., 2001; Huston et al., 2001; Huston et al., 2005). Studies post-welfare reform also found that an increase in non-parental child care use following the expansion in federal funding for child care subsidies (Meyers et al., 2001; Fuller et al., 2002), but no effect was found on participating in after school activities (Dunifon, Hynes, & Peters, 2006).

Despite the overall increase in stimulation from non-parental child care, studies revealed that cognitive stimulation of the home environment did not consistently respond to work-promoting welfare programs (Dunifon, Hynes, & Peters, 2006; Coley et al., 2007). Specifically, some studies prior to the welfare reform found positive changes in cognitive stimulation in the

home as parents moved from receiving welfare into employment (Smith et al., 2001; Brooks-Gunn et al., 2001), while other studies found no significant link (Wilson, Ellwood, & Brooks-Gunn, 1995). In regards to changes during the welfare reform, Dunifon and colleagues (2006) used SIPP data before and after the reform and found that frequencies of home cognitive stimulating activities in the form of parents reading to their children did not change with welfare reform (Dunifon, Hynes, & Peters, 2006). After the welfare reform, findings from the Three-City Study that surveyed low-income families in Boston, Chicago, and San Antonio between 1999 and 2001 also suggested that, transitioning into or out of welfare was not associated with cognitive stimulation at home (Coley et al., 2007).

With respect to parenting behaviors in forms of parent-child interactions, parental monitoring, and family routines, studies showed that work-promoting welfare programs had very few effects on parenting behaviors (Morris et al., 2001; Dunifon, Hynes, & Peters, 2006; Coley et al., 2007). In the pre-PRWORA experimental studies, only two out of six NEWWS programs that had mandatory employment services increased parent-reported parenting warmth towards their children, while the other four programs found no effects on parenting (Morris et al., 2001). Even for programs that provided generous work support for low-income families did not consistently show positive program impacts on parenting behaviors (Morris et al., 2001; Huston et al., 2005). Taking the New Hope Project in Milwaukee, Wisconsin as an example, it is a pre-PRWORA experiment that randomly assigned families to receive generous wage supplements and child care and health insurance subsidies. Two years after the randomization, studies found that the project increased parental warmth and the parent's monitoring of the child's activities only among parents who were employed full-time at random assignment, and no effect was observed at 5-year follow-up (Huston et al., 2001; Huston et al., 2005).

Observational studies during and after the welfare reform also find mixed evidence on impacts of TANF on parenting behaviors (Dunifon, Kalil, & Danziger, 2003; Dunifon, Hynes, & Peters, 2006; Coley et al., 2007). Comparing parenting practice before and welfare reform, Dunifon et al. (2006) found that the reform did not affect parental monitoring in watching TV, while strict sanctions decreased the number of family outings and income disregard increased family outings. In terms of studies using post-welfare reform data, on one hand, findings from the longitudinal Women's Employment Study (WES) that followed Michigan welfare recipients spanning 1997-1999 revealed that, welfare recipients transitioning into combining welfare and work is associated with decreased harsh parenting (e.g., spanking and yelling) and increased positive parenting (praising the child and laughing with the child) (Dunifon, Kalil, & Danziger, 2003). On the other hand, the Three-City Study found that transitioning into or out of welfare was not associated with changes in family routines, the quality of parenting (e.g., discipline and frequencies of interactions), or parental monitoring (Coley et al., 2007).

In terms of parenting stress, studies also found mixed evidence on effects of work-promoting welfare programs on maternal psychological health (Huston et al., 2001; Morris et al., 2001; Dunifon, Kalil, & Danziger, 2003; Coley et al., 2007). In the pre-PWROWA experiments, the New Hope Project that provided wage supplements showed to reduce parenting stress and increase low income mothers' social support and sense of hope (Huston et al., 2001). Meanwhile, the New Hope Project and two out of six NEWWS programs that had mandatory employment services showed to increase parents' feeling of time pressure, and no effect was found in areas of self-esteem, depression, or worries about finances (Morris et al., 2001; Huston et al., 2001). In post-welfare reform observational studies, low-income mothers' movements from welfare reliant to combining welfare and work or wage reliant did not relate to parenting stress in the WES

study (Dunifon, Kalil, & Danziger, 2003), while the Three City Study found that transition into employment predicted improved self-esteem and decreased depression when compared to mothers remaining unemployed or moving out of employment (Coley et al., 2007). With respect to parental expectation of children, few studies examined this outcome in relation to welfare recipiency. The pre-PRWORA New Hope Project found that parents that received the wage supplement program had lower expectation on their children's educational achievement, contrary to the expectation (Huston et al., 2001).

Few studies have directly investigated how different levels of TANF state policy stringencies are associated with family dynamics and parental involvement. Paxson and Waldfogel (2003) examined the relationship between welfare reform and harsh parenting in the form of child maltreatment, and they found that reduced welfare benefits was associated with more children living in out-of-home placements, and that shorter time limits and tougher sanctions on noncompliance are related to higher levels of substantiated maltreatment. Another study by Dunifon et al. (2006) used the SIPP dataset (as in this study) and pooled 1992 through 1996 panels and examined how different state TANF policy characteristics affect parental investments and child well-being. Their results were inconclusive and do not suggest that specific policy characteristics have a systematic and uniform effect on aspects of parenting behaviors and child well-being. However, they only observed well-being of a child at one point in time; thus they were not able to control for unobserved child and family characteristics. Also, they did not employ a comparison group to control for any potentially confounding trends (Ziliak, forthcoming). This study will address these weaknesses by using SIPP data from two time points and addressing the endogeneity of TANF participation using individual fixed effects models.

Overall, there are four limitations in prior research. First, earlier studies generally focus on children's health, behavioral, and cognitive outcomes. Parental investments, important determinants of child well-being, are often overlooked. This study investigates into a wide range of outcomes related to parental investments and family environment available in the SIPP dataset, including family cognitive stimulation activities, family routines, family interactions, parenting stress, and parental expectation. Second, a decade after TANF's nationwide implementation, results from pre-PRWORA state-wide experiments or observational studies covering time periods until 3-5 years after the reform would not be able to capture influences of changes in norms and expectations on welfare recipiency, work, and childrearing (Duncan & Chase-Lansdale, 2001; Grogger & Karoly, 2005). This study, hence, uses nationally representative panel data SIPP from more years after the reform (2004 and 2008 panels). Third, most current literature compares participants in traditional cash assistance programs to participants in cash plus work promotion programs. Yet, this comparison does not reflect options available to low-income families today. TANF contains a wide range of requirements, and it is important to understand how TANF participation as a package lifts or fails families in need. Therefore, the first aim of this study is to investigate the associations between parental investments and TANF participation. Fourth, limited research examines how different state TANF policy stringencies may affect children. However, as an aftermath of the Great Recession, many states experience budget constraints and have cut TANF benefits or have shortened time limits (Schott & Pavetti, 2011). It is extraordinarily important to evaluate and understand impacts of increases in stringencies in TANF requirements. The second aim of this study is to evaluate whether varying degrees of TANF state policy stringencies have impacts on parental investments. This study has the potential to help inform policymakers about how TANF

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participation and its policy characteristics might enhance or worsen the family environments of children.

Methods

Data and Sample

This study uses data from the Survey of Income and Program Participation (SIPP) 2004 and 2008 panels. In SIPP, each respondent is interviewed every 4-month to collect information from each of the previous 4 months. The 2004 and 2008 panels contain 12 waves and 15 waves of information, respectively (Census Bureau, 2012). The parental investment information, the main outcomes of this study, is derived from the two Child Well-Being Topical Modules in each panel collected in the last month of Wave 3 and 8 in the 2004 panel (2004 and 2006) and Wave 4 and 10 in the 2008 panel (2009 and 2011). The intervals between the two time points are 20 month and 24 month respectively for the 2004 and the 2008 panel. This study compares the changes in levels of parental investments in relation to TANF participation status.

In SIPP, the parental investment information was collected on all children in the household aged 0 to 17, and information was reported by the designated parent/guardian. I restricted the sample using four criteria: first, children who responded to the first Child Well-Being Topical Module survey; second, children aged 0 to 15 during the first survey as they will be in the universe (under age 17) during the second survey; third, children who lived in households with a female household head not having a bachelor degree and without the father's presence in the household in the first survey. This criteria allows me to study families most likely to receive TANF. It is shown that 94% of TANF adult recipients had 12 or fewer years of education and 87% were not married (ACF, 2012); and fourth, children who are citizen, because states have varying TANF eligibility criteria for non-citizens.

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The response rates for the second survey was 79.7% and 73.4% in the 2004 and 2008 panel, respectively. I further use the multiple imputation strategy to account for potential biases from attrition (detailed in the empirical strategies section). The final sample size is 8,570 children or 17,140 observations for each imputation (2004 panel: 4,801 children; 2008 panel: 3,769 children). Power analysis revealed that in a model with 24 controls that explains 10% of variability in an outcome, a sample size of 136 will have 80% power with a significance level of 0.05 to detect an R-Squared of 0.05 attributed to one independent variable (TANF participation in this case) (Cohen, 1988). Since the sample sizes in this study are larger than 136, this study has more than 80% power to detect the associations between TANF participation and parental investments.

Measures

Key Independent Variables: TANF Participation and State TANF policies

A child is defined as receiving TANF if he/she received TANF at time of the interview. Participating in TANF is coded as 1, and 0 otherwise. This leads to 1,633 children (9.5% of all children meeting the inclusion criteria) who participated in TANF in any of the two surveys, and 841 children received TANF at both survey time points.

Information on state TANF policy characteristics were obtained and recoded from the Urban Institute Welfare Rule Database. State TANF policies are coded into the following categories. First and the reference category, states *not* having extreme TANF policies; that is the most common policy bundle — having a 60-month time limit and having partial sanction at the initial incidence of noncompliance to work requirements. Second, states having harsh sanctions, imposing sanctions on the full family or closing the case in the initial incidence of noncompliance to work requirements. Third, states having lenient time limits — no time limit on

TANF participation. Fourth, states having stringent time limits — having a time limit of less than 60 months for TANF participation, which is shorter than the federally allowed 60 months.

Dependent Variables: Parental Investments

Parental investments information was collected in two SIPP topical modules in each panel. Descriptions of parental investment variables and their coding are listed in Table 1. These variables cover a wide range of areas in parental investments. I categorize them into five dimensions. First, they captured the cognitive stimulation opportunities a family provides to the child (e.g., frequency of family reading time, or the child's participation in extracurricular activities in terms of sports teams, lessons, or clubs). Second, family routines and life structures are measured by a family's frequency of eating breakfast or dinner together and whether parents set rules on watching TV. Third, family interactions are measured by a family's frequency to share fun time together, the frequency of child outings, and the frequency of praising the child. Fourth, family stress is characterized by how often the designated guardian/parent considered the child as hard to care, felt bothered by the child, found him/herself giving up life to meet the child's needs, or felt angry with the child. Fifth, parental expectation is measured by guardians' confidence in the child's potential to finish college education.

Covariates: Child, Guardian, Household, and State Characteristics

This study controls for time-varying child, guardian, and household characteristics to account for characteristics associated with parental investments and changes in family condition that may correlate with TANF participation. These characteristics include the child's and the guardian's age in categories, guardian's marital status, guardian's educational levels, and whether the guardian is a parent of the child, household size, number of children in the households, and whether the household is located in a metropolitan area. In addition,

unemployment rates in the child's state of residence during the year of interview are also

controlled for in order to account for influences of local economic environments. Since some

changes in family conditions are endogenous to TANF participation, I also examine models

without these controls or models only including age categories. Results from these parsimonious

models are qualitatively the same as results with the full list of controls (not shown in this paper

but available upon request). I therefore present results including a full list of covariates as they

yield estimates accounting for changes in family conditions. With these controls, the estimated

associations between TANF participation and parental investments will not simply be effects

from marriage dissolution, having one additional child, the guardian completing an advance

degree, or living in a state with growing unemployment rates.

Empirical Strategies

The major challenge in assessing impacts of TANF participation is selection into program

participation. Families participating and not participating in TANF are different in observable

characteristics (e.g., family financial conditions) as well as unobservable characteristics (e.g.,

ability to navigate through the welfare application process or the intention to seek support from

government programs). Comparing parental investment levels between TANF participating and

not participating families capture effects from factors other than TANF participation, such as

disadvantaged economic condition or a stronger intention to use transfer programs among TANF

participating families.

Selection bias may stem from differences in meeting program eligibility criteria and

differences in program take-up intentions. To address the selection problem related to program

eligibility, I restrict the samples to the population groups fitting the common family profiles of

TANF recipients, children living in households headed by women without a bachelor degree and

without the fathers' presence in the households. To address the selection bias in program take-up, I use an individual fixed effect (FE) model. A fixed effect model relates the changes in a mother's TANF participation status to her own changes in parental investments to the child. FE models effectively control for unobservable factors that are constant over time for this child and this household, such as personality, motivation, ability, and intention to seek welfare support. Other time-varying factors can be included as controls to account for changes that may affect parental investments and/or program participation.

One major limitation of a FE model is its assumption that individuals are affected by similar time trends. Yet, children may face different time-varying factors (e.g., neighbourhood environment changes, family relation changes), and these factors, if unobserved, cannot be controlled for in fixed effects models. This study tackle this limitation by narrowing the sample to a restricted group children in order to better meet the assumption on identical time trends, since children living in households headed by low-skilled women are subject to similar risks and changes in life. To the extent that there are unobserved time-varying characteristics that differentially affect the outcomes or likelihood of TANF participation, this study will be still subject to selection bias.

Although other strategies like experimental or instrumental variables design are ideal strategies to address selection bias, each method has its limitation in execution. The most ideal empirical strategy to examine effects of TANF participation is to randomly assigned families in need of cash assistance to receiving TANF and not receiving TANF. However, random assignment generally requires much resources to execute and is not currently feasible, so this study has to resort to other identification strategies. An instrumental variable strategy is another viable approach as it isolates the exogenous aspect of TANF participation to estimates its

impacts. This approach relies on identifying instruments that correlate with TANF participation and that are not related to the outcome unless it is through the effects of TANF participation. This way, impacts of TANF participation can be modelled using instrumental variables through a two stage least square model. Following prior studies, I uses variations in state TANF policy requirements as instruments (Bartik, 2002; Osborne & Knab, 2007), yet the value of the F-tests in the first stage regression was below 2, which is much lower than the acceptable standard of 10 or above, indicating that the instruments are weak to investigate the effects of TANF participation. Given these limitations, an individual fixed effect model is the most appropriate approach to address the selection bias in this study.

In addition to the selection problem, attrition is another source of study bias. This study uses repeated measures for the same individual to study effects of program participation. Prior studies have shown that respondents leaving SIPP during the follow-up interviews exhibit more disadvantaged characteristics (e.g., lower earnings at baseline) (Vaughan & Scheuren, 2002). This attrition pattern may contribute to biased estimates on associations between TANF participation on parental investments, since responses from children in more disadvantaged families are more likely to be unavailable in the follow-up survey. To account for potential bias from missing data, I use a multiple imputation strategy to impute observations with missing data during the follow-up survey. Multiple imputation is preferred over mean or regression imputation due to its strength of preserving variation. I multiply imputed 10 datasets for each panel. I pool multiply imputed 20 datasets from two panels and use the –mi estimate– command in Stata to adjust coefficients and standard errors for the variability between imputations in regression models. I use linear fixed effects models for continuous outcomes and dichotomized outcomes.

What is the association between TANF participation and parental investments?

To answer the first research question, I use two analytic models (Equation 1 and Equation 2). The first model is described below:

$$Y_{it} = \beta_1 TANF_{it} + \beta_2 FollowUp_t + \sum \beta_3\, C_{it} + \sum \beta_4\, G_{it} + \sum \beta_5 H_{it} + \beta_6 UR_{st} + \alpha_i + \varepsilon_{it} \ldots\ldots (1)$$

where i represents individual, t represents time, and s represents state; Y_{it} represents various parental investment outcomes; $TANF_{it}$ shows the TANF program participation status at time t for individual i; $FollowUp_t$ represents an indicator variable showing whether the response comes from the follow-up interview; C_{it} represents child time-varying characteristics such as the child's age in categories (0-3, 4-7, 8-11 (ref.), 12-17), G_{it} represents the primary caregiver's time-varying characteristics, including gender, whether the caregiver is a parent of the child, age in categories (15-20, 21-25, 26-30 (ref.), 31-35, 36-40, 41-45, 46+), marital status, and educational levels (less than high school (ref.), high school, some college or more); H_{it} represents household time-varying characteristics, such as number of children in the household (1 (ref.), 2, 3+), household sizes, and whether the household is in a metropolitan area; UR_{st} is the unemployment rate in state s in the given survey year; α_i is the unique intercept for each individual; and ε_{it} is the unobserved error term. The FE model in Equation (1) can also be written in the following way:

$$Y_{it_2} - Y_{it_1} = \beta_1\left(TANF_{it_2} - TANF_{it_1}\right) + \beta_2\left(FollowUp_{it_2} - Baseline_{it_1}\right) + \sum \beta_3\,(C_{it} - \overline{C_{it}})$$
$$+ \sum \beta_4\,(G_{it} - \overline{G_{it}}) + \sum \beta_5\,(H_{it} - \overline{H_{it}}) + \beta_6\,(UR_{st} - \overline{UR_{st}}) + (\varepsilon_{it_2} - \varepsilon_{it_1})$$

To examine mechanisms behind the association between TANF participation and parental investments, I conduct employment and income mediation and moderation analyses.[8] For

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[8] I examine mediating and moderating effects of employment by defining employment as whether having a paid job or work hours. The findings are qualitatively the same. For brevity, I present results defining employment as having a paid job.

mediation analyses, I first run regressions including two potential mediators, having a paid job and log family income levels, into Equation 1. Next, I run two models separately to predict the likelihood of having a job and log family income levels using TANF participation status. Finally, I use the Sobel test to examine whether the mediation effect is statistically significant for each outcome (Preacher & Leonardelli, 2001). In terms of models for moderation analysis, I include two moderators, employment and income, and their interactions with TANF participation status into Equation 1. If the moderation effects exist, the interaction terms should have coefficients that are statistically significant.

To understand how the associations between TANF participation and parental investments differs by age group, I introduce in Equation 1 interactions between $TANF_{it}$ and child age categories (0-4, 5-11, 12-17) to estimates the differential effects by age groups, and results are presented in Appendix 2.

In the second model, changes in parental investments from baseline to follow-up are differentially estimated by detailed TANF participation status:

$$Y_{it} = \beta_1 FollowUp_t + \sum\beta_2 Group_i XFollowUp_t + \sum\beta_3 C_{it} + \sum\beta_4 G_{it} + \sum\beta_5 H_{it} + \beta_6 UR_{st} + \alpha_i + \varepsilon_{it} \dots(2)$$

where $Group_i$ is a time-invarying categorical variable with four categories, with not participating in TANF at both time points coded as 1 (the reference category), transition into TANF participation from baseline to follow-up coded as 2, participating in TANF at both time points coded as 3, and transition out of TANF coverage coded as 4. The interactions between $Group_i$ dummies and $FollowUp_t$ estimates the differential trends in parental investments from baseline to follow-up across four groups. I administered Wald tests after each model to test whether effects differ across different TANF participation sequences.

Does the association between TANF participation and parental investments differ by stringencies of states TANF policies on time limits and work sanctions?

The FE model used to tackle the second research question is:

$$Y_{it} = \beta_1 TANF_{it} + \sum\beta_2 TANF_{it}XPolicy_s + \beta_3 FollowUp_t + \sum\beta_4 C_{it} + \sum\beta_5 G_{it} + \sum\beta_6 H_{it} +$$

$$\beta_7 UR_{st} + \alpha_i + \varepsilon_{it} \ \ldots\ldots (3)$$

In Equation 3, the interactions between TANF participation status and $Policy_s$ are introduced to

Equation 1. $Policy_s$ represents three policy dummies: full family sanctions in the initial

incidence of noncompliance to work requirements, having a time limit of less than 60 month

time limits, and having no time limit. The reference category is not having extreme TANF

policies, the most common policy bundle — having a 60-month time limit and having partial

sanction at the initial incidence of non-compliance to work requirements. I administered Wald

tests after each model to test whether effects of TANF participation differ across different policy

categories.

Results

Descriptive Statistics

Table 1 shows the descriptive statistics of parental investment indicators at the first and

the second time points. The descriptive results show that among children living in households

headed by low-skilled women, TANF participating children received lower levels of parental

investments across many indicators compared to non-participating children. For example, they

were less likely to participate in extracurricular activities, had fewer numbers of family outings,

and lived with caregivers who had fun time with them less frequently, who praised them less

frequently, who experienced a higher level of parenting stress, and had lower education

expectation on them. Meanwhile, TANF participating children received higher levels of parental

investments in a few indicators such as numbers of family meal times each week and the frequencies of family reading time.

Table 2 displays the descriptive statistics of sample characteristics (pooling information from two time points). Results show that the child sample was evenly split across gender, with a mean age of 9. Forty eight percent of the child sample was non-Hispanic White, 36% was non-Hispanic Black, 20% was Hispanics, and 8% was other races. Primary caregivers of these children had an average age of 36, and more than half of them did not have any college education. Nine percent of children lived with guardians who were not their parents, and 77% of them lived in metropolitan areas. These households had an average size of 4 people, and more than half of the households had three or more children. Next, I use individual fixed effect models to examine associations between TANF participation and parental investments.

Multivariate Analysis

TANF Participation and Parental Investments

Table 3 reports results from individual fixed effects models examining associations between TANF participation (TANF hereafter) and parental investments (PI hereafter). Model 1 compares the change in the PI level as a child's TANF participation status changes. In other words, the model conducts within-person comparison across the two time points – how a child's parental investment environment changes when his/her family participated and not participated in TANF. Model 2 in Table 3 further delineates the changes in parental investment levels across children with different TANF participation sequences: constantly not participating in TANF across two time points, transition into TANF participation, constantly participating in TANF, and transition out of TANF participation. Wald tests are administered after each model to check whether the differences in PI levels between TANF participating sequences are statistically

significant. All outcomes (including dichotomous ones) are examined using linear individual FE

models.[9]

Both Model 1 and Model 2 control for time-varying child, caregiver, and household

characteristics to account for changes in life circumstances that led to TANF participation.[10] In

addition to the main sample, children living in households headed by women not having a

Bachelor degree and households without the presence of fathers at the first time point, I also run

the same models on two additional sample restriction criteria to check the robustness of findings.

First, I further restrict the main sample to women who do not have any college education

(excluding those who have obtained an associate degree or have ever attended college for some

time). Second, I further restrict the main sample to households had received AFDC or TANF

prior to baseline. These sample restrictions allow this study to compare results from narrower

samples who are more vulnerable to TANF participation.

To understand whether the associations observed in Model 1 of Table 3 is mediated or

moderated by changes in the caregiver's employment status and changes in family income, I

conducted mediation and moderation tests and presented results in Table 4.[11] Results from

Tables 3 and 4 will be discussed together by each outcome.

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[9] Alternatively, I used logistic fixed effect regressions to run the same model as in Table 3 to examine associations between TANF participation and dichotomous parental investment indicators, and results are presented in Appendix 1 and the coefficients are reported in odds ratio. In logistic fixed effect models, only children who experienced a change in an outcome are retained in the sample, whereas in linear fixed effect models, all children are included in the sample. I consider children who did not experience a change in a dichotomous outcome valuable to include in the sample as no change in an outcome is also a valid response to the TANF participation.

