Happy 18th Birthday, Now Leave: The Hardships of Aging Out of Foster Care

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Abstract

Over 20,000 youth age out of foster care each year in the United States and face various hardships, such as homelessness, incarceration, low educational attainment, and unemployment. Recognizing these challenges, states have implemented programs that assist foster youth as they transition to adulthood. I use a difference-in-differences approach and exploit the staggered roll-out of one such program, extended foster care, between the years 2012 and 2016. In doing so, I provide some of the earliest nationwide evidence of the effects of this program on the transition to adulthood. Data come from the National Youth in Transition Database, a longitudinal survey that collects information from foster youth at ages 17, 19, and 21, and are linked to the Adoption and Foster Care Analysis and Reporting System, which contains information about individuals' foster care history. I find evidence that extended foster care reduces hardships, like homelessness, incarceration, and disconnectedness, and increases educational attainment. I also find that extended foster care primarily helps youth who were living with a foster family prior to turning 18 (as opposed to in a group home) and appears to mitigate the hardships of experiencing homelessness and substance abuse as a child. Back-of-the-envelope calculations suggest that extended foster care yields a 2:1 return on investment.

JEL Codes: I38, J13

Keywords: foster youth, extended foster care, transition to adulthood

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"Eighteen is too young for many youth and young adults to be without financial, social, and emotional support. [Many youth are not] suddenly expected to be fully independent and entirely self-reliant the day [they] turn eighteen."

– Isabel Soto (Former foster youth and Confidential Assistant in the Office of Career, Technical, and Adult Education at the U.S. Department of Education)[1]

1. Introduction

Transitioning to adulthood can be daunting, especially for foster youth who lose access to housing, social, and financial support rather abruptly (Collins, 2001; Osgood et al., 2010). Over 20,000 youth age out of foster care in the United States each year and face various hardships as they transition to adulthood. By the age of 21, 23 percent will have experienced homelessness, 26 percent will have been incarcerated, and only 66 percent will have received a high school diploma or GED (AECF, 2019). Moreover, less than 8 percent will receive a college degree, and 50 percent will still be unemployed by the age of 24 (National Foster Youth Institute, 2017). On one hand, these hardships might stem from the accumulation of adverse childhood experiences, such as neglect and abuse (Gypen et al., 2017). Alternatively, these hardships might stem from losing access to resources at a developmentally young age (Rosenberg & Abbot, 2019). This paper focuses on the latter and evaluates the impact of prolonged access to resources on the transition to adulthood for foster youth.

Recognizing the challenges foster youth face while transitioning to adulthood and the subsequent costs to society, the federal Fostering Connections Act of 2008 incentivized states to extend foster care support and services beyond 18 years old. As a result, between January 2012 and December 2016, 22 states implemented extended foster care (i.e. prolonged access to housing, social, and financial support), potentially impacting over 31,500 youth each year.[2] Extended foster care is associated with increased college enrollment and employment and decreased pregnancy and homelessness at age 19; however, these benefits fade by age 21 (Courtney et al., 2007; Dworsky & Courtney, 2010a; Dworsky & Courtney, 2010b; Hook & Courtney, 2010).

In this paper, I use a difference-in-differences design that exploits the staggered roll-out of extended foster care to estimate the causal effect of this program on the transition to adulthood for foster youth across the country. In particular, I examine the effect of extended foster care on young

[1] https://sites.ed.gov/octae/2016/02/04/21-23-or-26-rethinking-eligibility-for-youth-who-have-aged-out-of-foster-care/

[2] Author's calculation based on the number of 17-year-old foster youth (from AFCARS 2011 & 2014) in the 22 states that implemented extended foster care and the 20 states that had extended foster care prior to 2012.

adult outcomes, such as homelessness, incarceration, educational attainment, and employment. I also examine heterogeneity by funding source,[3] foster care placement setting, and individual childhood experiences to learn who benefits the most.

I enrich the existing evidence on the effectiveness of extended foster care by providing some of the earliest nationwide causal estimates. Prior studies compare outcomes of foster youth across a handful of states without controlling for individual or state characteristics (Courtney et al., 2007; Dworsky & Courtney, 2010a; Dworsky & Courtney, 2010b; Hook & Courtney, 2010). Alternatively, I link novel individual-level survey data to rich case-level administrative data for two cohorts of foster youth across the country. The survey data come from the National Youth in Transition Database (NYTD), which contains demographic information and outcome measures for foster youth between the ages of 17 and 21. Cohort 1 was surveyed biennially from 2011 to 2015 and cohort 2 was surveyed biennially from 2014 to 2018. The administrative data come from the Adoption and Foster Care Analysis and Reporting System (AFCARS), which contains detailed information about a youth's foster care history. I also construct a state-level panel of economic conditions, safety net generosity, and extended foster care policy changes. Combining these data, I compare outcomes of youth across cohorts within the same state under different extended foster care policies, controlling for individual, cohort, and state characteristics. To establish causality, I argue that the timing of these policy changes is exogenous with respect to individual outcomes after controlling for cohort and state trends.