In Appendix 2, interactions between age categories (0-4, 5-11, 12-17) and TANF participation status are introduced into Model 1 to show the differential associations between TANF and PI across age groups.

[10] I acknowledge that changes in guardian or household characteristics may also be a result of TANF participation. Therefore, I ran the same model without these controls, and the results are qualitatively the same. I present results from models with these controls as it is important to account for life circumstances that led to TANF participation.

[11] In Table 4, Model 1, 2, and 3 is each a separate regression. Model 1 controls for whether the caregiver has a paid job at time t and the log family income level at time t. Model 2 uses TANF participation status to predict employment status. Results show that TANF participation is associated with an 18% to 25% decrease in the likelihood to have a paid job. Model 3 uses TANF participation status to predict family income level, and results show that TANF participation is associated with a 54% to 57% increase in family income. Sobel tests on mediation

In terms of cognitive stimulation, results from Model 1 in Table 3 show that while TANF participation was not associated with likelihoods of children participating in extracurricular activities, TANF participation was associated with lower number of times families read to children in the past week (β=-0.75, se=0.34, $p<0.05$) when compared to not participating in TANF. Results from Model 2 in Table 3 show that children in households transitioning out of TANF experienced an increase in family reading time relative to other children in other TANF participating sequences (consistently participating in TANF, consistently not participating in TANF, and transitioning into TANF), and children in households constantly participating in TANF show a marginally significant decrease in family reading time from the first time point to the next. Results from mediation tests (in Table 4) show that the decrease in family reading time was mediated by the lower likelihood of caregivers to have paid jobs when they participate in TANF. Results from the moderation test reveals that, among TANF participants, family reading time was higher when the caregiver combined welfare and work (β=0.74, se=0.10, $p>0.1$) relative to when they rely on TANF and do not work, though the association is not statistically significant. Taken together, TANF participation is associated with decreased family reading times, which is majorly explained by the lower likelihood of guardians to have a job when participating in TANF.

In the areas of family routines and life structures, results in Table 3 show that the likelihood of guardians to set rules on watching TV was not related to TANF participation. Yet, TANF participation was statistically significantly associated with higher numbers of days

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are administered to test whether the mediation effects are statistically significant, and the p-values are reported. If results from Sobel tests are statistically significant, it suggests that employment/family income is mediating the associations between TANF and PI. Model 4 is the employment and income moderation tests on the association between TANF and PI. Model 4 is similar to Model 1 except that Model 4 introduces interaction terms between TANF and employment as well as TANF and log family income. If the interaction terms are statistically significant, it indicates that the employment or family income moderates the associations between TANF and PI.

families sharing breakfast (β=0.28, SE=0.13, p<0.05) or dinner (β=0.23, SE=0.10, p<0.05) together in a week. When comparing changes over time across TANF participation sequences, children in households transitioning out of TANF experienced the largest decreases in the number of dinner families shared together, followed by families constantly participating in TANF. Results from mediation tests reveal that the increases in family breakfast and dinner times were mediated by the guardians' lower probability to be employed when participating in TANF, and neither income nor employment changes had moderation effects. In brief, TANF participation was associated with increases in family meal times, and this positive correlation was mediated by the lower likelihood of guardians to have jobs when participating in TANF.

With regards to family interactions, TANF participation was negatively associated with frequencies of positive interactions. Children's TANF participation status was associated with a lower frequency of families taking children out to parks, churches, playgrounds, or visiting relatives (β=-1.10, SE=0.65, p<0.1). The associations between TANF participation and having fun time with children (talk or play with children more than once a day) or praising the children (complimenting on children more than once a day) were also negative yet not statistically significant. When comparing trends in family interactions across TANF participation sequences, results show that families transition out of TANF experienced higher likelihoods to take their children out (β=1.35, SE=0.48, p<0.01) or to have fun time with children (β=0.04, SE=0.02, p<0.1) when compared to trends of families constantly not participating in TANF. Results from mediation tests in Table 4 suggest that the decrease in the number of outings when participating in TANF was mediated by guardian's lower likelihood of employment when on welfare. The income and employment moderation tests reveal positive moderation effects, yet these estimates are not statistically significant. In sum, TANF participation was associated with a lower

frequency in family interactions, and the association was mediated by guardians' lower

likelihood to work when participating in TANF.

With respect to parenting stress, TANF participation was weakly associated with

guardians' likelihood to experience frustration in parenting (e.g., finding their children hard to

care or feeling having to give up life to meet the needs of children) ($\beta=0.01$, SE=0.02, $p>0.1$),

and the association was not statistically significant. In terms of parental expectation, TANF

participation was associated with a lower likelihood of guardians expecting their children to at

least complete college ($\beta=-0.03$, SE=0.02, $p>0.1$), and this finding was also not statistically

significant. Children living in households transitioning out of TANF, compared to those

constantly not participating in TANF, experience an improvement in parental expectation of their

educational attainment.

TANF Participation, Policy Stringencies, and Parental Investments

In Table 5, interactions between state TANF policies and TANF participation status are

introduced into Model 1 in Table 3 to examine the differential associations between TANF

participation and parental investments in different policy environments. Results from individual

fixed effects models show that there was no indication that more severe sanctions or shorter time

limits negatively impact parental investments.

Results point to four worth-noting associations. First, TANF participation in states with

full sanction is associated with more family breakfast time, perhaps due to that TANF

participants in states with severe sanction were more negatively selected in terms of employment

status. Second, more severe sanctions were associated with higher parental expectations of

children's educational achievement when participating in TANF. Third, TANF participation in

states with shorter time limit (less than 60 month) was marginally associated with a higher

likelihood of children to participate in extracurricular activities. Fourth, participating in TANF in states having no time limit is marginally associated with a higher likelihood of guardians to praise their children when compared to TANF participation in states with other policies.

Discussion

This study found that TANF participation was associated with higher levels of family routines, manifested in the increased numbers of breakfasts and dinners families shared together, and lower frequencies of family reading times and outing times. These associations were all mediated by the lower likelihood of employment among guardians when participating in TANF. TANF participation was not statistically significantly associated with the likelihoods of guardians to invest in extracurricular activities, to set rules regarding watching TV, to praise their children, to report parenting difficulties, or to expect their children to complete college. Also, TANF participation in more stringent states (in terms of short time limits and full family sanctions on noncompliance to work requirements) did not adversely impact parental investments.

When families are in need of public assistance, they are generally under greater stress financially and mentally (Cheng 2007). The null association between TANF participation and parenting difficulties is consistent with findings from some earlier studies (Morris et al., 2001; Dunifon, Kalil, & Danziger, 2003). The absence of negative effect on parenting difficulties may also suggest that the support from TANF participation offsets the escalation in stress associated with events that led families to participate in TANF. Meanwhile, the null association also indicates that the support from TANF was not strong enough to lead to a reduction in parenting stress.

The contrast of positive associations between TANF participation and family shared meal time and negative associations between TANF participation and family reading time or having family outings is worth noting. This finding suggests that caregivers' lower employment rates when receiving TANF freed off time for families to share meals together. However, gaining additional time did not translate into caregivers spending more time to read to children or to take them to go out. The unknown mechanisms behind how TANF families determine their time use warrant future examination. This contrast also signifies the importance of identifying and incorporating supportive services for caregivers in need of public assistance so they could better cope with the circumstances that lead them to welfare programs and have strengths to continue investing in their children.

Given that transitioning families from welfare to work is one of the major goals of welfare reform, the negative association between TANF participation and employment in Table 4 indicates that work requirements did not fully bring TANF participants to work to the level they worked prior to receiving TANF. This shows that there is still room for growth in incorporating TANF adult participants into the labor market. Studies have shown that TANF participants who are not working generally face challenges to take on or sustain employment, such as health or mental health conditions, substance abuse problems, or domestic violence (Danziger et al., 2000). More research is needed to identify effective services to incorporate families into the labor market or eliminating obstacles to employment (Chase-Lansdale & Pittman, 2002).

Findings from this study should be interpreted with caution in light of several limitations. First, although individual fixed effects models control for time constant characteristics, it cannot account for unobservable time-varying factors that correlate with TANF participation or the

outcomes. This study cannot identify causal relationships or avoid the reverse causality problem. Second, the TANF participation status is defined as receiving TANF at the two survey time points, and the associations between TANF participation and parental investments could only be examined across 20- or 24-month intervals. The associations between TANF and PI may vary had the intervals been shorter or longer. Also, TANF participating families oftentimes use more than one program and may transition in and out of TANF (Moffitt, 2015). The collected information cannot capture changes parental investments in relation to heterogeneous TANF participation patterns (e.g., different spells and duration in between the intervals). Lastly, most parental investment questions in the survey were answered by designated guardians of children unless the child was above 15 years old. Not having child-reported responses to complement with parent-reported data is a limitation of the outcome measures.

Despite these limitations, this study is one of the few studies that use data post-2000 to examine relationships between TANF participation and parental investments after TANF's nation-wide implementation. This study further examines how different state TANF policy characteristics were associated with impacts of TANF participation on parental investments. Findings on negative associations between TANF participation and family outings and parental investments in cognitive stimulation suggest that, to improve well-being of children in low-income families, social assistance programs need to strengthen its current level of support for families, either in forms of financial support or service provision. That way, the social safety net could truly help caregivers cope with adverse life circumstances and invest in children, and, ultimately, ensure that children in low-income households have an equal opportunity to thrive.

<div align="center">**References**</div>

Administrations of Children and Families (ACF) (2012). Characteristics and Financial Circumstances of TANF Recipients, Fiscal Year 2012. Retrieved from: http://www.acf.hhs.gov/sites/default/files/ofa/tanf_characteristics_fy_2012.pdf

Bartik, T. J. (2002). Instrumental Variable Estimates of the Labor Market Spillover Effects of Welfare Reform. WE Upjohn Institute Staff Working Paper, (02-78).

Bitler, M., & Hoynes, H. W. (2006). Welfare reform and indirect impacts on health (No. w12642). National Bureau of Economic Research.

Blank, R. M. (2002). Evaluating welfare reform in the United States (No. w8983). National Bureau of Economic Research.

Brooks-Gunn, J., Klebanov, P., Smith, J. R., & Lee, K. (2001). Effects of combining public assistance and employment on mothers and their young children. *Women and Health, 32*(3), 179-210.

Census Bureau. (2012). Overview of the Survey of Income and Program Participation (SIPP). Retrieved: http://www.census.gov/sipp/overview.html

Chase-Lansdale, P. L., Moffitt, R. A., Lohman, B. J., Cherlin, A. J., Coley, R. L., Pittman, L. D., Roff, J., & Votruba-Drzal, E. (2003). Mothers' transitions from welfare to work and the well-being of preschoolers and adolescents. *Science, 299*(5612), 1548-1552.

Chase-Lansdale, P. L., & Pittman, L. D. (2002). Welfare reform and parenting: Reasonable expectations. *The Future of Children*, 167-185.

Cheng, T. C. (2007). Impact of work requirements on the psychological well-being of TANF recipients. *Health & Social Work, 32*(1), 41-48.

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. 2nd ed. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Coley, R. L., Lohman, B. J., Votruba-Drzal, E., Pittman, L. D., & Chase-Lansdale, P. L. (2007). Maternal functioning, time, and money: The world of work and welfare. *Children and Youth Services Review*, *29*(6), 721-741.

Conger, K. J., Rueter, M. A., & Conger, R. D. (2000). The role of economic pressure in the lives of parents and their adolescents: The family stress model. In L. J. Crockett & R. J. Silbereisen (Eds.), *Negotiating adolescence in times of social change* (pp. 201–223). Cambridge, England: Cambridge University Press.

Conger, R. D., & Elder, G. H., Jr. (in collaboration with Lorenz, F. O., Simons, R. L., & Whitbeck, L. B.). (1994). *Families in troubled times: Adapting to change in rural America*. Hillsdale, NJ: Aldine.

Conger, R. D., Wallace, L. E., Sun, Y., Simons, R. L., McLoyd, V. C., & Brody, G. H. (2002). Economic pressure in African American families: a replication and extension of the family stress model. *Developmental Psychology, 38*(2), 179.

Danziger, S., Corcoran, M., Danziger, S., Heflin, C., Kalil, A., Levine, J., Rosen, D., Seefeldt, K., Siefert, K, & Tolman, R. (2000). Barriers to the employment of welfare recipients (pp. 245-279), in Cherry, R., & William III, M. (Eds.), *Prosperity For All? The Economic Boom and African Americans: The Economic Boom and African Americans*. New York: Russell Sage Foundation.

Duncan, G. J., & Brooks-Gunn, J. (2000). Family poverty, welfare reform, and child development. *Child Development, 71*(1), 188-196.

Duncan, G. J., & Chase-Lansdale, P. L. (2001). Welfare regimes and children's well-being. In Blank, R., & Haskins, R. (Eds.), *The New World of Welfare* (391-420). Washington, DC: Brookings Institute Press.

Dunifon, R., Kalil, A., & Danziger, S. K. (2003). Maternal work behavior under welfare reform: How does the transition from welfare to work affect child development? *Children and Youth Services Review, 25*(1-2), 55-82.

Dunifon, R., Hynes, K., & Peters, H. E. (2006). Welfare reform and child well-being. *Children and Youth Service Review, 28*, 1273-1292.

Elder, G. H., & Caspi, A. (1988). Economic stress in lives: Developmental perspectives. *Journal of Social Issues, 44*(4), 25-45.

Fuller, B., Kagan, S. L., Caspary, G. L., & Gauthier, C. A. (2002). Welfare reform and child care options for low-income families. *The Future of Children, 12*(1), 97-119.

Grogger, J., & Karoly, L. A. (2005). *Welfare reform: Effects of a decade of change*. Cambridge, MA: Harvard University Press.

Grzywacz, J. G., & Bass, B. L. (2003). Work, family, and mental health: testing different models of work-family fit. *Journal of Marriage and Family, 65*(1), 248-261.

Huston, A. C., Duncan, G. J., Granger, R., Bos, J., McLoyd, V., Mistry, R., Crosby, D., Gibson, C., Magnuson, K., Romich, J., & Ventura, A. (2001). Work-based antipoverty programs for parents can enhance the school performance and social behavior of children. *Child Development, 72*(1), 318-336.

Huston, A. C., Duncan, G. J., McLoyd, V. C., Crosby, D. A., Ripke, M. N., Weisner, T. S., & Eldred, C. A. (2005). Impacts on children of a policy to promote employment and reduce poverty for low-income parents: new hope after 5 years. *Developmental Psychology, 41*(6), 902.

Jones, A. M., & Wildman, J. (2008). Health, income and relative deprivation: Evidence from the BHPS. *Journal of Health Economics, 27*(2), 308-324.

Karoly, L. A., & Levaux, H. P. (1998). *Investing in our children: What we know and don't know about the costs and benefits of early childhood interventions*. Rand Corporation.

Kaushal, N., Gao, Q., & Waldfogel, J. (2007). Welfare reform and family expenditures: How are single mothers adapting to the new welfare and work regime? *Social Service Review*, *81*(3), 369-396.

Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin, 126*(2), 309-337.

Lichter, D. T., & Jayakody, R. (2002). Welfare reform: How do we measure success? *Annual Review of Sociology, 28*, 117-141.

Meyers, M. K., Han, W. J., Waldfogel, J., & Garfinkel, I. (2001). Child care in the wake of welfare reform: The impact of government subsidies on the economic well-being of single-mother families. *Social Service Review, 75*(1), 29-59.

Mistry, R. S., Vandewater, E. A., Huston, A. C., & McLoyd, V. C. (2002). Economic Well-Being and Children's Social Adjustment: The Role of Family Process in an Ethnically Diverse Low-Income Sample. *Child Development, 73*(3), 935-951.

Moffitt, R. A. (2003). The temporary assistance for needy families program, in R. Moffitt, ed., *MeansTested Transfer Programs in the U.S.* (p. 291-363). Chicago, IL: University of Chicago Press.

Moffitt, R. A. (2015). *Multiple program participation and the SNAP program* (pp. 213-242). Stanford, CA: Stanford University Press.

Morris, P. A., Huston, A. C., Duncan, G. J., Crosby, D. A., Bos, J. M. (2001). How welfare and work policies affect children: A synthesis research. New York, NY: MDRC.

Morris, P., Duncan, G. J., & Clark-Kauffman, E. (2005). Child well-being in an era of welfare reform: The sensitivity of transitions in development to policy change. *Developmental Psychology, 41*(6), 919-932.

Paxson, C., & Waldfogel, J. (2003). Welfare reforms, family resources, and child maltreatment. *Journal of Policy Analysis and Management, 22(1)*, 85-113.

Pavetti, L., & Bloom, D. (2001). State Sanctions and Time Limits. In Blank, R., & Haskins, R. (2001). *The New World of Welfare (p. 245-269)*. Washington, D. C.: The Brookings Institution.

Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., & Yazejian, N. (2001). The relation of preschool child-care quality to children's cognitive and social developmental trajectories through second grade. *Child Development, 72*(5), 1534-1553.

Preacher, K. J., & Leonardelli, G. J. (2001). Calculation for the Sobel test. Retrieved April 20, 2016 from http://quantpsy.org/sobel/sobel.htm.

Osborne, C., & Knab, J. (2007). Work, welfare, and young children's health and behavior in the Fragile Families and Child Wellbeing Study. *Children and Youth Services Review, 29*(6), 762-781.

Schott, L., & Pavetti, L. (2011). Many states cutting TANF benefits harshly despite high unemployment and unprecedented need. Retrieved: http://www.cbpp.org/cms/?fa=view&id=3498

Smith, J. R., Brooks-Gunn, J., Kohen, D., & McCarton, C. (2001). Transitions on and off AFDC: Implications for parenting and children's cognitive development. *Child Development, 72*, 1512−1533.

Vandell, D. L., & Pierce, K. M. (2003). Child care quality and children's success at school. (pp. 115-139). Early Childhood Programs for a New Century, (115-139). New York: Child Welfare League of America.

Vaughan, D., & Scheuren, F. (2002). Longitudinal Attrition in SIPP and SPD. US Census Bureau, SIPP Working Paper, 242.

Votruba-Drzal, E. (2003). Income changes and cognitive stimulation in young children's home learning environments. *Journal of Marriage and Family, 65*(2), 341-355.

Waldfogel, J. (2007). Welfare reforms and child well-being in the US and UK. Retrieved: http://eprints.lse.ac.uk/6208/1/Welfare_Reforms_and_Child_Well-Being_in_the_US_and_UK.pdf

Wilson, J. B., Ellwood, D. T., & Brooks-Gunn, J. (1995). Welfare to work through the eyes of children: the impact on parenting of movement from AFDC to employment. In P. L. Chase-Lansdale & J. Brooks-Gunn (Eds.), *Escape from poverty: What makes a difference?* (pp. 63−86). New York: Cambridge University Press.

Ziliak, J. P. (Forthcoming). Temporary Assistance for Needy Families. In Moffitt, R. A. (2016). *Economics of Means-Tested Transfer Programs in the United States*, volume 1. NBER.

Table 1: Descriptive statistics of parental investment outcomes

Outcomes	Questions	Age	Coding		TANF Participants		Non-participants	
					Time 1	Time 2	Time 1	Time 2
Cognitive Stimulations								
Read by family members	About how many times in the past week, in total, did any family member read stories to child?	0-11	0-30 (top coded)	Mean S.D.	4.36 (4.41)	4.68 (4.35)	4.17 (4.00)	5.24 (4.49)
Extracurricular activities	(1) Is [child's name] on a sports team either in or out of school? (2) Does [child's name] take lessons after school or on weekends in subjects like music, dance, language, computers, or religion? (3) Does [child's name] participate in any clubs or organizations after school or on weekends, such as Scouts, a religious group, or a Girls or Boys club?	5-17	0=No 1=Yes (Responded yes to any of the three questions)	Mean S.D.	0.39 (0.49)	0.43 (0.50)	0.47 (0.50)	0.50 (0.50)
Family Routines and Life Structures								
# of breakfasts	In a typical week last month, how many days did [designated parent] eat breakfast with child?	0-17	0-7	Mean S.D.	3.70 (2.73)	3.81 (2.49)	3.53 (2.69)	3.53 (2.35)
# of dinners	In a typical week last month, how many days did [designated parent] eat dinner with child?	0-17	0-7	Mean S.D.	6.32 (1.58)	5.57 (2.00)	5.99 (1.84)	5.50 (1.84)
TV rules	Are there family rules for [child's name] about what TV program he/she can watch; how early or late he/she may watch TV; how many hours he/she may watch TV?	2-17	0=No 1=Yes (Responded yes to any of the three questions)	Mean S.D.	0.86 (0.35)	0.80 (0.40)	0.86 (0.34)	0.83 (0.38)
Family Interactions								
# of outings	About how many times in the past month did ... or any family member take child on any kind of outing - out to the park, to church, to a playground, to visit with friends or relatives, etc.?	0-11	1-30 (top coded)	Mean S.D.	9.22 (8.92)	11.72 (9.63)	10.01 (8.84)	12.47 (9.15)
Fun	How often do/does [designated parent] and child talk or play with each other for five minutes or more, just for fun?	0-17	0=Not every day 1=Once or more times a day	Mean S.D.	0.80 (0.40)	0.78 (0.42)	0.84 (0.37)	0.82 (0.39)
Praise	How often do/does [designated parent] praise or compliment child by saying something like, "good for you!" or "what a nice thing you did!" or "way to go!"?	0-17	0=Not every day 1=Once or more times a day	Mean S.D.	0.79 (0.41)	0.76 (0.43)	0.83 (0.37)	0.81 (0.40)
Parenting Stress								
Parenting difficulties	(1) My [child/children][is/are] much harder to care for than most children. How often do you feel this way? (2) My [child/children] [do/does] things that really bother me a lot. How often do you feel this way? (3) I find myself giving up more of my life to meet my child/children's needs than I	0-17	0=Never to any of these questions 1=Responded sometimes to very often to any of these questions	Mean S.D.	0.34 (0.47)	0.32 (0.47)	0.27 (0.44)	0.23 (0.42)

Outcomes	Questions	Age	Coding		TANF Participants		Non-participants	
					Time 1	Time 2	Time 1	Time 2
	ever expected. How often do you feel this way? (4) I feel angry with my child/children. How often do you feel this way?							
Parental Expectation								
Confidence in finishing college	How far do you think [child's name] will go in school?	0-17	1=Finishing college 0=Otherwise	Mean S.D.	0.73 (0.44)	0.75 (0.43)	0.81 (0.39)	0.81 (0.40)

*Note: Estimates are derived from the first imputation (m=1). The samples are restricted to children aged 0-15 during the first survey living in households headed by women who do not have a Bachelor degree and living in households without the presence of fathers.

Table 2: Demographic characteristics

Levels	Characteristics	Categories	Mean / Proportion
Child	Gender	Female	49.8%
	Race	White	48.0%
		Black	36.3%
		Hispanic	19.7%
		Other race	7.9%
	Age		9.4
Parent/ Guardian	Gender	Female	98.6%
	Age		35.8
	Education	Less than high school	20.9%
		High school	30.9%
		Some college education	48.2%
	Marital status	Married	11.0%
	Guardian is not a parent of the child		9.2%
Household	Non-metropolitan area		23.1%
	Household size		4.1
	# of children under 18	One child	26.3%
		Two children	27.2%
		Three or more children	53.8%
State	Unemployment rates		7.2

*Note: Estimates are derived from the first imputation (m=1) across the two time points. See Table 1 for sample specification.

Table 3: TANF participation and parental investments

Sample	No BA	No College	Past TANF	No BA	No College	Past TANF	No BA	No College	Past TANF	No BA	No College	Past TANF	No BA	No College	Past TANF
Outcome	**Cognitive Stimulation** *Read*			*Extracurricular activities*			**Family Routines and Life Structures** *Breakfast*			*Dinner*			*TV Rules*		
Model 1															
TANF	-0.752	-0.865	-0.729	-0.002	-0.020	0.024	0.280	-0.006	0.283	0.231	0.284	0.336	0.010	0.006	0.008
	(0.343)*	(0.402)*	(0.370)+	(0.028)	(0.036)	(0.030)	(0.131)*	(0.154)	(0.139)*	(0.099)*	(0.128)*	(0.104)**	(0.023)	(0.030)	(0.024)
Model 2															
Time	0.134	0.187	0.421	0.014	0.010	0.040	0.072	0.125	0.271	-0.344	-0.354	-0.208	-0.032	-0.022	-0.049
	(0.132)	(0.175)	(0.225)+	(0.013)	(0.016)	(0.020)*	(0.056)	(0.076)	(0.092)**	(0.042)***	(0.057)***	(0.068)**	(0.009)***	(0.012)+	(0.014)***
Tran. in X time (1)	-0.344	-0.399	-0.264	0.056	0.063	0.123	0.353	-0.068	-0.137	-0.009	0.352	0.038	-0.034	-0.050	-0.018
	(0.523)	(0.592)	(0.633)	(0.050)	(0.064)	(0.065)+	(0.246)	(0.280)	(0.279)	(0.183)	(0.218)	(0.207)	(0.040)	(0.050)	(0.047)
TANF X time (2)	-0.746	-0.984	-0.969	-0.024	-0.026	-0.043	0.103	0.161	-0.125	-0.318	-0.375	-0.433	-0.053	-0.065	-0.037
	(0.417)+	(0.507)+	(0.438)*	(0.039)	(0.051)	(0.041)	(0.164)	(0.210)	(0.173)	(0.124)*	(0.151)*	(0.129)**	(0.030)+	(0.037)+	(0.031)
Tran. out X time (3)	0.931	1.087	0.770	0.030	0.061	0.009	-0.242	-0.020	-0.453	-0.357	-0.417	-0.479	-0.033	-0.038	-0.019
	(0.444)*	(0.526)*	(0.463)	(0.034)	(0.045)	(0.036)	(0.157)	(0.195)	(0.171)**	(0.114)**	(0.153)**	(0.122)***	(0.025)	(0.035)	(0.027)
Wald test															
(1) vs. (2)			+			+				*	*	**			
(1) vs. (3)	+	+							*	*	*	***			
(2) vs. (3)	*	*	*						*	***	**	***			
N	11054	6031	4470	12666	6470	5240	17140	9094	6958	17140	9094	6958	15714	8196	6438

Sample	No BA	No College	Past TANF	No BA	No College	Past TANF	No BA	No College	Past TANF	No BA	No College	Past TANF	No BA	No College	Past TANF
Outcome	**Family Interactions** *Outing*			*Fun*			*Praise*			**Parenting Stress** *Parenting difficulties*			**Parental Expectation** *Child completing college*		
Model 1															
TANF	-1.104	-1.703	-1.008	-0.032	-0.030	-0.035	-0.024	-0.008	-0.019	0.006	0.023	-0.010	-0.027	-0.057	-0.028
	(0.648)+	(0.758)*	(0.700)	(0.020)	(0.025)	(0.021)+	(0.020)	(0.024)	(0.022)	(0.023)	(0.031)	(0.026)	(0.021)	(0.028)*	(0.023)
Model 2															
Time	1.745	1.933	2.153	-0.027	-0.024	-0.021	-0.040	-0.032	-0.037	-0.023	-0.011	-0.051	-0.007	0.002	0.012
	(0.278)***	(0.378)***	(0.460)***	(0.009)**	(0.013)+	(0.013)	(0.008)***	(0.012)**	(0.015)*	(0.009)*	(0.014)	(0.016)**	(0.009)	(0.013)	(0.016)
Tran. in X time (1)	0.041	-0.520	-0.496	-0.009	-0.018	-0.006	-0.038	-0.016	-0.028	-0.023	-0.029	-0.025	0.029	-0.018	0.010
	(1.144)	(1.270)	(1.459)	(0.035)	(0.045)	(0.044)	(0.034)	(0.042)	(0.045)	(0.039)	(0.047)	(0.049)	(0.036)	(0.050)	(0.048)
TANF X time (2)	-0.177	1.072	-0.679	-0.004	0.026	0.003	-0.008	-0.000	-0.013	0.009	-0.014	0.037	0.020	0.037	0.009
	(0.834)*	(1.022)	(0.919)	(0.026)	(0.032)	(0.027)	(0.026)	(0.033)	(0.028)	(0.028)	(0.036)	(0.032)	(0.029)	(0.038)	(0.032)
Tran. out X time (3)	1.346	2.369	1.110	0.043	0.057	0.046	0.018	0.004	0.014	-0.020	-0.051	0.007	0.055	0.079	0.043
	(0.484)**	(0.932)*	(0.825)	(0.024)+	(0.031)+	(0.026)+	(0.025)	(0.030)	(0.027)	(0.030)	(0.041)	(0.033)	(0.025)*	(0.034)*	(0.028)
Wald test															
(1) vs. (2)															
(1) vs. (3)		*											+	+	
(2) vs. (3)	+	*											+	**	
N	11053	6031	4470	17140	9094	6958	17140	9094	6958	17140	9094	6958	17140	9094	6958

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p>0.001. Each column is one of the three sample groups (no BA, no college, past TANF) for a given outcome. All samples are restricted to children aged 0-15 during the first survey living in households headed by women who do not have a Bachelor degree and living in households without the presence of fathers. The second sample (no college) further excludes children with guardians having any college education, and the third sample (past TANF) is based on the first sample and further restricts samples to children living in families having received TANF in the past. Each model is a separate linear regression model. All models control for individual fixed effects and time-varying characteristics, including the timing of survey (whether the survey is the follow-up survey), the child's age in categories (0-3, 4-7, 8-11 (ref.), 12-17), the guardian's age in categories (15-20, 21-25, 26-30 (ref.), 31-35, 36-40, 41-45, 46+), whether the guardian is not a parent, guardian's gender (female), guardian's marital status (married), guardian's educational levels (less than high school (ref.), high school, some college or more), household sizes, number of children in the household (1 (ref.), 2, 3+), whether the household is located in a non-metropolitan area, and state unemployment rates in a given year. In Model 2, "Time" represents changes from the first time point to the second time point; "Tran. in X time" estimates changes in PI among children going from not receiving TANF to receiving TANF from the first time point to the second time point relative to those constantly not participating in TANF; "TANF X time" estimates changes in PI among children participating in TANF in both time points relative to those constantly not participating in TANF; and "Tran. out X time" estimates changes in PI among children going from receiving TANF to not receiving TANF from the first time point to the second time point relative to those constantly not participating in TANF. Wald-tests were administered to compare whether coefficients from the interaction terms are significantly different

Table 4. Employment and income mediation and moderation tests

	Cognitive Stimulation		Family Routines and Life Structures			Family Interactions			Parenting Stress	Parental Expectation
	Read	*Extracurricular activities*	*Breakfast*	*Dinner*	*TV Rules*	*Outing*	*Fun*	*Praise*	*Parenting difficulties*	*Child completing college*
Mediation Tests (Models 1 & 2 for employment mediation tests and Models 1 & 3 for income mediation tests)										
Model 1 TANF	-0.412	-0.004	0.212	0.099	0.007	-0.642	-0.030	-0.024	0.007	-0.028
	(0.337)	(0.028)	(0.135)	(0.099)	(0.023)	(0.656)	(0.020)	(0.020)	(0.024)	(0.021)
Paid job	1.336	0.000	-0.378	-0.653	-0.003	1.736	0.008	0.006	0.001	0.002
	(0.193)***	(0.020)	(0.083)***	(0.062)***	(0.014)	(0.392)***	(0.013)	(0.014)	(0.015)	(0.013)
Log family Income	-0.023	0.003	-0.016	0.000	0.003	-0.069	-0.001	0.001	-0.001	0.001
	(0.044)	(0.003)	(0.019)	(0.012)	(0.003)	(0.090)	(0.003)	(0.003)	(0.003)	(0.003)
Model 2 TANF -> Job	-0.246	-0.180	-0.202	-0.202	-0.189	-0.246	-0.202	-0.202	-0.202	-0.202
	(0.030)***	(0.023)***	(0.021)***	(0.021)***	(0.022)***	(0.030)***	(0.021)***	(0.021)***	(0.021)***	(0.021)***
P-value: Job Mediation	0.000***	1.000	0.000***	0.000***	0.830	0.000***	0.539	0.669	0.947	0.878
Model 3 TANF -> Income	0.535	0.554	0.551	0.551	0.574	0.535	0.551	0.551	0.551	0.551
	(0.134)***	(0.123)***	(0.102)***	(0.102)***	(0.107)***	(0.134)***	(0.102)***	(0.102)***	(0.102)***	(0.102)***
P-value: Income Mediation	0.604	0.329	0.405	1.000	0.326	0.452	0.739	0.739	0.739	0.739
Moderation Tests (Model 4)										
Model 4 TANF	-0.449	0.050	0.652	0.394	0.123	-2.327	-0.114	-0.081	-0.003	0.029
	(1.257)	(0.132)	(0.499)	(0.416)	(0.092)	(2.637)	(0.098)	(0.086)	(0.109)	(0.124)
Paid job	1.225	-0.001	-0.395	-0.624	0.005	1.491	0.007	-0.000	0.005	0.001
	(0.201)***	(0.021)	(0.088)***	(0.064)***	(0.014)	(0.424)***	(0.014)	(0.015)	(0.016)	(0.015)
TANF X job	0.743	0.013	0.137	-0.189	-0.058	1.542	0.003	0.040	-0.023	0.008
	(0.098)	(0.050)	(0.208)	(0.156)	(0.050)	(1.055)	(0.035)	(0.033)	(0.039)	(0.038)
Log family income	-0.018	0.003	-0.013	0.000	0.003	-0.066	-0.001	0.001	-0.002	0.001
	(0.044)	(0.003)	(0.019)	(0.012)	(0.003)	(0.088)	(0.003)	(0.003)	(0.003)	(0.003)
TANF X income	-0.038	-0.009	-0.074	-0.033	-0.014	0.166	0.012	0.006	0.003	-0.009
	(0.193)	(0.019)	(0.072)	(0.062)	(0.014)	(0.415)	(0.014)	(0.012)	(0.017)	(0.019)
N	11054	12666	17140	17140	15714	11053	17140	17140	17140	17140

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p>0.001. See Table 3 for sample model specifications. Each model in each column is a separate linear regression model. The first model uses TANF participation status, employment status of guardian, and log family income to predict parental investments. The second model uses TANF participation to predict whether the guardian has a paid job, and the third model uses TANF participation status to predict log family income levels. Sobel tests were administered using estimates from Models 1 and 2 for employment mediation tests and Model 1 and 3 for income mediation tests. The p-values from Sobel test results are reported in the table. The fourth model introduce interaction terms between TANF participation and job status and income to the first model. All models control for individual fixed effects and time-varying characteristics, including the timing of survey (whether the survey is the follow-up survey), the child's age in categories (0-3, 4-7, 8-11 (ref.), 12-17), the guardian's age in categories (15-20, 21-25, 26-30 (ref.), 31-35, 36-40, 41-45, 46+), whether the guardian is not a parent, guardian's gender (female), guardian's marital status (married), guardian's educational levels (less than high school (ref.), high school, some college or more), household sizes, number of children in the household (1 (ref.), 2, 3+), whether the household is located in a non-metropolitan area, state unemployment rates in a given year.

Table 5: State TANF policies, TANF participation and parental investments

	Cognitive Stimulation		Family Routines and Life Structures			Family Interactions			Parenting Stress	Parental Expectation
	Read	*Extracurricular activities*	*Breakfast*	*Dinner*	*TV Rules*	*Outing*	*Fun*	*Praise*	*Parenting difficulties*	*Child completing college*
TANF	-0.639	-0.054	0.049	0.292	0.017	-0.922	-0.021	-0.049	0.026	-0.053
	(0.455)	(0.042)	(0.175)	(0.134)*	(0.027)	(0.817)	(0.027)	(0.027)+	(0.031)	(0.028)+
TANF X full sanction (1)	0.280	0.035	0.750	-0.231	-0.011	0.517	-0.009	0.037	-0.023	0.087
	(0.671)	(0.067)	(0.270)**	(0.203)	(0.041)	(1.301)	(0.039)	(0.045)	(0.052)	(0.044)*
TANF X no time limit (2)	-0.374	0.112	-0.029	0.124	-0.025	-0.742	-0.006	0.100	0.002	-0.007
	(0.817)	(0.081)	(0.352)	(0.239)	(0.054)	(1.636)	(0.058)	(0.052)+	(0.064)	(0.055)
TANF X <60M (3)	-1.190	0.170	-0.047	-0.064	0.004	-1.873	-0.064	-0.034	-0.110	-0.010
	(0.860)	(0.091)+	(0.428)	(0.286)	(0.065)	(2.169)	(0.064)	(0.063)	(0.073)	(0.070)
Wald test										
(1) vs (2)			*							
(1) vs (3)			*							
(2) vs (3)		+								
N	11054	12666	17140	17140	15714	11053	17140	17140	17140	17140

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p>0.001. See Table 3 for sample model specifications. Each column is a separate linear regression model. Full sanction represents children living in states imposing sanctions on the full family or closing the case in the initial incidence of non-compliance to work requirements. No time limit represents children living in states not having time limit on TANF participation. <60M represents children living in states having a time limit of less than 60 months for TANF participation. The reference category for TANF policies is not having extreme policies; that is the most common policy bundle — having a 60-month time limit and having partial sanction at the initial incidence of non-compliance to work requirements. All models additionally control for individual fixed effects and time-varying characteristics, including the timing of survey (whether the survey is the follow-up survey), the child's age in categories (0-3, 4-7, 8-11 (ref.), 12-17), the guardian's age in categories (15-20, 21-25, 26-30 (ref.), 31-35, 36-40, 41-45, 46+), whether the guardian is not a parent, guardian's gender (female), guardian's marital status (married), guardian's educational levels (less than high school (ref.), high school, some college or more), household sizes, number of children in the household (1 (ref.), 2, 3+), whether the household is located in a non-metropolitan area, and state unemployment rates in a given year. Wald tests were administered to examine whether there are differential associations between parental investments and TANF participation under different policy environments.

Appendix 1: TANF participation and parental investments (Same as in Table 3; dichotomous outcomes reported in Odds Ratios)

Sample	No BA	No College	Past TANF	No BA	No College	Past TANF	No BA	No College	Past TANF	No BA	No College	Past TANF	No BA	No College	Past TANF
Outcome	Cognitive Stimulation — Read			Extracurricular activities (Odds Ratio)			Family Routines and Life Structures — Breakfast			Dinner			TV Rules (Odds Ratio)		
Model 1															
TANF	-0.752	-0.865	-0.729	1.004	0.903	1.198	0.280	-0.006	0.283	0.231	0.284	0.336	1.078	1.012	1.050
	(0.343)*	(0.402)*	(0.370)+	(0.164)	(0.197)	(0.217)	(0.131)*	(0.154)	(0.139)*	(0.099)*	(0.128)*	(0.104)**	(0.233)	(0.281)	(0.243)
Model 2															
Time	0.134	0.187	0.421	1.098	1.084	1.310	0.072	0.125	0.271	-0.344	-0.354	-0.208	0.743	0.843	0.611
	(0.132)	(0.175)	(0.225)+	(0.084)	(0.107)	(0.160)*	(0.056)	(0.076)	(0.092)**	(0.042)***	(0.057)***	(0.068)**	(0.062)**	(0.087)+	(0.085)***
Tran. in	-0.344	-0.399	-0.264	1.445	1.466	2.708	0.353	-0.068	-0.137	-0.009	0.352	0.038	0.657	0.464	0.722
X time (1)	(0.523)	(0.592)	(0.633)	(0.461)	(0.573)	(1.378)+	(0.246)	(0.280)	(0.279)	(0.183)	(0.218)	(0.207)	(0.259)	(0.254)	(0.329)
TANF	-0.746	-0.984	-0.969	0.872	0.868	0.758	0.103	0.161	-0.125	-0.318	-0.375	-0.433	0.587	0.578	0.676
X time (2)	(0.417)+	(0.507)+	(0.438)*	(0.199)	(0.270)	(0.185)	(0.164)	(0.210)	(0.173)	(0.124)*	(0.151)*	(0.129)**	(0.171)+	(0.179)+	(0.201)
Tran. out	0.931	1.087	0.770	1.156	1.396	1.012	-0.242	-0.020	-0.453	-0.357	-0.417	-0.479	0.738	0.726	0.809
X time (3)	(0.444)*	(0.526)*	(0.463)	(0.227)	(0.377)	(0.213)	(0.157)	(0.195)	(0.171)**	(0.114)**	(0.153)**	(0.122)***	(0.178)	(0.225)	(0.220)
Wald test															
(1) vs. (2)			+			+						**		+	
(1) vs. (3)	+	+								*	*	**			
(2) vs. (3)	*	*	*						*	***	**	***			
N	11054	6031	4470	4252	2160	1744	17140	9094	6958	17140	9094	6888	3334	1962	1370
Outcome	Family Interactions — Outing			Fun (Odds Ratio)			Praise (Odds Ratio)			Parenting Stress — Parenting difficulties (Odds Ratio)			Parental Expectation — Child completing college (Odds Ratio)		
Model 1															
TANF	-1.104	-1.703	-1.008	0.765	0.765	0.730	0.781	0.901	0.822	1.039	1.237	0.901	0.832	0.687	0.836
	(0.648)+	(0.758)*	(0.700)	(0.143)	(0.191)	(0.151)	(0.145)	(0.201)	(0.175)	(0.162)	(0.270)	(0.159)	(0.119)	(0.130)*	(0.129)
Model 2															
Time	1.745	1.933	2.153	0.781	0.828	0.816	0.704	0.767	0.715	0.851	0.923	0.706	0.946	1.017	1.084
	(0.278)***	(0.378)***	(0.460)***	(0.065)**	(0.096)	(0.106)	(0.052)***	(0.075)**	(0.087)**	(0.057)*	(0.093)	(0.076)**	(0.069)	(0.090)	(0.125)
Tran. in	0.041	-0.520	-0.496	0.949	1.199	1.027	0.678	0.807	0.757	0.915	0.929	0.844	1.182	0.831	1.015
X time (1)	(1.144)	(1.270)	(1.459)	(0.286)	(0.457)	(0.418)	(0.205)	(0.299)	(0.285)	(0.238)	(0.292)	(0.300)	(0.291)	(0.279)	(0.308)
TANF	-0.177	1.072	-0.679	1.014	1.226	1.022	0.958	0.984	0.884	1.113	0.883	1.323	1.158	1.274	1.039
X time (2)	(0.834)*	(1.022)	(0.919)	(0.225)	(0.361)	(0.241)	(0.212)	(0.271)	(0.207)	(0.225)	(0.243)	(0.294)	(0.231)	(0.331)	(0.225)
Tran. out	1.346	2.369	1.110	1.477	1.783	1.572	1.190	1.031	1.164	0.901	0.666	1.107	1.448	1.621	1.310
X time (3)	(0.484)**	(0.932)*	(0.825)	(0.353)	(0.625)	(0.422)+	(0.272)	(0.287)	(0.296)	(0.181)	(0.206)	(0.240)	(0.261)*	(0.373)*	(0.250)
Wald test															
(1) vs. (2)															
(1) vs. (3)		*											+	+	
(2) vs. (3)	+	*													+
N	11053	6031	4470	3870	2056	1502	3896	2146	1664	4784	2566	2086	4424	2624	2002

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p>0.001. See notes in Table 3 for model and sample description. Each model is a separate regression model, with continuous outcomes using linear models and dichotomous outcomes using logistic models.

Appendix 2: Regression results of TANF participation and parental investments by age categories

	Cognitive Stimulation		Family Routines and Life Structures			Family Interactions			Parenting Stress	Parental Expectation
	Read	Extracurricular activities	Breakfast	Dinner	TV Rules	Outing	Fun	Praise	Parenting difficulties	Child completing college
TANF	-0.925	-0.001	0.411	0.277	0.002	-0.879	-0.033	-0.023	-0.009	-0.015
	(0.408)	(0.033)	(0.189)*	(0.142)+	(0.035)	(0.781)	(0.027)	(0.024)	(0.031)	(0.029)
Age 5-11	0.245		1.182	0.036	0.021	0.034	0.015	-0.004	-0.016	-0.011
	(0.249)		(0.118)	(0.091)	(0.018)	(0.466)	(0.018)	(0.041)	(0.022)	(0.020)
TANF X 5-11	0.385		-0.097	-0.006	-0.010	-0.472	-0.029	-0.016	0.007	-0.026
	(0.473)		(0.241)	(0.170)	(0.039)	(0.975)	(0.039)	(0.028)	(0.040)	(0.038)
Age 12-17		-0.000	0.270	-0.073	-0.002		-0.009	0.006	-0.005	-0.017
		(0.023)	(0.171)	(0.138)	(0.027)		(0.025)	(0.018)	(0.031)	(0.030)
TANF X 12-17		-0.012	-0.454	-0.200	0.046		0.051	-0.012	0.055	-0.010
		(0.049)	(0.302)	(0.211)	(0.053)		(0.044)	(0.035)	(0.050)	(0.050)
N	11054	12666	17140	17140	15714	11053	17140	17140	17140	17140

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p>0.001. See Table 3 for sample model specifications. Each column is a separate regression model, and the differential TANF participation effects across age groups (0-4, 5-11, 12-17) are tested in these interaction models. Children aged 0-4 serve as the reference group in all outcomes except for extracurricular activities, where children aged 5-11 served as the reference group. All models additionally control for individual fixed effects and time-varying characteristics, including the timing of survey (whether the survey is the follow-up survey), the guardian's age in categories (15-20, 21-25, 26-30 (ref.), 31-35, 36-40, 41-45, 46+), whether the guardian is not a parent, guardian's gender (female), guardian's marital status (married), guardian's educational levels (less than high school (ref.), high school, some college or more), household sizes, number of children in the household (1 (ref.), 2, 3+), whether the household is located in a non-metropolitan area, and state unemployment rates in a given year.

Paper 3: State TANF Stringencies and Long-Term Trajectories of Welfare Use, Labor Supply, and Earned Income

Abstract

Background: The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 ended the longstanding unconditional cash assistance program and installed a new time limited and work-focused social assistance program — Temporary Assistance for Needy Families (TANF). TANF has aimed to promote work and self-reliance, and it has established that individuals are subject to work requirements and a federal 60-month time limit on welfare. Under TANF, states are able to impose further restrictions beyond the federal requirements, and many have done so. While PRWORA showed positive effect in employment immediately after its implementation in 1996, little is known of the extent to which stringencies in various state TANF policies have impacted individuals long-term. In this study, I investigate how stringencies of welfare approaches are associated with single mothers' long-term trajectories of welfare use, labor supply, and earned income.