I find evidence that access to extended foster care reduces homelessness by 18 to 30 percent, incarceration by 36 to 46 percent, and disconnectedness (neither enrolled in school nor working)[4] by 7 to 30 percent. Additionally, youth with access to extended foster care appear to be making a tradeoff between educational attainment and employment. They are 21 percent more likely to be enrolled in school, but 15 percent less likely to be working. Furthermore, extended foster care primarily helps youth that lived with a foster family prior to turning 18 (as opposed to living in a group home) and appears to mitigate the hardships of experiencing homelessness and substance abuse as a minor. However, extended foster care does not overcome the lasting consequences of juvenile incarceration. Lastly, federally-funded extended foster care has stronger effects than state-

[3] Some states finance extended foster care with federal reimbursements and others use state funding.
[4] Some people may refer to this as "idle" or "NEET" (neither in employment nor education or training), but throughout the paper I use "disconnected." "Disconnected" is commonly used in public policy.

funded extended foster care. This confirms the hypothesis that the federal program is more effective than the state programs. Understanding how the current program impacts foster youth differentially based on placement setting, experiences, and funding enables better targeting of future resources.

More broadly, this study makes an important contribution to the transition to adulthood literature. While there is abundant research demonstrating that the transition to adulthood has become increasingly difficult over the past several decades (Danziger & Rouse, 2008; Settersten & Ray, 2010; Sironi & Furstenberg, 2012; Benson, 2014) and more so for vulnerable populations (Rapheal, 2008; Osgood et al., 2010), there is less focus on policy intervention and evaluation (Bloom, 2010; Lee & Morgan, 2017). I demonstrate that extended foster care provides resources and incentives that beneficially alter a youth's transition to adulthood, potentially creating long-run gains. Back-of-the-envelope calculations suggest that for every one dollar spent on extended foster care, there is at least a two-dollar return. This study provides enriched evidence on the efficacy of a federal program that impacts some of the nation's most vulnerable youth and their transition to adulthood.

2. Causal Effects of Foster Care

Foster youth are more likely to drop out of high school, face unemployment and lower incomes, experience homelessness, commit crime, and suffer from substance abuse compared to their non-foster youth peers (Gypen et al., 2017). Moreover, foster youth face various hardships growing up, such as abuse and neglect, mobility and school instability, and enrollment in lower performing schools (Barrat & Berliner, 2013). There is abundant research that shows a negative association between foster care placement and long-run outcomes,[5] but it is unclear how much adverse childhood experiences contribute to foster care placement and poor outcomes. This uncertainty confounds the causal effect of foster care.

Estimating the causal effects of foster care faces many statistical challenges due to the non-random assignment of youth to foster care and lack of an appropriate control group. To deal with these challenges, the economic literature on child welfare often exploits the semi-random assignment of caseworkers when administrative data are available (Doyle, 2007; Doyle, 2008; Aizer & Doyle, 2015; Bald et al., 2019; Gross, 2019). The main assumption underlying this

[5] See Gypen et al. (2017) for a summary of 32 studies from 2004 to 2015.

approach is that youth in these cases experience the same hardships and the only difference is foster care placement, which is quasi-randomly determined via caseworker assignment.

Using caseworker assignment, the causal evidence on the effectiveness of foster care is mixed. Doyle (2007) finds that foster care in Illinois has adverse effects on child development, as measured by teen pregnancy, delinquency, and adult labor market outcomes. In contrast, Gross (2019) finds improved attendance and math test scores for children removed from allegedly abusive homes in Michigan. Bald et al. (2019) find differential effects for young boys and girls in Rhode Island; young girls benefit, but there is no effect for young boys. This approach identifies the local average treatment effect in cases where children are on the margin of being admitted to state custody. A key limitation of these studies is that they are unable to address the effects of foster care for older youth who have been in care for multiple years.

This paper contributes to the strand of literature that focuses on estimating the impact of extended foster care; a program for foster youth that provides financial, social, and housing support beyond 18 years old. Existing research estimates the effect of extended foster care on the transition to adulthood by comparing outcomes of youth across states at a single point in time. One study finds that extended foster care is associated with delayed homelessness (Dworsky & Courtney, 2010a). At 19 years old, only 4.5 percent of youth with extended foster care had experienced homelessness versus 12.2 percent of youth without extended foster care. However, by 23 and 24 years old, 28.9 percent of youth with extended foster care experienced homelessness versus 29.9 percent of youth without. Another study finds that extended foster care is associated with an increase in college enrollment and completion of an additional year of school, but it is not associated with an increase in college graduation (Dworsky & Courtney, 2010b). Lastly, Hook & Courtney (2010) find that extended foster care is associated with increased employment from 19 to 21 years old, but not from 21 to 23 years old. These studies use data from the Midwest Survey, a longitudinal survey that followed youth from 17/18 years old to 26 years old in Iowa, Wisconsin, and Illinois in the early 2000s. In these studies, the researchers compare the outcomes of youth in Illinois to those in Wisconsin and Iowa because Illinois provided extended foster care services and assistance to emancipated youth, whereas Wisconsin and Iowa did not. These cross-sectional analyses do not control for state-level characteristics, so they potentially suffer from omitted variable bias and may be misattributing beneficial outcomes to extended foster care.