Methods and Data: I use a nationally representative longitudinal dataset – Survey on Income and Program Participation 1996, 2001, 2004 Panels (1996-2007), covering a decade since TANF implementation across states. Samples are restricted to women who were single mothers aged 18-45 with a high school degree or less at time of TANF implementation. State TANF policy stringencies are categorized into lenient, standard, and stringent. The outcomes include welfare use (participation in TANF, SNAP, and SSI), labor supply (employment and work hours, and earned income (earnings and hourly wage). I use multilevel regressions to adjust for the clustering nature of data, and I control for state fixed effects to account for time-invarying state differences. To address influences of time-varying factors on outcomes, I control for state time-varying characteristics and adopt a comparison group approach, with married mothers and single women without children served as the two comparison groups.

Results and Conclusion: Findings indicate that stringent state TANF policies were associated with single mothers' lower likelihood to participate in TANF, but they use other welfare programs (e.g., SNAP and SSI) to the same extent as single mothers living in states with less stringent TANF policies. Also, stringent policies did not lead to higher levels of labor supply or earned income. By examining whether stringent requirements encourage individuals to work more, earn more, and be less likely to receive welfare over the long-term, this study may help inform states to restructure welfare rules. Findings may also help shed light on debates over the rationality and effectiveness of workfare policies.

Introduction

The 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) ended the longstanding entitlement cash assistance program, Aid to Families with Dependent Children (AFDC), and fundamentally transformed the social assistance system in the US. The welfare reform established a new work-focused and time-limited program, Temporary Assistance for Needy Families (TANF). The main goals of TANF are to end welfare dependence, to promote work and self-reliance, and to reduce out-of-wedlock childbearing among the poor. To achieve these goals, states adopted varying TANF policy requirements, of which the most controversial features were work requirements, sanctions and time limits (Ziliak, forthcoming).

TANF law stipulated that adults must participate in work activities, and noncompliance to work requirements will result in sanctions on benefits in most states. TANF also imposed a maximum lifetime limit of 60 months on federal welfare benefits (Grogger & Karoly, 2005; Ziliak, forthcoming). Each state was given the options to set their own requirements. Examples of more stringent TANF requirements that states have adopted include sanctions on full benefits after the initial incidence of non-compliance to work requirements as opposed to partial benefit cut, or short lifetime limits in receiving the benefits as opposed to longer time limits. These requirements are intended to bring families a sense of urgency regarding the temporary nature of welfare assistance, so they would promptly move from welfare to work (Pavetti, Derr, & Hesketh, 2003; Farrell et al., 2008). Studies find that stringent measures reduced welfare use and increased employment levels in the immediate aftermath of the welfare reform (Blank, 2002; Grogger & Karoly, 2005; Farrell et al., 2008; Ziliak, forthcoming). However, whether stringent requirements sustain these behavioral effects beyond the initial three to five years post-welfare

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reform into the long-term remains unknown. This study evaluates this critical question of how state TANF policy requirement stringencies are associated with the long-term welfare use, labor supply, and earned income trajectories of disadvantaged single mothers.

In this study, the outcomes under examination are families' economic self-sufficiency levels, captured by whether families use welfare programs less, participate in work activities more, and earn more income (Freeman, 1996; Morgen, 2001).Understanding the long-term impacts of state TANF policy stringencies on welfare use, labor supply, and earned income has implications for families in need of government assistance and for policymakers crafting the next phase of cash assistance system. From the standpoint of needy families, state TANF policies has each year affected millions of people in poverty in their experience of obtaining governmental support.[12] If stringent requirements are not effective in achieving the main policy goal – promoting families to achieve economic self-sufficiency – in the long-run, the necessity of adopting harsh measures may warrant reevaluation. From the standpoint of policy reform, empirical evaluations offer much needed evidence in reevaluating and redesigning the cash assistance system. For example, as states faced budget constraints, especially during the Great Recession, many have cut down costs via making welfare requirements more stringent (e.g., shortening time limits) and making welfare less desirable. Such policy change would have benefited from more knowledge on long-term impacts of stringent policy requirements.

Twenty years after the welfare reform, more years of data become available and offer opportunities to assess the long-term impacts of TANF policies. Despite the flurry of literature on welfare reform, a recent review of TANF research by Ziliak (forthcoming) has concluded that

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[12] The number of families receiving TANF assistance was 3.7 million in 1997, 1.7 million in 2007, and 1.3 million in 2015 (Administration for Children & Families (ACF), 2016). However, families affected by TANF policies will be even more since some are eligible yet deterred by applying for it due to the harsh requirements, and some could not receive TANF due to reaching the time limits or being sanctioned.

it is still premature to draw firm conclusions about impacts of TANF, especially the policy

effects over time. Our knowledge is generally limited to the evidence from the first five years

after the introduction of TANF. Yet, it is alarming that the amount of research on welfare reform

has tapered off in recent years (Ziliak, forthcoming). This study responds to this call and extends

our knowledge about the long-term impacts of state TANF policies stringencies on employment,

earnings, and welfare use.

Against this backdrop, this study uses a nationally representative longitudinal dataset –

Survey on Income and Program Participation – to assess long-term impacts of TANF

stringencies. The key research question that I address is: do stringent TANF requirements

successfully prompt individuals to work more, increase their earnings, and lower welfare

dependence in the long-run? In particular, I compare welfare use, labor supply, and earned

income trajectories among low-skilled single mothers who have a high school degree or less

living in states with varying policy stringency levels. I account for state pre-existing differences

in lenient and stringent states using state fixed effects and multilevel models. Findings from this

study could inform redesign of state TANF policies and may help shed light on debates around

the world over effectiveness of workfare policies.

Temporary Assistance to Needy Families (TANF)

Under the long-standing cash-assistance program, Aid to Families with Dependent

Children (AFDC), the welfare caseloads increased substantially by one million (from 3.7 to 4.7

millions) just within six years from 1986 to the early 1992 (ACF, 2016). Concerns over AFDC

creating disincentives for poor single mothers to work gave rise to the passage of Personal

Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996. The PRWORA

established the new time-limited and work-focused program, Temporary Assistance for Needy

Families. Under this new program, state public assistance provision is contingent upon work or work-related activities, such as job training, job search, and job readiness assistance. In the typical guideline, adult caretakers who are not exempted from work requirements need to work at least 30 hours per week no later than 24 months of benefit receipt (Ziliak, forthcoming). In addition, individuals are subject to a federal 60-month lifetime limits on welfare.

Under TANF, states set their own welfare rules in areas of eligibility, benefit, behavioral requirements, time limits, welfare sanctions, etc. This devolution has created a great variation in TANF program policies across the country. For example, some states choose to use their own funds to extend benefits for families beyond the 60-month time limit (e.g., Vermont), and some forego the federal funds and set the time limits to be shorter than 60-month (e.g., Connecticut having a 24-month time limit) (Farrell et al., 2008). In terms of work sanctions, some states terminate the entire benefits or close the case in the initial incidence of noncompliance to work requirements (e.g., Florida and Idaho), some impose partial sanctions on the benefits (e.g., Alabama and Illinois), and there are a few states that have no sanction (e.g., Massachusetts). In terms of the maximum monthly benefit for a 3-person family in 2014, it could be as low as $170 in Mississippi or as high as $789 in New York (Huber et al., 2015). Taking different aspects of TANF requirements together, states' decisions on each TANF policy rule have formed a myriad of state social assistance policy packages.

To evaluate impacts of policy stringencies, the policy characteristics that affect lives of families in need, one major challenge is to define stringencies. Despite numerous attempts in past literature to construct measures summarizing state TANF policy rules in a parsimonious manner, there has not been a consensus on the measure of stringencies. Hence, no scale or indices was repeatedly used or adopted in evaluating TANF policy impacts (Ellwood 1999; Meyer &

Rosenbaum, 2001; Grogger & Karoly, 2005; De Jong et al., 2006; Ziliak, forthcoming). Most studies on state TANF policy features define the lenient to stringent gradient incorporating time limits and sanctioning policies on work requirements, two features that are the focus of most prominent TANF policy-centric papers (Lindhorst & Mancoske, 2006; Danielson & Klerman, 2008; Ziliak, forthcoming). Following these studies, I focus on these two policy features to define state TANF policy stringencies.

Literature Review

Extant research has documented that the AFDC waiver policies[13], the TANF policy bundle, and stringent state TANF requirements were successful in reducing welfare caseloads, promoting employment, and modestly increasing earnings among low-income families prior to the welfare reform or in the immediate years following the reform (Grogger & Karoly, 2005; Ziliak, forthcoming). In the long-term, the employment and earnings effects of waiver policies taper off (Grogger & Karoly, 2005), and such effects of stringent requirements remain largely unknown.

Welfare Use

The welfare reform has led to a remarkable reduction in welfare participation (Huang, Garfinkel, & Waldfogel, 2000; Grogger & Karoly, 2005; Ziliak, forthcoming). The welfare caseloads fell from 5 million families in 1993, 3.7 million in 1997, 1.7 million in 2007, to 1.3 million in 2016 (Loprest, 2012; ACF, 2016). Nearly half of the decline in caseloads was driven by a reduction in welfare entry rather than welfare exit (Grogger, Klerman, & Haider, 2003). The

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[13] The Title IV-A of the Social Security Act establishes the AFDC program. Section 1115 of the Act authorizes the Secretary of Health and Human Services (HHS) to waive certain requirements for a state to carry out an experimental or pilot project to promote purposes of the AFDC programs. Between January 1993 and August 1996, the HHS approved welfare waivers in 43 states. These waivers introduced time limits, work requirements, sanctions, expanded earnings disregards, and asset limits (Department of Health and Human Services, 2016; Ziliak, forthcoming).

take-up rates of cash benefits dropped from 79% in the last year of AFDC to 36% in 2007

(Loprest, 2012). Research has also shown that this decline was not entirely due to the effects of

welfare reform. To a larger extent, the decline was attributed to the booming economy in the late

1990s and the expansion of earned income tax credit (Meyer & Rosenbaum, 2001; Blank, 2002;

Klerman & Haider, 2004; Ziliak, 2009). Studies utilizing data in recent years showed that TANF

caseloads became less responsive to the economic cycle (e.g., Great Recession), suggesting the

weakening role of TANF in providing needed support to families during economic downturns

(Bitler & Hoynes, forthcoming).

Prior research on specific state TANF policy requirements revealed that time limits

accounted for 6 to 25 percent of decline in welfare participation, depending on the study time

periods and the data sets being used (Council of Economic Advisors, 1999; Moffitt, 1999;

Grogger, 2004; Swann, 2005; Mazzolari, 2007). Both behavioral effects, such as reducing

welfare use prior to exhausting benefits, and mechanical effects, meaning not receiving welfare

due to reaching the time limits, were observed in prior studies (Grogger & Karoly, 2005).

Furthermore, time limits were observed to have larger effects on reducing welfare use among

families with younger children (Grogger, 2004).

Stringent sanctioning policies on noncompliance for work requirement, compared to

lenient ones, decrease welfare caseloads, with more stringent sanctions having stronger effects

(Council of Economic Advisors, 1999; Rector & Youssef, 1999; Grogger & Karoly, 2005). More

stringent sanctions also increased participation of Supplemental Security Income (SSI) program

(Schmidt & Sevak, 2004), since reassigning former AFDC recipients to receive SSI has been a

tactic for states to shift their budget burden to the federal budget (Ziliak, forthcoming).

Employment and Earnings

Studies revealed that welfare reform and work requirements in waiver programs had positive effects on extensive and intensive margins of employment (Blank, 2002; Grogger & Karoly, 2005). Low-skilled mothers (e.g., those with a high school degree or less) responded to the waiver policies by increasing annual hours worked by 41 to 68 hours and employment rates by an average of 5.6 percentage points (Moffitt, 1999; Schoeni & Blank, 2000; Grogger & Karoly, 2005). However, the employment effect faded out in the three years after the policy change (Grogger & Karoly, 2005; Dyke et al., 2006; Hotz, Imbens, & Klerman, 2006).

In regards to earnings, state waiver policies increased the annual earnings among mothers during the pre-PRWORA period (Moffitt, 1999; Schoeni & Blank, 2000; Blank, 2002; Grogger & Karoly, 2005). Among 13 waiver programs evaluated by Grogger and Karoly (2005), nine produced positive and significant earnings effects, with an average $700 earnings gain over the first two years. In the long-term, earnings impacts modestly faded from $378 per year in the short-term to $324 per year in years 4 and 5 (Grogger & Karoly, 2005). In regards to the earnings effects of the TANF policy (post-PRWORA), studies showed a modest positive or no increase in earnings post-reform (Grogger, 2003; Grogger & Karoly, 2005). None of the estimates on earnings effect of TANF suggested that the reform raised earnings by very much, and definitely not by the amounts that would raise many poor families out of poverty (Grogger & Karoly, 2005).

Although prior research attributes 60% to 73% of employment growth post-welfare reform to EITC and/or macroeconomy rather than the reform itself (Meyer & Rosenbaum, 2001; Fang & Keane, 2004), state welfare policies also play roles in promoting employment. For example, time limit has shown to boost the employment rate of mothers by as much as 7 percentage point for low-educated mothers between 1995-1999 and account for 10 percent of

total employment growth 1993-2002 (or 15 percent of employment growth between 1984-1996)(Kaushal & Kaestner, 2001; Grogger, 2003; Fang & Keane, 2004). Nonetheless, there are still other studies showing that time limits have null impact on employment or earnings (Grogger, 2003; Lim, Coulton, & Lalich, 2009). With respect to sanctions, few studies identified sanctions' impacts on labor supply and earnings, and among the few, sanctions' impacts were null or positive on employment (Pavetti et al., 2003; Lee, Slack, & Lewis, 2004). In particular, some evidence revealed that sanctions promoted individuals to engage in informal work and job preparation activities (Lee, Slack, & Lewis, 2004; Wu, Cancian, & Wallance, 2014).

Overall, there are two main limitations in prior research. First, long-term impacts of various state requirements are largely unexplored. Requirements such as time limit or sanctions take a toll on families in need. In 2009, 6.2% of welfare case closure were due to families being sanctioned for non-compliance to work requirements, and 2.3% was due to reaching the time limits (ACF, 2009).[14] Case closure due to sanctions and time limits is associated with material hardships experienced by families (Kalil, Seefeldt, & Wang, 2002; Reichman et al., 2004; Reichman, Teitler, & Curtis, 2005). Still many more families did not take-up the program even when they were eligible, and one likely contributing factor is the punitive nature of some program requirements. Limited knowledge in long-term effects of these requirements hinders the capacity of states to make informed decision on policy decisions. Another limitation in earlier research is that evaluations of TANF requirement stringencies based on state-wide experiments or observational design generally only examined policy impacts around the period of welfare reform and used data up to 2000, when few recipients exhausted their time limits and the economy was strong. Evaluations in that time period also could not capture influences of larger

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[14] Other major reasons for welfare case closure are employment (17.5%), not meeting eligibility criteria (15.1%), state policy (12.1%), voluntary closure (13.4%), and other sanctions (9%).

scale changes in norms and expectation on welfare recipiency and work after PRWORA's nationwide implementation (Duncan & Chase-Lansdale, 2001; Ziliak, forthcoming).

This study addresses these two limitations by focusing on examining associations between state requirement stringencies and long-term welfare use, labor supply, and earned income trajectories as well as following affected population until 10 years after TANF implementation, capturing trajectories beyond the time period right after the welfare reform.

Conceptual Frameworks

More stringent sanctions on noncompliance to work requirements and shorter time limits may reduce welfare use and increase employment and earnings several ways. First, in terms of sanctions, severe sanctions will reduce welfare caseloads due to dropping noncompliant recipients from the welfare rolls. Adults from sanctioned families may increase labor supply to recover from the sanction and to make up for the loss of income due to the sanction. Non-sanctioned welfare recipients in states with more stringent sanctions may also engage in work activities more consistently to avoid the financial penalty of sanctions or to avoid dealing with bureaucracies to recover from a sanction (Grogger & Karoly, 2005). In addition, other welfare eligible non-recipients may also choose to be more self-reliant and not to apply for welfare to avoid the complication of facing work requirements and sanctions (Pavetti, Derr, & Hesketh, 2003). In short, current welfare recipients, sanctioned families, and welfare eligible non-recipients would all increase their levels of employment and labor supply and use welfare at a lower rate when facing stringent sanction requirements.

Second, a welfare eligible person in states with shorter time limits may also reduce their welfare use and increase employment. Responding to time limits, individuals who are eligible but not yet receiving welfare and current welfare recipients will try to work more and "bank" the

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limited time quota for the unknown future (Grogger & Karoly, 2005; Ziliak, forthcoming). Also, welfare recipients who have reached their time limits will also have to work more and be forced to leave the TANF welfare roll. These behavioral responses to time limit are expected to be stronger among families with young children, because the price of welfare use today is higher for those who have a longer horizon to utilize it (Grogger & Karoly, 2005; Farrell et al., 2008; Ziliak, forthcoming).

In sum, in the short-run after the welfare reform, when most families have not yet exhausted their time limits to receive benefits, low-income individuals living in stringent regimes are likely to work more, earn more, and use welfare less, because TANF benefit is a less dependable source of financial support in stringent states — easier to be sanctioned and time limits quota sooner to be exhausted (Grogger & Karoly, 2005).

These short-run behavioral effects likely could result in long-run effects, because if potential welfare recipients work more in the short-run, their levels of human capital will increase through accumulated job experience. Specifically, their human capital in the long-run is a function of their initial human capital level, work history, and hours worked (Ziliak, forthcoming). This increase in human capital will lead to higher future wages among those who are induced to work more in the short-run (Ziliak, forthcoming). Based on this mechanism, wages for low-income individuals living in stringent states in the long-run are likely to be higher since stringent policies lead to higher levels of employment. Also, the increase in human capital improves individuals' chances to secure a job that offers more work hours and to be less dependent on welfare programs in the long-term.

One may argue that, in the long-run, individuals in states having any time limits could have reached their time limits, so welfare is no longer an option and everyone has to be more

economically self-sufficient. Therefore, it is unlikely to see differences in levels of economic self-sufficiency across stringent and lenient states in the long-run. However, some states do not have time limits, and even among states with time limits policies, evidence suggests that many families do not use up their time limits and portion their welfare time quota (Farrell et al., 2008). Reaching the time limits only account for 2% of welfare case closure in each month, and individuals facing harsher sanctions or shorter time limits policies are not more likely to reach their time limits (Farrell et al., 2008; Loprest, 2012). So, state TANF requirements still affect many families in the long-run as welfare remains an alternative income source. Also, the assumption that individuals will work if welfare is not available is challenged by the presence of families that are "disconnected', those who are not working and not receiving welfare (Turner, Danziger, Seefeldt, 2006; Black & Kovak, 2009). Even when families exhaust their time limits, they may not pursue employment. In sum, the intuition that in the long-run individuals in stringent and lenient states will all exhaust their benefits and pursue work loses sights of the complexity of family behavioral responses. It is due to the lack of evidence on long-term trajectories of welfare use, labor supply, and earned income across lenient and stringent states that necessitates the inquiry of this study. If behavioral responses to welfare requirements were short-lived and not sustained, social assistance systems should resort to other strategies to support the poor to achieve economic self-sufficiency.

Based on the conceptual framework, I hypothesize that low-skilled single mothers exposed to more stringent state TANF requirements, compared to those facing lenient requirements, are more likely to work more, use welfare programs less, and earn more, both in the short-term and long-term. Since some individuals will reach their time limits over time, I

hypothesize that the gap in welfare use, labor supply, and earned income levels across stringent

and lenient states may be somewhat narrower in the long-term compared to the short-term.

Methods

Data

This study uses nationally representative data from Survey of Income and Program

Participation (SIPP) 1996, 2001, and 2004 panels. Each panel lasted 3 to 4 years, and

respondents were interviewed every four months to collect employment, income, and program

participation information in the previous four months. The three non-overlapping panels are

stacked together to observe trajectories of families during 1996-2007, a period covering a couple

of years prior to and 10 years after the TANF implementation. This study examines impacts of

TANF policies on women who did not receive any college education (having a high school

degree or less) at time of policy implementation (described in the samples section below), and

information from subsequent panels is used to serve as the follow-up for women observed in the

1996 panel. I summarize the SIPP data into annual information to address the seam bias in SIPP

data (Moore, 2008). Annual information also helps depict trends over time avoiding volatile

fluctuations in earnings, labor supply, and program participation status had the data been

structured monthly or quarterly.

SIPP is an ideal dataset for this study for several reasons. First, it provides rich

information on labor force performance, welfare usage, and socio-demographic characteristics.

Second, topical modules in fertility, marital, education, and migration history provide crucial

information for this study to identify individuals most likely to be affected by the welfare reform.

This information is not available in other major national household surveys collecting

employment and income information, such as Current Population Survey or American

Community Survey. Third, having longitudinal data allows this study in some models to account for time-invariant fixed individual characteristics (e.g., ability and motivation) which may correlate with welfare use, labor supply, and earned income outcomes.[15]

Sample

Individuals most likely to be affected by TANF policies are unmarried mothers with lower levels of education. It is shown that 94% of TANF recipients had 12 or fewer years of education and 87% were not married (ACF, 2012). The affected group in this study is hence defined as unmarried mothers with high school degrees or less. Specifically, I retain samples who are female, not born abroad[16], having lived in the current state of residence before 1996, and did not move during the panel (reasons detailed in the empirical strategies section). I exclude individual observations from the years in which they enroll in school for more than one third of the observed months in a year. In addition, utilizing the individual history information collected in the SIPP topical module, this study can restrict the samples to women who aged 18-45, have a child below 18 years of age, and have a high school degree or less *at time of TANF implementation* in a given state. For instance, at the end of the 2004 panel, the age range of mothers is 30-57, and some of these mothers may be married, have acquired a college degree, or have children aged above 18 years old. The inclusion criteria is only imposed on mothers' characteristics at time of policy implementation. In total, 4,012 mothers (or 14,592 observations) met this inclusion criteria. Based on a hypothesized interclass correlation (ICC) of 0.1 at the state level and an ICC of 0.5 at the individual level, this study has 3,543 independent observations. A power analysis suggests that, in a model with 66 controls (including dummies for states) that

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[15] Appendix Tables 3-7 present findings accounting for individual fixed effects, and results are similar to main findings from models accounting for state fixed-effects.

[16] Most states changed their TANF eligibility requirements for immigrants during the study period, restricting the possibility to make comparison of long-term trajectories across stringent and lenient states.

explains 15% of variance in an outcome, a sample size of 393 can have a power of 0.9 with a significance level of 0.05 to detect an R-Squared of 0.05 attributed to the fifteen key variables (categorical years since policy influence and their interactions between stringent and lenient policies) (Cohen, 1988). Since the sample sizes in this study are larger than 393, this study has more than 90% power to detect the associations between stringencies and years since policy influence.

Measures

The outcomes of this study capture three dimensions: welfare participation (TANF and other welfare programs such as Supplemental Nutrition Assistance Program (SNAP) and Supplemental Security Income (SSI)), labor supply (employment status and monthly average hours worked), and earned income (monthly average earnings and average hourly wage). Furthermore, this study examines two additional outcomes: financial independence and disconnect. Financial independence is defined not receiving financial support from relatives, friends, or welfare programs such as TANF, SNAP and SSI. Disconnect is defined as not working and not receiving welfare programs (TANF, SNAP or SSI) (Black & Kovak, 2009). These two outcomes investigate whether families are financially independent from public and private support and whether families are isolated from common means to financial security, such as employment and public safety net.

The dependent variables are coded using the following definitions. First, TANF participation is defined as receiving TANF in any month of the year. Second, SNAP and SSI participation is defined as receiving any of these benefits in any month of the year. Third, employment status is coded as 1 when a person worked for some hours in anytime in a year and 0 when a person did not work any hour in a year. Fourth, monthly hours worked is constructed

by multiplying the usual hours worked in a week and weeks worked in that month, and averaging the monthly hours worked information in that year. Fifth, log monthly total earnings is calculated through averaging monthly earnings information in a given year, and then taking the log of the average monthly earnings. Sixth, log average hourly wage is calculated through the following steps: (1) for wage earners, I use the monthly hourly wage from a particular job and compute the annual average; (2) for others (salary earners or workers who are both wage and salary earners), I calculate the annual average hourly wage using monthly earnings, usual hours worked in a week, and actual weeks worked in that month; (3) when an individual has two hourly paid jobs, I calculate the average hourly wage weighted by hours worked in each job. Wage and earnings data are expressed in January 1996 currency using Consumer Price Index. Seventh, financial independence is coded as 1 if the respondent did not receive any money from relatives, friends, TANF, SNAP, or SSI, and 0 otherwise. Eighth, disconnect is coded as 1 if the respondent did not receive TANF, SNAP, or SSI and did not work at all in a given year, and 0 otherwise.

The main independent variables are the time indicator for long term effects (years since state TANF implementation) and the TANF policy stringency measure. The first key independent variable is years since policy implementation (YRS). This variable is the count of years relative to the timing of TANF implementation in a given state. For example, Colorado implemented its state TANF policies in July 1997. YRS is coded as -1 for July 1996 to June 1997, 0 for July 1997 to June 1998, 1 for July 1998 to June 1999, … and 9 for July 2006 to June 2007. The first states that implemented TANF were Massachusetts and Vermont in September 1996, and the last state to implement TANF was California in January 1998. YRS was coded relative to the timing of implementation specific to a state. According to the study hypothesis, as time elapsed since policy implementation, if stringent TANF requirements are effective in

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promoting financial self-reliance, the overall trend in labor force participation and earnings will be more positive or less negative, and welfare participation will be more negative in stringent states than in lenient states, holding all other factors constant.

The second key independent variable is a measure of state TANF policy stringencies. As described in the TANF policy introduction section, following prior studies, I use time limits and sanctions to define stringency levels. For each survey year, when a state does not have time limit or sanctions, this state is defined as lenient. When a state has a 60-month time limit and imposes partial sanctions, this state is defined as having the "standard" package, because this represents what most states provide. When a state has a time limit below 60-month or imposes sanctions on full-family at the initial incidence of noncompliance to work requirements, this state is defined as stringent. [17] Since some states changed their TANF requirements during the study period, I use sequence analysis based on Ward's hierarchical fusion algorithm to classify transitions of categorical variables (stringency category from each year) across time (more details on sequence analysis could be found in Brzinsky-Fay & Kohler, 2006; Aisenbrey & Fasang, 2010). Through the analysis, policy features during the study period are classified into three categories: standard, lenient, and stringent. Table 1 detailed the stringency classification of each state, and Figure 1 shows the policy features across years and stringency classification. The data source for this variable is Urban Institute Welfare Rules Database. I coded their textual data into numeric forms.

This study additionally controls for individual characteristics and state economic environment. Individual-level controls include time-invarying characteristics such as single

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[17] If a state has more than one TANF programs, I use information from the program covering the majority of welfare recipients. Respondents from North Dakota, South Dakota, and Wyoming between 1996-2003 are dropped from the sample because SIPP collapsed these states in the same category in 1996 and 2001 panels, and these states have different TANF stringency levels. Maine and Vermont were collapsed into one category by SIPP. They remain in the sample because two states share similar TANF policy stringency.

mothers' race and time-varying characteristics such as age categories, marital status, and number

of children, and household sizes.[18] State economic environment is measured by state

unemployment rates in a given year.

Empirical Strategies

There are three major factors that may confound the effect of welfare stringency on the

observed difference in welfare use, labor supply, and earning: preexisting differences between

stringent and lenient states, differences on account of changes in economic and other factors over

time, and cross-state migration in response to policy. Stringencies of TANF policies are

correlated with state characteristics, including economic circumstances, political ideology, or

racial compositions (De Jong et al, 2006), and individual welfare use, labor supply, and earned

income trajectories are embedded in state environments. In order to adjust for pre-existing

differences between states having stringent and lenient requirements, I use state fixed effects

models to address this source of bias. State fixed effects control for state differences that are

constant over time.

Time-varying changes across states are another factors that may confound the trajectories

observed in this study. To address this problem, I control for state unemployment rates in each

responding year and state to account for influences from exogenous state economic

environment.[19] I also control for individual time-varying characteristics such as marital status

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[18] In sensitivity analyses, I exclude controls of individual demographic characteristics since family formation and fertility patterns may be affected by TANF policies. Results without these controls are qualitatively the same as findings presented in this paper. The presented main findings include demographic controls to account for differential family compositions trends across states.

[19] In sensitivity analyses, I control for more state-level characteristics to account for other state policy environment that may correlate with state TANF policy stringencies and outcomes. These characteristics include state EITC maximum benefits and a range of TANF state policy characteristics (e.g., maximum income eligibility for a family of three, maximum benefits for a family of three with no income, whether having a family cap policy, age of a child (in months) that a mother could be exempted from work requirements, earned income disregards for benefits) (Matsudaira & Blank, 2014). Results with these controls are qualitatively the same as findings presented in this paper.

and household compositions to account for differential trends in marital and fertility patterns across states. Despite these attempts, there could still be other unobserved time-varying factors correlated with state policy stringencies that affect the association between stringency levels and long-term welfare use, labor supply, and earned income trajectories. To describe unobserved time-varying state trends that affect welfare use, labor supply, and earned income trajectories (e.g., other policy characteristics such as child care subsidies, SCHIP) (Blank, 2002), I adopt a comparison group approach to run the same models on samples who shared the same skill levels, are not or less affected by TANF policies, yet are subject to similar state trends. The comparison groups adopted in this study include low-skilled married mothers and low-skilled single women without children.

In terms of cross-state migration, state TANF policies may encourage inter-state migration and bias the trajectories observed in this study. Studies have documented that lenient policies may attract disadvantaged families to move into the state (McKinnish, 2005), and stringent policies may push low-income families to migrate out the state (De Jong, Graefe, & St. Pierre, 2005). This cross-state migration trend may negatively bias the detected trajectories in lenient states (lower levels of labor supply and earned income and higher levels of welfare use). Restricting the sample to those who have lived in a state prior to the welfare reform allows this study to exclude respondents who migrated into lenient states after the reform and to more accurately capture long-term relationships.[20] However, this residence restriction is unable to account for effects from mothers who moved out of a stringent state, so trajectories of stringent policies may be a higher-bound estimation. Nevertheless, the magnitude of welfare migration is

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[20] The cutoff of 1996 is selected because PRWORA was passed in 1996. In the sensitivity analysis, (1) I change the cutoff to 1991 as states started to implement AFDC waiver policies as early as 1992 (assuming that no one could foresee state TANF policy choices before 1992), and results were qualitatively the same as main findings presented in this paper.

found to be small (Schram, Nitz, & Krueger, 1998). In addition, the residence restriction is necessary to measure the long-term patterns for another reason. For a person who moves from one type of states to another, his/her welfare use, labor supply, and earned income trajectory over time would not reflect behavioral responses to a particular type of policies. For example, if a person moves from a stringent state to a lenient state at the 5th year after TANF policy implementation, his/her self-sufficiency status at the 6th year does not reflect his/her response to a lenient policy in the 6th year. The residence restriction employed in this study allows me to properly track individual trajectories over time.

In this study, the samples of focus are low-skilled single mothers regardless of her status of TANF benefit recipiency. Mothers not receiving TANF are included in this study for two reasons. First, the effect of TANF policy requirements may and may not go through the actual participation of TANF. Taking TANF nonparticipants as an example, as described in the conceptual framework, they may prefer to work more and not to use welfare to save his/her time limit quota or to avoid the hassle of dealing with TANF behavioral requirements. Behavioral responses to policy characteristics may not go through the actual program participation. Second, TANF policy stringencies are correlated with the program participation rates. Participants in states with more stringent requirements are on average more disadvantaged than participants in lenient states, such as having worse health and higher rate of disability (Moffitt & Stevens, 2001; Frogner et al., 2009). If focusing on the samples that receive TANF benefits, the comparison between stringent and lenient states would be comparing apples and oranges. Both reasons signify the importance of including both TANF participating and non-participating mothers, so this study could capture the full range of relationships between TANF policy stringencies and outcomes.

I use a three-level multilevel model to examine the long-term welfare use, labor supply, and earned income progress in stringent and lenient states among low-skilled single mothers. Multilevel models have the strength of adjusting for the clustering nature of data and allowing the standard errors to be more robust (Raudenbush & Bryk, 2002). In this study, observations at each time point / in each year (level 1) are nested within individual (level 2), and individuals are nested within state (level 3). Below I describe the model for each level. The level 1 model is as follows:

$$Y_{tis} = \beta_{0is} + \sum \beta_{1is} YRS_{tis} + \beta_{2is} UR_{tis} + \varepsilon_{tis} \qquad \varepsilon_{tis} \sim N(0, \sigma_\varepsilon^2)$$

where Y_{tis} is the outcome for individual i in state s at time t. Each outcome is regressed on time categories (YRS_{tis}), so a vector of β_{1is} captures how the outcomes change with years elapsed since TANF implementation. YRS_{tis} includes five time categorical dummies, representing 0-1 year, 2-3 years, 4-5 years, 6-7 years, and 8-10 years since TANF implementation, with 2 to 1 year prior to TANF implementation as the reference group. This model also accounts for state unemployment rates (UR_{tis}) for state s at time t. β_{0is} is the mean self-sufficiency level across time-points for person i in state t, and the error term is noted as ε_{tis}, which is assumed to be independent and to conform to normal distribution with mean 0 and variance σ_ε^2. The level 2 model is as follows:

$$\beta_{0is} = \gamma_{00s} + \sum \gamma_{01s} X_{is} + \zeta_{0is} \qquad \zeta_{0is} \sim N(0, \sigma_{\zeta_0}^2)$$

$$\beta_{1is} = \gamma_{10s} + \zeta_{1is} \qquad \zeta_{1is} \sim N(0, \sigma_{\zeta_1}^2)$$

$$\beta_{2is} = \gamma_{20s}$$

where a vector of X_{is} is individual time-invarying characteristics (e.g., race) and time-varying characteristics (e.g., age categories, marital status, number of children in the households, and household sizes, etc.), and a vector of γ_{01s} shows the effects of these individual characteristics.

γ_{00s} is the mean welfare use, labor supply, and earned income levels across individuals in state s, ζ_{0is} represents the random intercept specific to individual i, and ζ_{1is} represents the random slope specific to individual i. The level 3 model is as follows:

$$\gamma_{00s} = b_{000} + \sum b_{001}State_s + \eta_{00s} \qquad \eta_{00s} \sim N\left(0, \sigma_{\eta_0}^2\right)$$

$$\gamma_{01s} = b_{010}$$

$$\gamma_{10s} = b_{100} + \sum b_{101}Stringent_s + \eta_{10s} \qquad \eta_{10s} \sim N\left(0, \sigma_{\eta_1}^2\right)$$

$$\gamma_{20s} = b_{200}$$

where b_{000} is the average outcome level across states, a vector of b_{001} is state fixed effects, η_{00s} and η_{10s} represents state-specific random intercepts and random slopes, respectively. The vector of b_{101} represents the main coefficients of interests in this study: cross-level interaction between state TANF policy stringencies ($Stringent_s$, state-level variables) and years since policy implementation (YRS_{tis}, time-level variables). Coefficients from b_{101} show whether welfare use, labor supply, and earned income trajectories over time among low-skilled single mothers differ by the TANF policy environment they live in. $Stringent_s$ includes two TANF policy stringency categories: lenient – having no time limits or sanctions, , and stringent – having time limits for less than 60 month or having full sanctions, with the reference group of standard – 60 month time limits with partial sanctions (the policy bundle in most states).

Level 1, 2, and 3 equations can be combined into a single equation or a composite model/reduced form:

$$Y_{tis} = b_{000} + \sum b_{100}YRS_{tis} + \sum b_{001}State_s + \sum b_{101}YRS_{tis}xStringent_s + \sum b_{010}X_{is} + b_{200}S_{ts}$$
$$+ \zeta_{0is} + \zeta_{1is}YRS_{tis} + \eta_{00s} + \eta_{10s}YRS_{tis} + \varepsilon_{tis}$$

where a vector of b_{101} is the main coefficients of interests that represents the cross-level interactions between TANF stringency categories and YRS categories. The model will be run for

low-skilled single mothers as well as mothers in comparison groups – low skilled married mothers and single women without children.

Results

Table 2 presents the descriptive statistics of demographic characteristics and outcomes of samples in 1 or 2 years prior to TANF implementation. Characteristics of the treatment group, single mothers, and comparison groups, married mothers or single women without children, are presented separately. I further delineate the characteristics of single mothers by policy stringencies. There are few observations to note. One, among each sample group, there was a higher proportion of Black women in the single mothers' group (37%) compared to 7% in the married mothers' group and 22% in the childless single women's group. States with stringent TANF policies had a higher proportion of single mothers who are Black (50%) than states with lenient policies (having 27% of single mothers who are Black). Two, 38% of low-educated single mothers received AFDC prior to the welfare reform, 55% of them received Food Stamps, and 11% received SSI. Overall, single mothers in states adopting stringent TANF policies showed a slightly higher rate of welfare program participation. Three, single mothers living in states that later adopted stringent TANF policies on average had lower monthly earnings and hourly wage than those in non-stringent states.

Multivariate results compare outcomes (welfare participation, labor force participation, and earned income) 1 to 2 years before the welfare reform to 0 to 10 years after the welfare reform across states with a standard TANF time limits and sanction policy bundle (the reference category; standard TANF policies hereafter), having lenient TANF policies, or having stringent TANF policies. Analyses were conducted on a cohort of women who were 18 to 45 years old at time of TANF implementation in given state and followed this cohort for 11 years after the

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reform. All models control for women's race, women or state time-varying characteristics (e.g., age categories, marital status, household size, number of children, unemployment rates in the state of residence at time t), and state fixed effects. Results from models accounting for individual fixed effects are presented in Appendix Tables 3-7, which are qualitatively similar to findings from models accounting for state fixed effects.

Table 3 presents results for TANF participation. Among women who were single mothers at time of TANF policy implementation, the treatment group, their TANF participation rates post-reform were significantly lower than pre-reform, dropping by 4.1 percentage points ($p<0.001$) in the initial two years after the reform to 10.5 ($p<0.001$) to 16.6 ($p<0.001$) percentage points in 2-10 years post-reform. Single mothers living in states with stringent polices experienced a sharper decrease in TANF participation than those living in states with less stringent policies. TANF participation in stringent states decreased for 8 percentage points in the first two years right after the reform, which was almost 4 percentage points ($p<0.05$) more than the decline in other states. Their TANF participation rates further dropped by 18.9 percentage points to 23.2 percentage points in 2-10 years post-reform, drops that were 5 ($p<0.05$) to 10 ($p<0.001$) percentages further than the decline under standard TANF policies.

In the next two columns in Table 3, the same model is run on two comparison group samples: married mothers and single women without children. Again, this characteristic refers to women's marital and fertility status at time of TANF policy implementation. The comparison group analyses provide information on levels of welfare use, labor force participation, or earned income among women with a similar skill level (not having received any college education in this case) yet having a low likelihood of being affected by the welfare reform. Married mothers and childless single women are less affected because married mothers likely have household

incomes that are too high to qualify for TANF, and single childless women do not have children to meet the eligibility criteria to receive TANF. Therefore, their levels of outcomes may serve as approximate reference points to understand the extent of policy effects on single mothers. There is one complication in comparison group analyses in this study. In a longitudinal context, women's marital and fertility status may change over time. Women who were married at time of the welfare reform may separate or divorce from their spouses later, and childless single women at time of the reform may give birth or get married later. Hence, likelihoods of women in either comparison group to qualify for TANF may become higher later on. Likewise, single mothers, the treatment group, may be married later on and have a lower likelihood to quality for TANF. I control for time-varying marital status, number of children, and household size to account for the differential trends in marriage and fertility across states over time.

The impacts of welfare reform on TANF participation was modest among the two comparison groups relative to single mothers. Among the first comparison group, married mothers showed slightly lower TANF participation rates post-reform relative to pre-reform (by less than 3 percentage points). The magnitude of the decline in TANF participation was much smaller than the drop of single mothers. It is not surprising to see some minor effects among married mothers post-reform since married mothers were still eligible for applying for TANF in many states.[21] The smaller impact of welfare reform on this group than on single mothers could be explained by the fact that households with married couples likely had higher income and were hence harder to meet the income eligibility criteria to receive TANF. In addition, among married

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[21] In 1999, 18 states imposed additional eligibility rules beyond the standard eligibility criteria for two-parent households, while the remaining 32 did not have additional rules (Rowe, 2000). In 2007, the last year covered by this study, 12 states imposed additional eligibility rules for two-parent households (Rowe, Murphy, & Kaminski, 2008). Among the states that imposed additional rules in 1999 and 2007, North Dakota did not allow two-parent households to receive TANF (Rowe, 2000; Rowe, Murphy, & Kaminski, 2008). In 2014, nine states imposed additional eligibility rules for two-parent households, and three states (Louisiana, New Hampshire, and North Dakota) did not allow two-parent households to receive TANF (Huber et al., 2015).

mothers, lenient policies were associated with higher likelihoods to receive TANF in the first 4 years and the 8 to 10 years after the reform.

Among the second comparison group, childless single women was the least affected by the welfare reform. Women who were childless and single at time of the reform experienced a 1.4 percentage point ($p<0.05$) increase in TANF participation in the first two years post-reform, likely related to their transitions into motherhood. As time elapsed, in 6-10 years after the welfare reform, childless single women in stringent states were less likely to receive TANF than similar women in states with standard or lenient policies.

Table 4 compares the SNAP and SSI participation status 1 to 2 years prior to the welfare reform and 0 to 10 years after the welfare reform across states with standard, lenient, or stringent policies. In short, for single mothers, the welfare reform was associated with decreases in SNAP participation but was not associated with SSI participation, except for those living in lenient states showing some increases in SSI participation. Specifically, results indicate that the likelihoods of single mothers to participate in SNAP decreased post-reform, just as their TANF participation rates. This decrease showed signs of rebound, yet the SNAP participation rates never reached back to the same level as in the pre-reform period. Among the comparison groups, the SNAP participation rate showed minor declines among married mothers or no change among childless single women. In terms of impacts of policy stringencies, unlike TANF participation was negatively associated with stringent TANF policies for single mothers, SNAP participation rates did not differ by TANF policy stringency levels. In terms of SSI participation, the welfare reform was not associated with changes in SSI participation across the treatment and the comparison groups. However, in 6 to 10 years after the reform, single mothers in lenient states showed increased SSI participation, and so did married mothers in stringent states in the initial 6

years after the welfare reform. This finding is consistent with literature that documented the practices that welfare offices shifted welfare caseloads to SSI programs (Schmidt & Sevak, 2004; Ziliak, forthcoming).

Table 5 presents results from analyses on labor supply, characterized by employment rates and work hours. After the welfare reform, employment rates of single mothers increased by 8 ($p<0.001$) to 10.4 ($p<0.001$) percentage points relative to the pre-reform era, and the employment increase sustained throughout the 10 years of post-reform period. Such an increase in employment was not shown among single childless women, and married women showed a smaller increase in employment rates post-reform (3 ($p<0.01$) to 4.8 ($p<0.001$) percentage points) than those experienced by single mothers. There was no indication that women living in stringent states work more, except for childless single women in the initial years post-reform. Among those who worked, the number of hours worked were not related to the welfare reform or policy stringencies for single mothers or married mothers.[22] Among childless single mothers (who may become mothers later), there was indication that they worked fewer hours in lenient states and more work hours in stringent states in the 4-10 years after the welfare reform.[23]

Table 6 presents results from earned income among women who worked sometime in a year.[24] Relative to monthly average earnings prior to the welfare reform, single mothers experienced a 13.9 percent ($p<0.001$) growth in earnings in the initial two years after the reform, and in later years their earnings increased further up to 24.2 percent ($p<0.001$) higher monthly earnings relative to the pre-reform period. Such increases were similar to or slightly higher than

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[22] For models on work hours, individual random slopes of years since policy influence were not estimated due to non-convergence issues for single mothers. To allow models for treatment and comparison groups to be comparable, individual random slopes were not estimated for all three samples.

[23] The same analyses are conducted including women who did not work at all (with zero hour worked), and results are presented in Appendix Table 1.

[24] The same results including women who did not work where their earnings/wages are coded as 0 are presented in Appendix Table 2.

those shown among married mothers and single childless women. Lenient or stringent TANF policies were not associated with differential growth patterns in earnings. In terms of annual average hourly wage, single mothers experienced a 6.7 ($p<0.05$) to 12 ($p<0.001$) percent wage increase post-reform, with mothers in lenient states showing the highest increases in hourly wage in 6-10 years post welfare reform, followed by those in stringent states, and then states having standard policies. The increases in wages during the post-reform era was also shared by married mothers with children and single childless women.

Table 7 presents results from the examination of whether welfare reform or stringent TANF policies was related to the likelihoods of being financially independent (not receiving financial assistance from welfare programs [TANF, SNAP, or SSI], relatives, or friends) and being disconnected (not working and not receiving TANF, SNAP, or SSI). Results reveal that, for single mothers, welfare reform was associated with 4.7 ($p<0.001$) to 13.9 ($p<0.001$) percentage points increases in not receiving assistance from welfare programs, relatives, or friends. An increase of this magnitude was not shown on comparison groups. On the contrary, among single childless women who might have children later, they experienced decreased likelihoods in being financially independent. With regards to effects of policy stringencies on financial independence trajectories, stringent TANF policies did not have differential impacts. In terms of examining whether welfare reform is associated with the likelihood of being disconnected, results show that in 2-10 years after the reform, single mothers and single childless women were more likely to be disconnected by 1.9 ($p<0.1$) to 4.2 ($p<0.01$) percentage points. The increase was not shared by married mothers. Although stringent TANF policies did drive single mothers off TANF welfare rolls, stringent policies did not increase the chances of single mothers to be disconnected.

Discussion and Conclusion

This study examines long-term welfare use, labor supply, and earned income trajectories since the welfare reform, and whether these trajectories differ by state TANF policy stringencies. I focus on women who were single mothers at time of policy implementation, a group most affected by the welfare reform. Over all, the welfare reform was strongly associated with single mothers' decreases in TANF and SNAP participation and an increase in employment throughout the 10 years since the reform. Despite the increase in employment post-reform, the reform did not change work hours among working single mothers, and their growth in earnings or wages were not different from the increases shown among women in comparison groups. Although welfare reform was also associated with higher likelihoods to be financially independent (not receiving support from welfare programs or relatives or friends), it was also associated with being disconnected (neither employed nor receiving public assistance).

When examining impacts of state TANF policy stringencies, this study finds that more stringent TANF policies were associated with much lower TANF participation rates among single mothers throughout the 10 years after state TANF policy implementation, when compared to similar women living in states with lenient or standard TANF policy. In terms of program participation status in other welfare programs, there was no indication that TANF policy stringencies was associated with SNAP participation rates. Yet, single mothers in states with lenient policies were more likely to receive SSI in 6-10 years after the reform, when some families started to reach their time limits. With regards to labor supply, TANF policy stringencies were not associated with levels of employment or work hours among single mothers, but childless single mothers, who might become mothers after policy implementation, showed higher employment rates and hours worked under stringent TANF policies. With respect to

earned income, although TANF policy stringencies were not related to different levels of monthly earnings among single mothers, both lenient and stringent TANF policies were associated with their higher hourly wage in 6-10 years since the welfare reform when compared to standard TANF policies. Lastly, stringent policies were not related to financial independence, and both lenient and stringent policies were related to lower levels of being disconnected at 8-10 years after the reform when compared to standard TANF policies.

Impacts of welfare reform and stringent policies on lower TANF use found in this study were consistent with the declined trends in welfare caseloads post-PRWORA (ACF, 2016). This study further reveals that states with more stringent policies reduced caseloads to a greater extent by 4 to 10 percentage points when compared to less stringent policies until at least 10 years after the reform. These declines are considerably large given that the original gap between stringent and less stringent states in AFDC participation rates in 1-2 years before TANF implementation was only 2 percentage point. Though stringent policies were shown to bring down welfare caseloads, their program participation levels in SNAP and SSI programs were the same when compared to states with standard TANF policy bundles. This shows that effects of stringent policies to reduce welfare use were only confined to TANF program.

Findings from this study shows that the welfare reform moved 8-10 percentage points of single mothers into the labor force, compared to a 3-5 percentage point increase for married mothers with the same education levels. This employment rate increase sustained even until 10 years after the reform. The employment trend also indicates that on average the growth in employment happened around the time of welfare reform, and employment rates did not show a clear trend of growth afterwards. Furthermore, the increase in labor supply among single mothers was mostly at the extensive margin rather than at the intensive margin. The work hours among

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employed single mothers did not show to respond to the welfare reform. However, the absence of a decline in average work hours may be a remarkable trend itself given that more single mothers who were detached from the labor market entered into employment post-reform (when compared to comparison group women), and this increase expanded the sample base for work hours among employed single mothers. Their lack of work experience could have driven down the average work hours. Also, the monthly work hours among single mothers prior to the reform were already high (at an average 155 hours), so those newly employed single mothers had a long way to catch up so as not to drive down the average work hours. Next, in regards to impacts of policy stringencies, unlike their strong association with TANF participation, stringent policies did not lead to higher levels of labor supply in terms of employment or work hours.

While welfare reform led more single mothers to be employed, their trajectories of earnings and wage growth among those who worked were not distinct from the trajectories of married mothers and single. If the sustained employment effects that were only shown among single mothers raised their levels of work experience and human capital, one could expect to see a higher growth in earnings or wages specific to single mothers as they integrate into the labor market (since they have lower earned income). This finding on lack of higher earned income growth indicates that although welfare reform pushed low-income families off welfare and into employment, the wage of single mothers integrating into the labor market did not catch up at a faster rate. Also, single mothers living in states with standard TANF policy bundles (60 month of time limits and having partial sanction on non-compliance to work requirements) showed to have lower wage growth in 6-10 years since TANF implementation.

Overall, stringent policies' lack of effects on increasing employment and earned income and reducing the use of welfare programs other than TANF may be due to two factors: the

"announcement effects" of the welfare reform (Blundell, Francesconi, & van der Klaauw, 2011) and the marked decrease in the caseloads of TANF program, which reduced the influence of TANF requirements on families (Loprest, 2012; ACF, 2016). First, most individuals across stringent and lenient states might have uniformly responded to the announcement of welfare requirements introduction, such as time limits and sanctions on non-compliance to work requirements, and had shifted their work behaviors and welfare participation patterns (other than TANF participation) around the time of welfare reform. Individuals might be more responsive to the presence of the requirements rather than the degree of requirement stringencies. Second, the TANF program caseloads decreased markedly since the welfare reform due to its policy features that discouraged TANF participation as well as the fact that TANF benefits were not available to families when time limits were reached. The degree to which that the levels of unavailability of TANF as income alternatives to families were similar across stringent and lenient states may explain the null findings of stringent TANF requirements on outcomes.

In conclusion, this study extends prior TANF literature in following low-skilled single mothers' trajectories in welfare use, labor supply, and earned income into 10 years after the welfare reform. Furthermore, this study examines how TANF policy stringencies were related to long-term outcomes. Findings reveal that single mothers living in states with stringent TANF policies were significantly less likely to participate in TANF, suggesting that stringent requirements were effective in suppressing TANF caseloads and containing the cash assistance portion of TANF expenditure. Meanwhile, single mothers used other welfare programs to the same extent compared to single mothers living in states with less stringent policies. Stringent policies also did not drive single mothers to work or earn at a high level than those living in less stringent states. These findings may enrich evidence to inform policy discussions on

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restructuring welfare rules as well as for states to assess the cost-effectiveness and necessity of

employing stringent policies.

References

Administration for Children and Families. (2009). Characteristics and Financial Circumstances of TANF Recipients, Fiscal Year 2009. Retrieved: http://www.acf.hhs.gov/programs/ofa/resource/character/fy2009/tab46

Administrations of Children and Families (ACF) (2012). Characteristics and Financial Circumstances of TANF Recipients, Fiscal Year 2012. Retrieved from: http://www.acf.hhs.gov/sites/default/files/ofa/tanf_characteristics_fy_2012.pdf

Administration for Children and Families. (2016). State TANF data and reports. Retrieved: http://www.acf.hhs.gov/programs/ofa/programs/tanf/data-reports.

Aisenbrey, S., & Fasang, A. E. (2010). New life for old ideas: The "second wave" of sequence analysis bringing the "course" back into the life course. *Sociological Methods & Research, 38*, 420–462.

Becker, G. S. (1975). Investment in human capital: effects on earnings. In *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education, Second Edition* (pp. 13-44). NBER.

Bitler, M., & Hoynes, H. (Forthcoming). The More Things Change, the More They Stay the Same? The Safety Net and Poverty in the Great Recession. *Journal of Labor Economics*

Blank, R. M. (2002). Evaluating welfare reform in the United States (No. w8983). National Bureau of Economic Research.

Blank, R. M., & Kovak, B. K. (2009). The growing problem of disconnected single mothers. In Heinrich , C. J., & Scholz, J. K. (eds.) *Making the Work-Based Safety Net Work Better: Forward-Looking Policies to Help Low-Income Families*. New York: Russell Sage Foundation.

Blundell, R., Francesconi, M., & van der Klaauw, W. (2011). Anatomy of Welfare Reform Evaluation: Announcement and Implementation Effects.

Brzinsky-Fay, C., & Kohler, U. (2006). Sequence analysis with Stata. *The Stata Journal, 6*(4), 435-460.

Cancian, M., Haveman, R. H., Meyer, D. R., & Wolfe, B. (2002). Before and after TANF: The economic wellbeing of women leaving welfare. *Social Service Review, 76*(4), 603-641.

Chan, C.K., & Ngok, K. (2011) *Welfare Reform in East Asia: Towards Workfare?* London: Routledge.

Cheng, T. C. (2007). Impact of work requirements on the psychological well-being of TANF recipients. *Health & Social Work, 32*(1), 41-48.

Council of Economic Advisers. 1999. Technical Report: The Effects of Welfare Policy and the Economic Expansion on Welfare Caseloads: An Update. Washington DC: Executive Office of the President.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. 2nd ed. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Crouse, G. (1999). State implementation of major changes to welfare policies, 1992-1998. Retrieved: http://aspe.hhs.gov/hsp/waiver-policies99/policy_cea.htm

Danielson, C., & Klerman, J. A. (2008). Did welfare reform cause the caseload decline? *Social Service Review*, *82*(4), 703-730.

De Jong, G. F., Garaefe, D. R., & St. Pierre, T. (2005). Welfare reform and interstate migration of poor families. *Demography, 42*(3), 469-496.

De Jong, G. F., Garaefe, D. R., Irving, S. K., & St. Pierre, T. (2006). Measuring state TANF policy variations and change after reforms. *Social Science Quarterly, 87*(4), 755-781.

Department of Health and Human Services. (2016). State welfare waivers: an overview. Retrieved from: https://aspe.hhs.gov/legacy-page/state-welfare-waivers-overview-152151

Dunifon, R., Hynes, K., & Peters, H. E. (2006). Welfare reform and child well-being. *Children and Youth Service Review*, 28, 1273-1292.

Dyke, A., Heinrich, C. J., Mueser, P. R., Troske, K. R., & Jeon, K. S. (2006). The effects of welfare-to-work program activities on labor market outcomes.*Journal of Labor Economics*, *24*(3), 567-607.

Ellwood, D. T. (2000). The impact of the earned income tax credit and social policy reforms on work, marriage, and living arrangements. *National tax journal*, 1063-1105.

Fang, H., & Keane, M. P. (2004). Assessing the impact of welfare reform on single mothers. *Brookings Papers on Economic Activity*, *2004*(1), 1-116.

Farrell, M., Rich, S., Turner, L., Seith, D., & Bloom, D. (2008). Welfare Time Limits: An Update on State Policies, Implementation, and Effects on Families. MDRC.

Freeman, E. M. (1996). Welfare reforms and services for children and families: Setting a new practice, research, and policy agenda. *Social Work, 41*(5), 521-532.

Grogger, J. (2003). The effects of time limits, the EITC, and other policy changes on welfare use, work, and income among female-headed families. *The Review of Economics and Statistics, 85*(2), 394-408.

Grogger, J. (2004). Time limits and welfare use. *Journal of Human Resources,39*(2), 405-424.

Grogger, J., Haider, S. J., & Klerman, J. (2003). Why did the welfare rolls fall during the 1990's? The importance of entry. *The American Economic Review, 93*(2), 288-292.

Grogger, J., & Karoly, L. (2005). *Welfare Reform: Effects of a Decade of Change*. Cambridge, MA: Harvard University Press.

Huang, C. C., Garfinkel, I., & Waldfogel, J. (2000). Child support and welfare caseloads. Institute for Research on Poverty, University of Wisconsin--Madison.

Huber, E., Cohen, E., Briggs, A., & Kassabian, D. (2015). Welfare Rules Databook: State TANF policies as of July 2014. Washington, DC: The Urban Institute. Retrieved: http://anfdata.urban.org/databooks/2014%20Welfare%20Rules%20Databook%20(FINAL).pdf

Imbens, G., Hotz, V. J., & Klerman, J. (2006). Evaluating the Differential Effects of Alternative Welfare-to-Work Training Components: A Re-Analysis of the California GAIN Program. *Journal of Labor Economics*, *24*(3).

Kalil, A., Seefeldt, K. S., & Wang, H. C. (2002). *Sanctions and material hardship under TANF. Social Service Review, 76*(4), 642-662.

Kaushal N., & Kaestner, R. (2001). From welfare to work: Has welfare reform worked? *Journal of Policy Analysis and Management, 20*(4), 699-719.

Klerman, J. A., & Haider, S. J. (2004). A stock-flow analysis of the welfare caseload. *Journal of Human Resources, 39*(4), 865-886.

Lee, B. J., Slack, K. S., & Lewis, D. A. (2004). Are Welfare Sanctions Working as Intended? Welfare Receipt, Work Activity, and Material Hardship among TANF-Recipient Families. *Social Service Review*, *78*(3), 370-403.

Lim, Y., Coulton, C. J., & Lalich, N. (2009). State TANF policies and employment outcomes among welfare leavers. *Social Service Review, 83*(4), 525-555.

Lindhorst, T., & Mancoske, R. J. (2006). The social and economic impact of sanctions and time limits on recipients of Temporary Assistance to Needy Families. *Journal of sociology and social welfare*, *33*(1), 93.

Loprest, P. J. (2012). How has the TANF caseload changed over time? Retrieved: http://www.urban.org/UploadedPDF/412565-How-Has-the-TANF-Caseload-Changed-Over-Time.pdf

Lødemel, I., & Trickey, H. (2000). *"An Offer You Can't Refuse." Workfare in International Perspective*. Bristol: Policy Press.

Mazzolari, F. (2007). Welfare use when approaching the time limit. *Journal of Human Resources*, *42*(3), 596-618.

Matsudaira, J. D., & Blank, R. M. (2014). The impact of earnings disregards on the behavior of low-income families. *Journal of Policy Analysis and Management, 33*(1), 7-35.

McKinnish, T. (2005). Importing the poor: Welfare magnetism and cross-border welfare migration. *Journal of Human Resources, XL*(1), 57-76.

Meyer, B. D., & Rosenbaum, D. T. (2001). Welfare, the Earned Income Tax Credit, and the labor supply of single mothers. *Quarterly Journal of Economics, 116*(3), 1063-1114.

Moffitt, R. A. (1999). The effect of pre-PRWORA waivers on AFDC caseloads and female earnings, income, and labor force behavior. *Economic conditions and welfare reform*, 91-118.

Moffitt, R. A., Stevens, D. W., & Stevens, D. W. (2001). *Changing Caseloads: Macro Influences and Micro Compositions*. Jacob France Institute, University of Baltimore.

Moore, J. C. (2008). Seam bias in the 2004 SIPP panel: Much improved, but much bias still remains. US Census Bureau Statistical Research Division Survey Methodology Research Report Series, 3, 2008.

Morgen, S. (2001). The Agency of Welfare Workers: Negotiating Devolution, Privatization, and the Meaning of Self-Sufficiency. *American Anthropologist, 103*(3), 747-761.

Pavetti, L., Derr, M. K., & Hesketh, H. (2003). Review of sanction policies and research studies. *Washington, DC: US Department of Health and Human Services. http://aspe. hhs. gov/hsp/TANF-sanctions03*.

Raudenbush, S. W., & Bryk, A. S. (2002). Hierarchical Linear Models: Applications and Data Analysis Methods. Thousand Oaks, CA: Sage.

Rector, R. E., & Youssef, S. E. (1999). *The determinants of welfare caseload decline* (pp. 99-04). Washington, DC: Heritage Foundation.

Reichman, N. E., Teitler, J. O., Garfinkel, I., & Garcia, S. (2004). Variations in maternal and child well-being among financially eligible mothers by TANF participation status. *Eastern Economic Journal, 30*(1), 101-118.

Reichman, N. E., Teitler, J. O., & Curtis, M. A. (2005). TANF sanctioning and hardship. *Social Service Review, 79*(2), 215-236.

Rowe, G. (2000). Welfare Rules Databook: State TANF Policies as of July 1999. Washington, DC: The Urban Institute. Retrieved: http://www.urban.org/sites/default/files/alfresco/publication-pdfs/310284-Welfare-Rules-Databook-State-TANF-Policies-as-of-July--.PDF

Rowe, G., Murphy, M., & Kaminski, J. (2008). Welfare Rules Databook: State TANF Policies as of July 2007. Washington, DC: The Urban Institute. Retrieved: http://anfdata.urban.org/databooks/Databook%202007%20Final%20Draft%20December%202008.pdf

Schmidt, L., & Sevak, P. (2004). AFDC, SSI, and Welfare Reform Aggressiveness Caseload Reductions versus Caseload Shifting. *Journal of Human resources*, *39*(3), 792-812.

Schoeni, R. F., & Blank, R. M. (2000). *What has welfare reform accomplished? Impacts on welfare participation, employment, income, poverty, and family structure* (No. w7627). National Bureau of Economic Research.

Schram, S., Nitz, L., & Krueger, G. (1998). Without cause or effect: Reconsidering welfare migration as a policy problem. *American Journal of Political Science, 42*(1), 210-230.

Stuber, J., & Kronebusch, K. (2004). Stigma and other determinants of participation in TANF and Medicaid. *Journal of Policy Analysis and Management, 23*(3), 509-530.

Swann, C. A. (2005). Welfare reform when recipients are forward-looking.*Journal of Human Resources*, *40*(1), 31-56.

Turner, L. J., Danziger, S., & Seefeldt, K. S. (2006). Failing the transition from welfare to work: Women chronically disconnected from employment and cash welfare. *Social Science Quarterly, 87*(2), 227-249.

Waldfogel, J. (2007). Welfare reforms and child well-being in the US and UK. Retrieved: http://eprints.lse.ac.uk/6208/1/Welfare_Reforms_and_Child_Well-Being_in_the_US_and_UK.pdf

Wu, C. F., Cancian, M., & Wallace, G. (2014). The effect of welfare sanctions on TANF exits and employment. *Children and Youth Services Review*, *36*, 1-14.

Ziliak, J. P. (Ed.). (2009). Welfare Reform and Its Long-Term Consequences for America's Poor. New York: Cambridge University Press.

Ziliak, J. P. (Forthcoming). Temporary Assistance for Needy Families. In Moffitt, R. A. (2016). Economics of Means-Tested Transfer Programs in the United States, volume 1. NBER.

Figure 1. State TANF Policy Stringencies by Year (1997-2007)
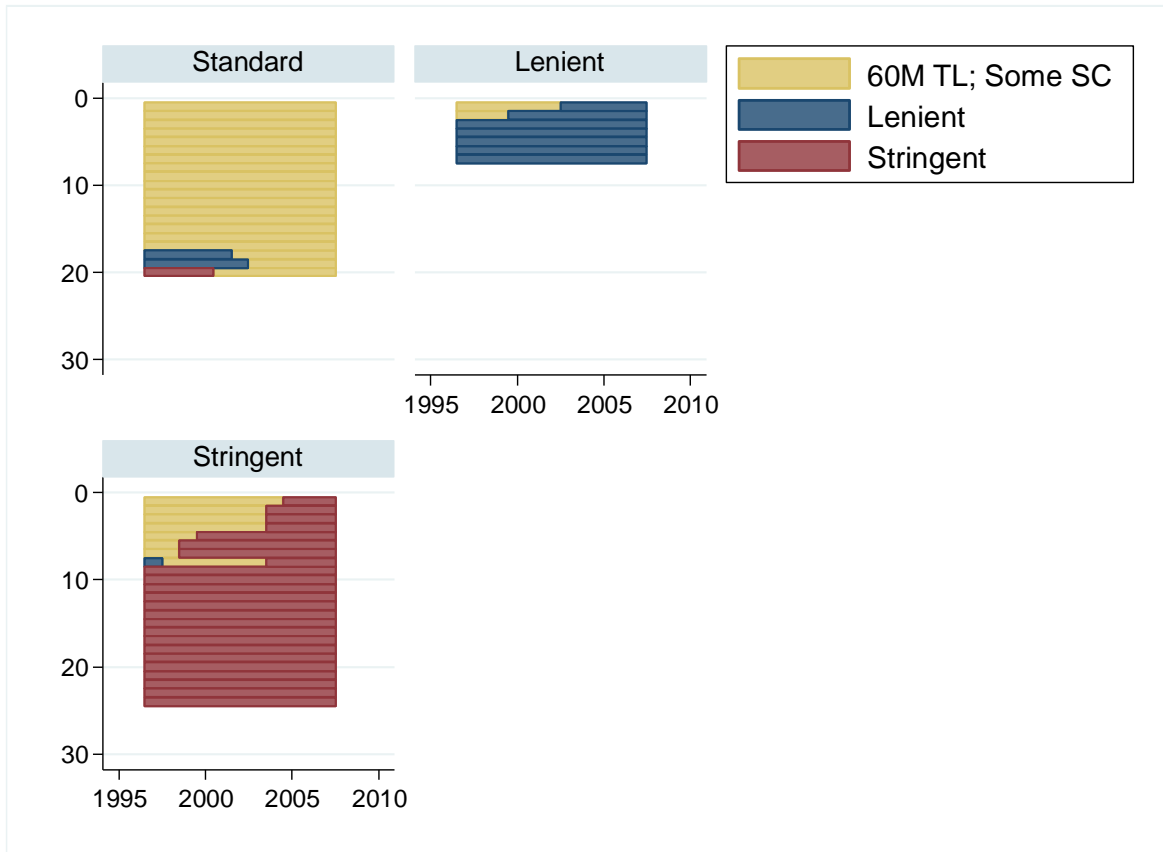
Table 1: State TANF Policy Stringency Measures

State	Standard	Lenient	Stringent
Alabama	○		
Alaska	○		
Arizona	○		
Arkansas			○
California	○		
Colorado	○		
Connecticut			○
Delaware			○
District of Columbia		○	
Florida			○
Georgia			○
Hawaii			○
Idaho			○
Illinois	○		
Indiana	○		
Iowa			○
Kansas			○
Kentucky	○		
Louisiana			○
Maine		○	
Maryland			○
Massachusetts		○	
Michigan			○
Minnesota	○		
Mississippi			○
Missouri	○		
Montana	○		
Nebraska			○
Nevada			○
New Hampshire	○		
New Jersey	○		
New Mexico	○		
New York	○		
North Carolina			○
North Dakota	○		
Ohio			○
Oklahoma			○

Oregon		○	
Pennsylvania	○		
Rhode Island	○		
South Carolina			○
South Dakota		○	
Tennessee			○
Texas			○
Utah			○
Vermont		○	
Virginia			○
Washington		○	
West Virginia	○		
Wisconsin	○		
Wyoming			○
Total	20	7	24

Table 2: Descriptive characteristics 1 to 2 years prior to TANF implementation

	Treatment group Single mothers				Comparison groups Married mothers	Single women w/o children
	All	**Standard**	**Lenient**	**Stringent**	**All**	**All**
Demographics						
Age	30.79	30.78	31.66	30.73	33.35	30.68
Race						
Whites	0.50	0.56	0.75	0.42	0.82	0.66
Black	0.37	0.27	0.11	0.50	0.07	0.22
Hispanics	0.11	0.14	0.10	0.06	0.09	0.09
Other race	0.02	0.02	0.04	0.01	0.02	0.03
Household size						
1 person	0.00	0.00	0.00	0.00	0.00	0.17
2 people	0.15	0.16	0.15	0.15	0.01	0.28
3-4 people	0.54	0.54	0.61	0.52	0.65	0.37
5 or more people	0.31	0.30	0.24	0.32	0.34	0.17
Number of children						
0-1 child	0.49	0.48	0.52	0.50	0.33	0.94
2 children	0.28	0.28	0.30	0.27	0.43	0.04
3 or more children	0.24	0.24	0.18	0.23	0.25	0.02
Outcomes						
AFDC participation	0.38	0.37	0.37	0.39	0.05	0.05
Food Stamp (SNAP) participation	0.55	0.55	0.54	0.56	0.13	0.19
SSI participation	0.11	0.11	0.06	0.12	0.03	0.14
Employed	0.58	0.58	0.61	0.59	0.65	0.69
Monthly work hours (including zero)	99.46	98.43	105.67	100.01	103.25	117.75
Monthly work hours (excluding zero)	154.29	154.86	155.86	153.57	148.22	161.27
Average monthly earnings (including zero)	669.14	674.38	717.89	659.22	827.31	860.80
Average monthly earnings (excluding zero)	1166.51	1193.6	1156.81	1138.97	1312.29	1275.47
Average hourly wage (including zero)	4.61	4.68	5.28	4.47	5.86	5.63
Average hourly wage (excluding zero)	7.44	7.65	8.24	7.14	8.68	7.97
Financial independence (not receiving public assistance or help from relatives or friends)	0.40	0.4	0.43	0.38	0.84	0.73
Disconnect (not receiving public assistance nor working)	0.04	0.03	0.04	0.04	0.19	0.08

Note: All samples are restricted to US-born women aged 18-45 at time of TANF implementation in a given state, not having any college education, having lived in the current state of residence before 1996, and did not move during the panel. Individual observations from years in which they enroll in school for more than one third of the observed months in a year were excluded. Sample categorization (single mothers, married mothers, or childless single mothers) is based on the sample characteristics at time of TANF implementation. Wage and earning values are expressed in January 1996 US dollars using Consumer Price Index.

Table 3: Trajectories of TANF participation and policy stringencies

	TANF Participation		
	Single mothers	**Married mothers**	**Single women w/o children**
Years since Policy Influence (YPI) (Reference: -2 to -1 year)			
0-1 Year	-0.041***	-0.014***	0.014*
	(0.011)	(0.004)	(0.007)
2-3 Year	-0.105***	-0.029***	-0.006
	(0.015)	(0.005)	(0.009)
4-5 Year	-0.134***	-0.016**	0.008
	(0.019)	(0.006)	(0.010)
6-7 Year	-0.166***	-0.019**	0.006
	(0.022)	(0.006)	(0.010)
8-10 Year	-0.148***	-0.017**	0.008
	(0.026)	(0.007)	(0.011)
YPI X Lenient			
0-1 Year X Lenient	0.014	0.034*	0.018
	(0.035)	(0.014)	(0.023)
2-3 Year X Lenient	-0.032	0.028+	0.036
	(0.040)	(0.015)	(0.025)
4-5 Year X Lenient	-0.053	0.031	0.025
	(0.057)	(0.022)	(0.032)
6-7 Year X Lenient	0.008	0.019	0.033
	(0.058)	(0.020)	(0.029)
8-10 Year X Lenient	-0.021	0.043*	0.056+
	(0.065)	(0.020)	(0.030)
YPI X Stringent			
0-1 Year X Stringent	-0.039*^^	0.005^^	-0.013
	(0.015)	(0.005)	(0.010)
2-3 Year X Stringent	-0.098***^^	0.010^	-0.010
	(0.019)	(0.006)	(0.011)
4-5 Year X Stringent	-0.054*	-0.000	-0.021
	(0.026)	(0.008)	(0.014)
6-7 Year X Stringent	-0.066*^	0.001	-0.031*^^
	(0.029)	(0.008)	(0.013)
8-10 Year X Stringent	-0.075*^	-0.002^	-0.040**^^
	(0.034)	(0.009)	(0.015)
Constant	0.264***	0.125***	0.060**
	(0.038)	(0.015)	(0.023)
Variance terms			
State intercepts	0.000	0.000	0.000
State YPI effects	0.000	0.000	0.000
Ind. intercepts	0.066	0.016	0.017
Ind. YPI effects	0.000	0.000	0.000
Residuals	0.051	0.012	0.018
N	14592	23730	11261

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. All samples are restricted to US-born women aged 18-45 at time of TANF implementation in a given state, not having any college education, having lived in the current state of residence before 1996, and did not move during the panel. Individual observations from years in which they enroll in school for more than one third of the observed months in a year were excluded. Sample categorization (single with children, married with children, or single without children) is based on the sample characteristics at time of TANF implementation. All models control for women's race (White (ref.), Black, Hispanics, and other race), and time-varying characteristics, including age in categories (18-24 (ref.), 25-29, 30-34, 35-39, 40-45, 45-49, 50-57), whether married, household size (1, 2, 3 or 4 (ref.), 5 or more), number of children (0, 1, 2 (ref.), and 3 or more), and unemployment rates in state s and year t, and state fixed effects. The reference group for TANF policy stringencies is the standard policy. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions

between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Table 4: Trajectories of SNAP and SSI participation and policy stringencies

	SNAP Participation			SSI Participation		
	Single mothers	Married mothers	Single women w/o children	Single mothers	Married mothers	Single women w/o children
Years since Policy Influence (YPI) (Reference: -2 to -1 year)						
0-1 Year	-0.044***	-0.012+	0.004	0.002	-0.002	-0.003
	(0.013)	(0.007)	(0.012)	(0.008)	(0.004)	(0.007)
2-3 Year	-0.129***	-0.021*	0.004	-0.002	-0.000	-0.009
	(0.017)	(0.009)	(0.015)	(0.010)	(0.005)	(0.010)
4-5 Year	-0.108***	-0.006	0.045*	0.010	0.007	-0.004
	(0.020)	(0.010)	(0.018)	(0.012)	(0.006)	(0.012)
6-7 Year	-0.097***	-0.005	0.027	0.004	0.014*	-0.003
	(0.023)	(0.011)	(0.018)	(0.013)	(0.006)	(0.014)
8-10 Year	-0.060*	0.017	0.063**	0.002	0.009	0.007
	(0.026)	(0.012)	(0.021)	(0.016)	(0.007)	(0.016)
YPI X Lenient						
0-1 Year X Lenient	-0.075+	0.035	0.032	0.004	0.005	-0.001
	(0.040)	(0.023)	(0.039)	(0.024)	(0.012)	(0.022)
2-3 Year X Lenient	-0.064	-0.007	-0.045	0.003	-0.003	-0.036
	(0.047)	(0.026)	(0.044)	(0.028)	(0.014)	(0.028)
4-5 Year X Lenient	-0.071	0.065+	-0.025	0.066	-0.024	-0.004
	(0.065)	(0.038)	(0.058)	(0.042)	(0.022)	(0.041)
6-7 Year X Lenient	-0.061	0.042	-0.016	0.100*	-0.001	0.023
	(0.065)	(0.035)	(0.055)	(0.042)	(0.021)	(0.043)
8-10 Year X Lenient	-0.011	0.018	0.064	0.126**	0.010	0.037
	(0.072)	(0.038)	(0.059)	(0.046)	(0.023)	(0.046)
YPI X Stringent						
0-1 Year X Stringent	-0.017	-0.003	-0.004	0.004	0.008+	0.002
	(0.017)	(0.009)	(0.017)	(0.010)	(0.005)	(0.010)
2-3 Year X Stringent	-0.013	-0.014	-0.034+	-0.011	0.011*	-0.008
	(0.021)	(0.011)	(0.019)	(0.012)	(0.006)	(0.013)
4-5 Year X Stringent	0.039	0.005	-0.023	-0.011	0.019*^^	0.013
	(0.028)	(0.014)	(0.025)	(0.017)	(0.008)	(0.018)
6-7 Year X Stringent	0.009	0.004	-0.033	-0.008^^	0.008	-0.007
	(0.030)	(0.014)	(0.025)	(0.018)	(0.008)	(0.020)
8-10 Year X Stringent	0.002	0.007	-0.044	0.000^^	0.005	-0.017
	(0.035)	(0.016)	(0.029)	(0.021)	(0.010)	(0.023)
Constant	0.478***	0.330***	0.179***	0.081**	0.046**	0.115***
	(0.046)	(0.026)	(0.042)	(0.031)	(0.015)	(0.032)
Variance terms						
State intercepts	0.000	0.000	0.000	0.000	0.000	0.000
State YPI effects	0.000	0.000	0.000	0.000	0.000	0.000
Ind. intercepts	0.104	0.045	0.070	0.065	0.021	0.077
Ind. YPI effects	0.001	0.001	0.001	0.001	0.003	0.001
Residuals	0.067	0.035	0.049	0.023	0.009	0.015
N	14592	23730	11261	14592	23730	11261

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. See Table 3 for sample and model specifications. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Table 5: Trajectories of labor supply and policy stringencies

	Employment			Average Monthly Work Hours		
	Single mothers	Married mothers	Single women w/o children	Single mothers	Married mothers	Single women w/o children
Years since Policy Influence (YPI) (Reference: -2 to -1 year)						
0-1 Year	0.080***	0.030**	0.012	0.978	0.639	-2.902
	(0.014)	(0.010)	(0.014)	(2.285)	(1.524)	(2.334)
2-3 Year	0.097***	0.048***	0.008	2.287	2.797	0.735
	(0.017)	(0.012)	(0.018)	(2.717)	(1.885)	(2.902)
4-5 Year	0.104***	0.048**	-0.011	-0.389	-1.763	-4.929
	(0.020)	(0.015)	(0.021)	(3.000)	(2.198)	(3.269)
6-7 Year	0.084***	0.031+	-0.021	-0.455	1.175	-6.349+
	(0.021)	(0.016)	(0.022)	(3.060)	(2.301)	(3.298)
8-10 Year	0.080***	0.019	-0.004	-1.147	2.539	-9.811**
	(0.024)	(0.018)	(0.025)	(3.406)	(2.574)	(3.667)
YPI X Lenient						
0-1 Year X Lenient	0.045	0.018	0.008	-8.632	-3.377	-11.511
	(0.045)	(0.033)	(0.045)	(7.096)	(5.106)	(7.629)
2-3 Year X Lenient	-0.008	0.053	0.040	3.453	4.918	-1.708
	(0.050)	(0.037)	(0.051)	(7.738)	(5.471)	(8.330)
4-5 Year X Lenient	0.014	-0.006	0.062	2.051	11.976	-30.956**
	(0.067)	(0.055)	(0.069)	(9.732)	(8.221)	(10.282)
6-7 Year X Lenient	-0.006	0.000	0.002	-1.296	3.074	-28.058**
	(0.064)	(0.052)	(0.067)	(9.087)	(7.497)	(9.769)
8-10 Year X Lenient	0.028	-0.003	-0.023	-2.168	5.985	-19.888*
	(0.069)	(0.056)	(0.071)	(9.652)	(7.726)	(10.139)
YPI X Stringent						
0-1 Year X Stringent	-0.006	0.005	0.045*^	4.453	2.191	4.402^
	(0.019)	(0.013)	(0.020)	(3.073)	(2.058)	(3.310)
2-3 Year X Stringent	-0.007	-0.021^	0.037	4.072	2.122	-0.803
	(0.021)	(0.015)	(0.023)	(3.364)	(2.287)	(3.713)
4-5 Year X Stringent	0.004	-0.020	0.066*^	1.947	1.267	5.582^^
	(0.028)	(0.021)	(0.030)	(4.130)	(3.084)	(4.710)
6-7 Year X Stringent	0.006	0.008	0.049	4.167	-0.019	8.245+^^
	(0.028)	(0.021)	(0.031)	(4.025)	(3.057)	(4.532)
8-10 Year X Stringent	0.007	0.019	0.012	3.452	-0.035	8.342+^^
	(0.031)	(0.024)	(0.034)	(4.394)	(3.356)	(4.923)
Constant	0.622***	0.595***	0.684***	155.763***	130.219***	147.309***
	(0.047)	(0.038)	(0.051)	(6.790)	(5.623)	(7.626)
Variance terms						
State intercepts	0.000	0.000	0.000	0.000	0.000	0.000
State YPI effects	0.000	0.000	0.000	0.000	0.000	0.000
Ind. intercepts	0.101	0.110	0.116	1377.257	1928.539	1501.613
Ind. YPI effects	0.001	0.001	0.001	--	--	--
Residuals	0.086	0.069	0.067	1654.734	1253.816	1472.964
N	14592	23730	11261	10860	17698	8153

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. For the outcome "Work Hours", observations that did not work were excluded from the sample, and I set work hour values below 1 to 1 before taking a logarithm of work hours. See Table 3 for sample and model specifications. In the work hours models, multilevel regressions that included in individual random slopes by YPI did not converge for the single mother samples, so this set of analyses for the treatment and comparison groups does not estimate individual random slopes by YPI. Results from work hour models are restricted to those who have non-zero work hours. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Table 6: Trajectories of earned income and policy stringencies

	Log (Monthly Earnings)			Log (Hourly Wage)		
	Single mothers	Married mothers	Single women w/o children	Single mothers	Married mothers	Single women w/o children
Years since Policy Influence (YPI) (Reference: -2 to -1 year)						
0-1 Year	0.139***	0.082***	0.095**	0.075***	0.056***	0.068***
	(0.028)	(0.021)	(0.029)	(0.014)	(0.012)	(0.016)
2-3 Year	0.190***	0.175***	0.156***	0.097***	0.100***	0.089***
	(0.035)	(0.027)	(0.039)	(0.018)	(0.016)	(0.021)
4-5 Year	0.233***	0.190***	0.208***	0.120***	0.127***	0.154***
	(0.041)	(0.032)	(0.046)	(0.021)	(0.018)	(0.024)
6-7 Year	0.242***	0.233***	0.222***	0.107***	0.149***	0.210***
	(0.044)	(0.035)	(0.049)	(0.023)	(0.020)	(0.026)
8-10 Year	0.176***	0.227***	0.204***	0.067*	0.125***	0.180***
	(0.050)	(0.041)	(0.056)	(0.026)	(0.023)	(0.030)
YPI X Lenient						
0-1 Year X Lenient	-0.001	-0.042	-0.054	-0.035	-0.003	-0.008
	(0.086)	(0.070)	(0.093)	(0.043)	(0.041)	(0.052)
2-3 Year X Lenient	-0.034	0.077	-0.116	-0.038	0.038	0.056
	(0.097)	(0.080)	(0.108)	(0.050)	(0.047)	(0.060)
4-5 Year X Lenient	-0.014	-0.035	-0.163	0.088	-0.101	-0.024
	(0.134)	(0.123)	(0.145)	(0.068)	(0.069)	(0.077)
6-7 Year X Lenient	-0.037	-0.059	-0.138	0.086	-0.033	-0.138+
	(0.131)	(0.118)	(0.145)	(0.068)	(0.066)	(0.076)
8-10 Year X Lenient	0.038	0.036	-0.224	0.130+	-0.018	-0.119
	(0.143)	(0.126)	(0.156)	(0.075)	(0.071)	(0.082)
YPI X Stringent						
0-1 Year X Stringent	-0.022	0.028	0.007	-0.010	-0.012	-0.022
	(0.037)	(0.028)	(0.041)	(0.019)	(0.016)	(0.023)
2-3 Year X Stringent	0.002	-0.002	0.003	0.013	-0.010	-0.028
	(0.043)	(0.033)	(0.049)	(0.022)	(0.019)	(0.027)
4-5 Year X Stringent	-0.049	-0.017	0.009	0.022	0.002	-0.024
	(0.057)	(0.046)	(0.067)	(0.029)	(0.026)	(0.036)
6-7 Year X Stringent	-0.021	-0.026	0.070	0.066*^	-0.022	-0.032
	(0.058)	(0.047)	(0.068)	(0.030)	(0.027)	(0.036)
8-10 Year X Stringent	0.043	0.004	0.048	0.108**^^	-0.002	-0.028
	(0.065)	(0.054)	(0.077)	(0.035)	(0.031)	(0.041)
Constant	6.456***	6.417***	6.565***	1.820***	1.854***	1.813***
	(0.098)	(0.086)	(0.113)	(0.050)	(0.048)	(0.059)
Variance terms						
State intercepts	0.000	0.000	0.000	0.000	0.000	0.000
State YPI effects	0.000	0.000	0.000	0.000	0.000	0.000
Ind. intercepts	0.414	0.512	0.461	0.100	0.136	0.107
Ind. YPI effects	0.003	0.005	0.004	0.002	0.002	0.001
Residuals	0.230	0.212	0.211	0.057	0.072	0.066
N	10729	17241	8065	10741	17238	8044

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. For each of the two earned income outcomes, observations that did not work were excluded from the sample, and I set all income values below 1 to 1 before taking a logarithm of the outcome. See Table 3 for sample and model specifications. Results from earned income or hourly wage models are restricted to those who have earnings or wage information. Wage and earning values are expressed in January 1996 US dollars using Consumer Price Index. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Table 7: Trajectories of financial independence and disconnect and policy stringencies

	Financial Independence (No Public or Private Assistance)			Disconnect		
	Single mothers	**Married mothers**	**Single women w/o children**	**Single mothers**	**Married mothers**	**Single women w/o children**
Years since Policy Influence (YPI) (Reference: -2 to -1 year)						
0-1 Year	0.047***	0.014+	-0.007	0.003	-0.007	0.005
	(0.013)	(0.007)	(0.012)	(0.008)	(0.008)	(0.011)
2-3 Year	0.139***	0.024**	0.000	0.038***	-0.002	0.031*
	(0.017)	(0.009)	(0.016)	(0.010)	(0.011)	(0.013)
4-5 Year	0.115***	0.004	-0.054**	0.019+	-0.015	0.022
	(0.020)	(0.011)	(0.019)	(0.011)	(0.013)	(0.015)
6-7 Year	0.115***	0.002	-0.037+	0.030**	0.002	0.038*
	(0.022)	(0.012)	(0.020)	(0.011)	(0.015)	(0.016)
8-10 Year	0.087***	-0.017	-0.061**	0.042**	0.015	0.033+
	(0.026)	(0.013)	(0.023)	(0.013)	(0.017)	(0.018)
YPI X Lenient						
0-1 Year X Lenient	0.070+	-0.054*	-0.027	-0.005	-0.010	0.003
	(0.039)	(0.025)	(0.039)	(0.026)	(0.027)	(0.034)
2-3 Year X Lenient	0.020	-0.005	0.059	-0.002	-0.031	0.063
	(0.046)	(0.027)	(0.044)	(0.029)	(0.032)	(0.039)
4-5 Year X Lenient	0.057	-0.053	0.019	-0.016	0.002	-0.015
	(0.065)	(0.040)	(0.062)	(0.035)	(0.047)	(0.049)
6-7 Year X Lenient	0.033	-0.033	0.013	-0.045	-0.005	0.047
	(0.065)	(0.038)	(0.060)	(0.034)	(0.046)	(0.047)
8-10 Year X Lenient	-0.006	-0.025	-0.021	-0.084*	0.005	0.006
	(0.073)	(0.041)	(0.064)	(0.037)	(0.051)	(0.051)
YPI X Stringent						
0-1 Year X Stringent	0.014	0.001^	0.002	0.005	-0.003	-0.017
	(0.017)	(0.010)	(0.017)	(0.011)	(0.011)	(0.015)
2-3 Year X Stringent	0.002	0.008	0.025	0.008	0.022	-0.008
	(0.020)	(0.011)	(0.020)	(0.012)	(0.013)	(0.017)
4-5 Year X Stringent	-0.022	-0.010	0.020	-0.027+	-0.005	-0.030
	(0.028)	(0.015)	(0.027)	(0.015)	(0.018)	(0.022)
6-7 Year X Stringent	-0.012	-0.007	0.035	-0.023	-0.019	-0.012
	(0.030)	(0.015)	(0.028)	(0.015)	(0.020)	(0.022)
8-10 Year X Stringent	-0.014	-0.003	0.047	-0.035*^^	-0.039+	0.015
	(0.035)	(0.018)	(0.031)	(0.017)	(0.023)	(0.025)
Constant	0.499***	0.652***	0.760***	0.005	0.122***	0.082*
	(0.046)	(0.028)	(0.046)	(0.025)	(0.032)	(0.036)
Variance terms						
State intercepts	0.000	0.000	0.000	0.000	0.000	0.000
State YPI effects	0.000	0.000	0.000	0.000	0.000	0.000
Ind. intercepts	0.112	0.058	0.108	0.018	0.076	0.040
Ind. YPI effects	0.002	0.001	0.001	0.000	0.001	0.001
Residuals	0.063	0.039	0.049	0.028	0.045	0.038
N	14592	23730	11261	14592	23730	11261

Note: $+0.1>p\geq0.05$, $*0.05>p\geq0.01$, $**0.01>p\geq0.001$, $***p<0.001$. Each column is a separate linear multilevel regression model. See Table 3 for sample and model specifications. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates $0.1>p\geq0.05$ and ^^ indicates $p<0.05$). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Appendix Table 1: Trajectories of work hours and policy stringencies

	Average Monthly Work Hours		
	Single mothers	**Married mothers**	**Single women w/o children**
Years since Policy Influence (YPI) (Reference: -2 to -1 year)			
0-1 Year	7.811***	2.960+	-2.193
	(2.182)	(1.558)	(2.291)
2-3 Year	7.887**	5.817**	-1.032
	(2.846)	(2.170)	(3.066)
4-5 Year	9.437**	1.791	-8.055*
	(3.341)	(2.728)	(3.663)
6-7 Year	8.674*	1.623	-10.742**
	(3.643)	(3.145)	(4.001)
8-10 Year	4.106	1.266	-12.416**
	(4.249)	(3.737)	(4.639)
YPI X Lenient			
0-1 Year X Lenient	-4.396	-0.522	-9.009
	(6.874)	(5.034)	(7.313)
2-3 Year X Lenient	-4.350	7.087	-1.303
	(8.024)	(6.243)	(8.685)
4-5 Year X Lenient	-3.573	8.609	-21.507+
	(11.251)	(9.717)	(12.034)
6-7 Year X Lenient	-5.881	3.796	-27.971*
	(11.184)	(9.971)	(12.027)
8-10 Year X Lenient	-3.479	4.639	-22.975+
	(12.352)	(11.070)	(13.032)
YPI X Stringent			
0-1 Year X Stringent	2.442	1.157	5.284+^
	(2.909)	(2.084)	(3.197)
2-3 Year X Stringent	2.511	-0.867	3.504
	(3.480)	(2.711)	(3.905)
4-5 Year X Stringent	0.798	1.703	11.903*^^
	(4.668)	(3.854)	(5.350)
6-7 Year X Stringent	0.892	2.558	10.355+^^
	(4.831)	(4.282)	(5.593)
8-10 Year X Stringent	1.083	3.561	5.907^
	(5.575)	(5.067)	(6.394)
Constant	118.778***	88.406***	110.597***
	(8.125)	(6.596)	(8.979)
Variance terms			
State intercepts	0.000	0.000	0.000
State YPI effects	0.000	0.852	0.197
Ind. intercepts	3707.513	4057.827	4263.661
Ind. YPI effects	60.216	74.329	58.511
Residuals	1967.386	1495.831	1663.585
N	14592	23730	11261

Note: $+0.1 > p \geq 0.05$, $*0.05 > p \geq 0.01$, $**0.01 > p \geq 0.001$, $***p < 0.001$. Each column is a separate linear multilevel regression model. The outcome "Work Hours" coded work hours from those who did not work as zero, and I set work hour values below 1 to 1 before taking a logarithm of the outcome. See Table 3 for sample and model specifications. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates $0.1 > p \geq 0.05$ and ^^ indicates $p < 0.05$). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Appendix Table 2: Trajectories of earned income and policy stringencies

	Log (Monthly Earnings)			Log (Hourly Wage)		
	Single mothers	**Married mothers**	**Single women w/o children**	**Single mothers**	**Married mothers**	**Single women w/o children**
Years since Policy Influence (YPI) (Reference: -2 to -1 year)						
0-1 Year	0.515***	0.240***	0.097	0.146***	0.074***	0.046+
	(0.076)	(0.058)	(0.077)	(0.022)	(0.017)	(0.024)
2-3 Year	0.426***	0.258**	-0.023	0.161***	0.129***	0.059+
	(0.101)	(0.082)	(0.106)	(0.030)	(0.024)	(0.033)
4-5 Year	0.632***	0.301**	0.011	0.198***	0.134***	0.078*
	(0.119)	(0.103)	(0.126)	(0.036)	(0.029)	(0.039)
6-7 Year	0.461***	0.173	-0.078	0.176***	0.108***	0.090*
	(0.131)	(0.119)	(0.139)	(0.039)	(0.033)	(0.043)
8-10 Year	0.244	0.088	-0.140	0.094*	0.062	0.070
	(0.153)	(0.142)	(0.162)	(0.046)	(0.038)	(0.050)
YPI X Lenient						
0-1 Year X Lenient	-0.088	0.044	-0.084	-0.003	0.018	-0.016
	(0.240)	(0.185)	(0.246)	(0.069)	(0.057)	(0.076)
2-3 Year X Lenient	-0.502+	0.277	-0.102	-0.169*	0.115	0.045
	(0.285)	(0.236)	(0.302)	(0.084)	(0.072)	(0.093)
4-5 Year X Lenient	-0.250	0.486	0.055	0.004	-0.025	0.035
	(0.404)	(0.366)	(0.422)	(0.120)	(0.113)	(0.131)
6-7 Year X Lenient	-0.274	0.341	-0.197	-0.010	0.041	-0.141
	(0.405)	(0.381)	(0.428)	(0.122)	(0.114)	(0.133)
8-10 Year X Lenient	-0.198	0.335	-0.094	0.088	0.080	-0.159
	(0.449)	(0.425)	(0.466)	(0.136)	(0.124)	(0.144)
YPI X Stringent						
0-1 Year X Stringent	-0.115	-0.001	0.113	-0.029	-0.013	0.028
	(0.102)	(0.077)	(0.108)	(0.030)	(0.023)	(0.033)
2-3 Year X Stringent	-0.095	-0.125	0.161	-0.007	-0.051+^^	0.021
	(0.124)	(0.103)	(0.135)	(0.037)	(0.030)	(0.042)
4-5 Year X Stringent	0.064	0.232	0.401*^	0.018	0.025	0.075
	(0.167)	(0.145)	(0.186)	(0.050)	(0.041)	(0.058)
6-7 Year X Stringent	0.061	0.229	0.297	0.056	0.042	0.046
	(0.175)	(0.163)	(0.197)	(0.053)	(0.045)	(0.061)
8-10 Year X Stringent	0.180	0.289	0.118	0.118+	0.073	-0.007
	(0.202)	(0.193)	(0.225)	(0.061)	(0.052)	(0.070)
Constant	4.974***	4.276***	5.079***	1.310***	1.153***	1.266***
	(0.294)	(0.248)	(0.320)	(0.089)	(0.078)	(0.099)
Variance terms						
State intercepts	0.000	0.000	0.000	0.000	0.000	0.000
State YPI effects	0.000	0.001	0.000	0.000	0.000	0.000
Ind. intercepts	5.156	6.009	6.039	0.500	0.636	0.588
Ind. YPI effects	0.091	0.133	0.106	0.010	0.014	0.010
Residuals	2.368	1.954	1.815	0.195	0.189	0.173
N	14592	23730	11261	14531	23500	11199

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. For each of the two earned income outcomes, observations not having any earned income are coded as 0, and I set all values below 1 to 1 before taking a logarithm of the outcome. See Table 3 for sample and model specifications. Wage and earning values are expressed in January 1996 US dollars using Consumer Price Index. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Appendix Table 3: Trajectories of TANF participation and policy stringencies (Individual Fixed Effects)

	TANF Participation		
	Single mothers	Married mothers	Single women w/o children
Years since Policy Influence (YPI) (Reference: -2 to -1 year)			
0-1 Year	-0.047***	-0.018***	0.015*
	(0.011)	(0.004)	(0.007)
2-3 Year	-0.108***	-0.033***	-0.004
	(0.015)	(0.006)	(0.010)
4-5 Year	-0.142***	-0.020**	0.004
	(0.020)	(0.008)	(0.014)
6-7 Year	-0.186***	-0.024**	-0.006
	(0.023)	(0.009)	(0.016)
8-10 Year	-0.174***	-0.023*	-0.005
	(0.026)	(0.010)	(0.018)
YPI X Lenient			
0-1 Year X Lenient	0.022	0.035**	0.020
	(0.034)	(0.014)	(0.024)
2-3 Year X Lenient	-0.040	0.029+	0.040
	(0.039)	(0.015)	(0.027)
4-5 Year X Lenient	-0.064	0.016	0.033
	(0.083)	(0.042)	(0.055)
6-7 Year X Lenient	-0.020	-0.002	0.040
	(0.087)	(0.044)	(0.057)
8-10 Year X Lenient	-0.054	0.023	0.060
	(0.092)	(0.045)	(0.060)
YPI X Stringent			
0-1 Year X Stringent	-0.035*^^	0.006^^	-0.015
	(0.014)	(0.005)	(0.010)
2-3 Year X Stringent	-0.103***^^	0.009^	-0.014^
	(0.017)	(0.006)	(0.012)
4-5 Year X Stringent	-0.046	-0.008	-0.032
	(0.031)	(0.012)	(0.022)
6-7 Year X Stringent	-0.061+	-0.011	-0.042+
	(0.034)	(0.013)	(0.024)
8-10 Year X Stringent	-0.068+	-0.017	-0.055*^
	(0.037)	(0.014)	(0.026)
Constant	0.395***	0.056***	0.075**
	(0.035)	(0.016)	(0.025)
Rho	0.636	0.632	0.586
N	14592	23730	11261

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. All samples are restricted to US-born women aged 18-45 at time of TANF implementation in a given state, not having any college education, having lived in the current state of residence before 1996, and did not move during the panel. Individual observations from years in which they enroll in school for more than one third of the observed months in a year were excluded. Sample categorization (single mothers, married mothers, or single women without children) is based on the sample characteristics at time of TANF implementation. All models control for women's race (White (ref.), Black, Hispanics, and other race), and time-varying characteristics, including age in categories (18-24 (ref.), 25-29, 30-34, 35-39, 40-45, 45-49, 50-57), whether married, household size (1, 2, 3 or 4 (ref.), 5 or more), number of children (0, 1, 2 (ref.), and 3 or more), and unemployment rates in state s and year t, and individual fixed effects. The reference group for TANF policy stringencies is the standard policy. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Appendix Table 4: Trajectories of SNAP and SSI participation and policy stringencies (Individual Fixed Effects)

	SNAP Participation			SSI Participation		
	Single mothers	Married mothers	Single women w/o children	Single mothers	Married mothers	Single women w/o children
Years since Policy Influence (YPI) (Reference: -2 to -1 year)						
0-1 Year	-0.056***	-0.018*	0.009	0.004	-0.001	-0.000
	(0.013)	(0.007)	(0.012)	(0.008)	(0.004)	(0.007)
2-3 Year	-0.154***	-0.034***	0.011	0.001	0.001	-0.006
	(0.018)	(0.010)	(0.017)	(0.011)	(0.005)	(0.010)
4-5 Year	-0.151***	-0.031*	0.045+	0.008	0.007	-0.001
	(0.024)	(0.013)	(0.023)	(0.014)	(0.007)	(0.013)
6-7 Year	-0.168***	-0.038*	0.025	-0.001	0.013	-0.002
	(0.028)	(0.015)	(0.027)	(0.017)	(0.008)	(0.015)
8-10 Year	-0.142***	-0.022	0.064*	0.002	0.008	0.013
	(0.031)	(0.017)	(0.030)	(0.019)	(0.009)	(0.017)
YPI X Lenient						
0-1 Year X Lenient	-0.067+	0.037	0.022	0.003	0.006	-0.009
	(0.041)	(0.024)	(0.040)	(0.024)	(0.012)	(0.023)
2-3 Year X Lenient	-0.055	-0.001	-0.058	0.003	-0.001	-0.053*
	(0.046)	(0.026)	(0.045)	(0.027)	(0.013)	(0.026)
4-5 Year X Lenient	0.009	0.026	-0.080	0.065	-0.017	-0.058
	(0.098)	(0.073)	(0.092)	(0.059)	(0.038)	(0.053)
6-7 Year X Lenient	0.019	-0.017	-0.095	0.106+	0.007	-0.033
	(0.103)	(0.076)	(0.096)	(0.062)	(0.039)	(0.055)
8-10 Year X Lenient	0.062	-0.049	-0.019	0.131*	0.015	-0.022
	(0.109)	(0.079)	(0.100)	(0.065)	(0.040)	(0.058)
YPI X Stringent						
0-1 Year X Stringent	-0.014	-0.001	-0.006	0.003	0.007	0.000
	(0.017)	(0.009)	(0.017)	(0.010)	(0.005)	(0.010)
2-3 Year X Stringent	-0.014	-0.008	-0.031	-0.007	0.012*	-0.009
	(0.020)	(0.011)	(0.021)	(0.012)	(0.006)	(0.012)
4-5 Year X Stringent	0.070+	0.028	-0.002	0.006	0.025*^	0.024
	(0.037)	(0.021)	(0.038)	(0.022)	(0.011)	(0.022)
6-7 Year X Stringent	0.056	0.029	-0.003	0.013	0.017	0.013
	(0.040)	(0.022)	(0.040)	(0.024)	(0.012)	(0.023)
8-10 Year X Stringent	0.048	0.029	-0.016	0.021	0.013	0.001
	(0.044)	(0.025)	(0.044)	(0.026)	(0.013)	(0.025)
Constant	0.506***	0.255***	0.213***	0.127***	0.054***	0.140***
	(0.041)	(0.028)	(0.042)	(0.024)	(0.014)	(0.024)
Rho	0.702	0.669	0.694	0.778	0.761	0.849
N	14592	23730	11261	14592	23730	11261

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. See Appendix Table 3 for sample and model specifications. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Appendix Table 5: Trajectories of labor supply and policy stringencies (Individual Fixed Effects)

	Employment			Average Monthly Work Hours		
	Single mothers	**Married mothers**	**Single women w/o children**	**Single mothers**	**Married mothers**	**Single women w/o children**
Years since Policy Influence (YPI) (Reference: -2 to -1 year)						
0-1 Year	0.086***	0.036***	0.011	4.260+	1.054	-1.699
	(0.014)	(0.010)	(0.014)	(2.380)	(1.572)	(2.432)
2-3 Year	0.113***	0.061***	0.021	9.822**	5.133*	1.601
	(0.020)	(0.014)	(0.020)	(3.167)	(2.128)	(3.377)
4-5 Year	0.131***	0.068***	0.022	11.614**	2.984	-8.661+
	(0.026)	(0.019)	(0.027)	(4.248)	(2.881)	(4.642)
6-7 Year	0.126***	0.062**	0.024	13.731**	8.933**	-13.054*
	(0.031)	(0.022)	(0.031)	(4.966)	(3.387)	(5.494)
8-10 Year	0.125***	0.058*	0.039	15.838**	12.438**	-14.949*
	(0.035)	(0.024)	(0.035)	(5.650)	(3.825)	(6.163)
YPI X Lenient						
0-1 Year X Lenient	0.038	0.015	0.011	-7.830	-2.754	-12.991+
	(0.045)	(0.033)	(0.046)	(7.153)	(5.137)	(7.750)
2-3 Year X Lenient	-0.009	0.060	0.029	4.315	5.328	-6.317
	(0.051)	(0.037)	(0.052)	(8.149)	(5.648)	(8.813)
4-5 Year X Lenient	0.058	0.072	0.035	1.757	11.875	-46.689**
	(0.109)	(0.103)	(0.107)	(17.268)	(15.860)	(17.419)
6-7 Year X Lenient	0.059	0.071	0.014	-0.043	0.529	-41.728*
	(0.114)	(0.107)	(0.112)	(17.954)	(16.562)	(18.301)
8-10 Year X Lenient	0.112	0.061	0.005	3.762	1.997	-36.991+
	(0.121)	(0.111)	(0.117)	(19.050)	(17.116)	(19.275)
YPI X Stringent						
0-1 Year X Stringent	-0.007	0.003	0.046*^	2.883	1.923	3.561^
	(0.019)	(0.013)	(0.020)	(3.130)	(2.075)	(3.372)
2-3 Year X Stringent	-0.004	-0.017^	0.031	0.517	0.740	-0.022
	(0.023)	(0.015)	(0.024)	(3.677)	(2.437)	(4.080)
4-5 Year X Stringent	0.013	0.011	0.083+	-5.033	0.868	17.138*^^
	(0.041)	(0.029)	(0.044)	(6.720)	(4.577)	(7.869)
6-7 Year X Stringent	0.008	0.038	0.052	-6.472	-2.167	21.787*^^
	(0.044)	(0.032)	(0.047)	(7.301)	(4.959)	(8.541)
8-10 Year X Stringent	0.006	0.047	0.014	-9.820	-3.639	22.186*^^
	(0.049)	(0.035)	(0.051)	(8.005)	(5.439)	(9.236)
Constant	0.642***	0.664***	0.591***	157.876***	149.071***	154.847***
	(0.045)	(0.039)	(0.049)	(7.450)	(6.207)	(8.468)
Rho	0.640	0.684	0.711	0.594	0.680	0.643
N	14592	23730	11261	10860	17698	8153

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. For the outcome "Work Hours", observations that did not work were excluded from the sample, and I set work hour values below 1 to 1 before taking a logarithm of work hours. See Appendix Table 3 for sample and model specifications. Results from work hour models are restricted to those who have non-zero work hours. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Appendix Table 6: Trajectories of earned income and policy stringencies (Individual Fixed Effects)

	Log (Monthly Earnings)			Log (Hourly Wage)		
	Single mothers	Married mothers	Single women w/o children	Single mothers	Married mothers	Single women w/o children
Years since Policy Influence (YPI) (Reference: -2 to -1 year)						
0-1 Year	0.181***	0.103***	0.112***	0.087***	0.069***	0.082***
	(0.029)	(0.022)	(0.030)	(0.015)	(0.013)	(0.017)
2-3 Year	0.282***	0.225***	0.199***	0.113***	0.124***	0.115***
	(0.038)	(0.029)	(0.042)	(0.019)	(0.017)	(0.023)
4-5 Year	0.386***	0.269***	0.287***	0.138***	0.146***	0.187***
	(0.051)	(0.039)	(0.058)	(0.026)	(0.023)	(0.032)
6-7 Year	0.445***	0.348***	0.347***	0.132***	0.172***	0.273***
	(0.060)	(0.046)	(0.068)	(0.031)	(0.027)	(0.038)
8-10 Year	0.415***	0.371***	0.379***	0.108**	0.158***	0.268***
	(0.069)	(0.052)	(0.077)	(0.035)	(0.031)	(0.043)
YPI X Lenient						
0-1 Year X Lenient	-0.018	-0.040	-0.055	-0.040	-0.006	-0.001
	(0.086)	(0.071)	(0.095)	(0.044)	(0.042)	(0.054)
2-3 Year X Lenient	-0.076	0.090	-0.078	-0.021	0.039	0.072
	(0.099)	(0.079)	(0.109)	(0.050)	(0.046)	(0.061)
4-5 Year X Lenient	-0.315	0.138	0.116	0.124	-0.049	0.015
	(0.208)	(0.226)	(0.216)	(0.106)	(0.133)	(0.120)
6-7 Year X Lenient	-0.360+	0.138	0.148	0.136	0.027	-0.107
	(0.216)	(0.234)	(0.227)	(0.110)	(0.138)	(0.127)
8-10 Year X Lenient	-0.272	0.242	0.031	0.179	0.041	-0.094
	(0.230)	(0.241)	(0.239)	(0.117)	(0.142)	(0.134)
YPI X Stringent						
0-1 Year X Stringent	-0.050	0.014	-0.001	-0.013	-0.013	-0.024
	(0.038)	(0.028)	(0.042)	(0.019)	(0.017)	(0.024)
2-3 Year X Stringent	-0.047	-0.009	0.000	0.019	0.001	-0.026
	(0.045)	(0.033)	(0.051)	(0.023)	(0.020)	(0.028)
4-5 Year X Stringent	-0.159+^	0.069	0.043	0.040	0.059	-0.041
	(0.082)	(0.063)	(0.099)	(0.041)	(0.037)	(0.055)
6-7 Year X Stringent	-0.150+^	0.054	0.103	0.095*	0.038	-0.062
	(0.089)	(0.068)	(0.107)	(0.045)	(0.040)	(0.060)
8-10 Year X Stringent	-0.094	0.081	0.069	0.131**^^	0.065	-0.065
	(0.097)	(0.075)	(0.116)	(0.049)	(0.044)	(0.065)
Constant	6.711***	6.769***	6.761***	1.911***	1.993***	2.003***
	(0.090)	(0.085)	(0.106)	(0.046)	(0.050)	(0.059)
Rho	0.740	0.770	0.771	0.749	0.737	0.736
N	10729	17241	8065	10741	17238	8044

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. For each of the two earned income outcomes, observations that did not work were excluded from the sample, and I set all income values below 1 to 1 before taking a logarithm of the outcome. Wage and earning values are expressed in January 1996 US dollars using Consumer Price Index. See Appendix Table 3 for sample and model specifications. Results from earned income or hourly wage models are restricted to those who have earnings or wage information. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Appendix Table 7: Trajectories of financial independence and disconnect and policy stringencies (Individual Fixed Effects)

	Financial Independence (No Public or Private Assistance)			Disconnect		
	Single mothers	Married mothers	Single women w/o children	Single mothers	Married mothers	Single women w/o children
Years since Policy Influence (YPI) (Reference: -2 to -1 year)						
0-1 Year	0.055***	0.017*	-0.011	0.002	-0.009	0.006
	(0.013)	(0.007)	(0.012)	(0.008)	(0.008)	(0.011)
2-3 Year	0.158***	0.032**	-0.006	0.031**	-0.005	0.028+
	(0.017)	(0.010)	(0.017)	(0.011)	(0.011)	(0.015)
4-5 Year	0.156***	0.022	-0.051*	0.012	-0.015	0.020
	(0.023)	(0.014)	(0.023)	(0.015)	(0.015)	(0.020)
6-7 Year	0.183***	0.026	-0.022	0.029+	-0.000	0.048*
	(0.027)	(0.016)	(0.027)	(0.018)	(0.018)	(0.024)
8-10 Year	0.159***	0.011	-0.050+	0.042*	0.012	0.046+
	(0.030)	(0.018)	(0.030)	(0.020)	(0.020)	(0.027)
YPI X Lenient						
0-1 Year X Lenient	0.065+	-0.055*	-0.012	-0.002	-0.012	0.002
	(0.040)	(0.025)	(0.040)	(0.026)	(0.028)	(0.035)
2-3 Year X Lenient	0.018	-0.009	0.087+	-0.003	-0.043	0.072+
	(0.045)	(0.027)	(0.045)	(0.029)	(0.031)	(0.040)
4-5 Year X Lenient	0.035	-0.027	0.136	-0.058	-0.080	0.016
	(0.096)	(0.077)	(0.092)	(0.063)	(0.086)	(0.082)
6-7 Year X Lenient	0.012	0.012	0.155	-0.106	-0.076	0.054
	(0.100)	(0.080)	(0.096)	(0.066)	(0.089)	(0.085)
8-10 Year X Lenient	-0.024	0.028	0.126	-0.152*	-0.057	0.006
	(0.106)	(0.082)	(0.100)	(0.070)	(0.093)	(0.089)
YPI X Stringent						
0-1 Year X Stringent	0.012	-0.001^	0.004	0.006	-0.002	-0.016
	(0.017)	(0.010)	(0.017)	(0.011)	(0.011)	(0.015)
2-3 Year X Stringent	0.000	0.005	0.027	0.004	0.019^	-0.004
	(0.020)	(0.011)	(0.020)	(0.013)	(0.013)	(0.018)
4-5 Year X Stringent	-0.055	-0.027	0.011	-0.073**^^	-0.037	-0.047
	(0.036)	(0.022)	(0.037)	(0.024)	(0.024)	(0.033)
6-7 Year X Stringent	-0.060	-0.025	0.009	-0.078**^^	-0.053*	-0.036
	(0.039)	(0.024)	(0.040)	(0.026)	(0.026)	(0.036)
8-10 Year X Stringent	-0.060	-0.018	0.021	-0.090**^^	-0.070*^	-0.012
	(0.043)	(0.026)	(0.044)	(0.028)	(0.029)	(0.039)
Constant	0.429***	0.714***	0.697***	-0.043	0.070*	0.118**
	(0.040)	(0.029)	(0.042)	(0.026)	(0.033)	(0.037)
Rho	0.724	0.687	0.756	0.578	0.686	0.645
N	14592	23730	11261	14592	23730	11261

Note: +0.1>p≥0.05, *0.05>p≥0.01, **0.01>p≥0.001, ***p<0.001. Each column is a separate linear multilevel regression model. See Appendix Table 3 for sample and model specifications. Standard errors are in parenthesis. Results from Wald tests examining whether coefficients from interactions between stringent X YPI and lenient X YPI are the same at the particular YPI category are presented in the stringent X YPI rows (^ indicates 0.1>p≥0.05 and ^^ indicates p<0.05). For example, if Wald tests reveal that the "0-1 Year X Stringent" coefficient is different from the "0-1 Year X Lenient" coefficient, and the p-value is smaller than 0.05, the "0-1 Year X Stringent" row will be marked as ^^.

Conclusion

This dissertation investigated impacts of regulatory policies on well-being of immigrant families and low-income families. In the first paper, I used nationally representative National Health Interview Survey (2000-2012) to study the health and mental health impacts of local immigration enforcement policies, under Section 287(g) of the Illegal Immigration Reform and Immigrant Responsibility Act and the Secure Communities Program. I found some evidence of local immigration enforcement policies negatively impacting mental health and self-rated health of Latino immigrants. This study extended prior literature and showed that adverse health effects of local immigration enforcement went beyond certain geographical regions (e.g., Arizona or North Carolina) and were not limited to anecdotal evidence on personal experience. Also, the adverse effects of enforcement manifested in not only mental health but also self-rated health.

In the second paper, I explored relationships between participation in the Temporary Assistance for Needy Families (TANF) program and parental investments in children, and how stringencies in state TANF policy requirements impacted the relationships. I used the 2004 and 2008 panels of Survey on Income and Program Participation (SIPP) data and found that TANF participation was associated with increased family meal times and decreased incidence of family outings and reading time. TANF participation was not associated with many other areas of parenting (e.g., extracurricular activity participation, family rules on watching TV, positive parenting in forms of praising the child or having fun time with them, parenting stress, and parental expectation). Also, stringent state TANF policy characteristics were not associated with negative parenting behaviors.

In the last paper, I investigated how state TANF policy stringencies were associated with single mothers' long-term trajectories of welfare use, labor supply, and earned income. I used the

1996, 2001, and 2004 panels of SIPP data (1996-2007), covering the decade following TANF implementation. Findings indicated that stringent state TANF policies were strongly related to single mothers' lower likelihood to participate in TANF; however, single mothers used other welfare programs (e.g., SNAP and SSI) to the same extent as single mothers living in states with less stringent TANF policies. Also, stringent policies did not lead to higher levels of labor supply or earned income. The finding on stringent TANF policies' lack of behavioral effects beyond reducing TANF use may enrich evidence that informs policy discussions on restructuring welfare rules.

Taken together, harsh policies in forms of local immigration enforcement policies showed to deteriorate health and mental health of Latino immigrant families, and stringent welfare rules in forms of short time limits and strict sanctions on noncompliance to work requirements in TANF program did not prompt single mothers to work more or use welfare programs other than TANF less. Meanwhile, stringent welfare rules did not contribute to lower levels of parental investments in children, nor did these rules lower earned income among single mothers or increase their likelihood to be disconnected from the labor market or welfare support. These findings uncovered how disadvantaged population groups such as low-income and immigrant families fared under strict policy environment as well as evaluated whether harsh requirements were harmful to their well-being. Studies on impacts of regulatory policies offer evidence for policymakers to constantly evaluate the necessity of employing harsh measures. Safeguarding interests of "undeserving" and vulnerable populations through public policy research is an important mission for social work researchers, and more researchers and studies are needed in manifold areas of policies for this effort.