A recent national-level analysis conducted by Child Trends finds that extended foster care is associated with better access to services that aid in the transition to adulthood and better adult outcomes, like employment and educational attainment (Rosenberg & Abbott, 2019). This study uses logistic regression models comparing youth in extended foster care to youth not in extended foster care. This analysis may suffer from selection bias since youth in states with extended foster care can choose whether or not to participate. Depending on the reasons youth choose to participate in extended foster care, these results may either overestimate or underestimate the true effect of extended foster care.

Finally, a recent study using California administrative and survey data from 2006 to 2015 finds that extended foster care increases college enrollment by 10 to 11 percent, extends employment by one-and-half months for each additional year in extended foster care, and reduces homelessness by 28 percent for young adults (Courtney et al., 2018). The researchers address omitted variable bias by focusing their analysis on one state, rather than making cross-state comparisons. Additionally, they overcome selection bias by exploiting county-level variation in the uptake of extended foster care. They instrument participation with county of residence and argue that county of residence is a good instrument because participation in extended foster care varies across counties and is unrelated to youths' characteristics that may be associated with selection into extended care. The key concern of this study is the extent in which the results are generalizable to the rest of the country.

My analysis enriches the existing evidence of the effectiveness of extended foster care in three ways. First, I control for time-varying state characteristics, such as safety net generosity and unemployment and poverty rates and include state fixed effects to control for time-invariant state characteristics to reduce omitted variable bias. Second, I mitigate selection bias that comes from youth choosing to participate in extended foster care by estimating the intent-to-treat effect of the program. Lastly, I use a national dataset to obtain more generalizable estimates compared to prior research.

3. Background on Independent Living Programs and Extended Foster Care

A primary goal of foster care is to safely reunify children with their biological parents. When reunification is not possible, the next best option is adoption. Adoption subsidies targeted to families help children achieve permanency (Hansen & Hansen, 2006; Argys & Duncan, 2013), but

subsidies targeted to states for older youth are less effective (Brehm, 2018). In these cases, youth remain in care until emancipation.

Over 20,000 youth age out of foster care each year and are abruptly forced to become self-sufficient overnight. Since foster youth typically lack supportive parental figures, they have to learn many skills quickly and on their own, such as how to apply to college, take out loans, set up bank accounts and manage finances, write resumes and apply to jobs, and obtain health insurance. Alternatively, the average young adult can acquire these skills over various years and receive assistance from their parents (Swartz et al., 2011). In fact, 34 percent of youth aged 18 to 34 still lived at home with their parents in 2015 (Vespa, 2017), and during this time, they received approximately $48,000[6] in financial support.

Recognizing the challenges foster youth face while transitioning to adulthood, state and federal agencies have implemented various programs to assist this process. In 1986, the federal government began allocating funds to states for Independent Living Programs (ILPs) to help foster youth live independently and transition to adulthood. ILPs and services vary across and within states and are based on need and availability of funding. Transitioning from state custody to an ILP is not automatic; youth learn about these programs through their caseworker, foster parents, probation officer, ILP coordinator, or self-discovery.

In 1999, the John H. Chafee Foster Care Independence Program (CFCIP) was created to assist current and former foster youth achieve self-sufficiency. This program provides grant-based federal funds up to $140 million to states that submit plans outlining how they will assist foster youth transitioning to adulthood. This program provides education, employment, financial management, housing, and emotional and social support. CFCIP is targeted to 18 to 21 year olds after they have aged out of state custody or 16 to 18 year olds who are or have been in custody. In 2002, the CFCIP was expanded to include the Education Training Voucher Program (ETV) which allocated $5,000 per year to college-going eligible youth. Originally states could request up to $60 million in total each year, which would assist 12,000 youth. As of 2009, states can only request up to $45 million for ETVs each year. Youth can receive college financial assistance for up to five years or until their 23rd birthday.[7] Furthermore, under the CFCIP, the federal government increased accountability measures by requiring that states track their service uptake and outcomes for youth

[6] This is the inflation adjusted value (2015 USD) for the original estimate of $38,000 (Schoeni & Ross, 2004).
[7] FC2S. Education Training Vouchers.

served. As a result, some regions created foster care alumni surveys to follow up with their youth, but the national accountability system was not created until 2011. Due to a lack of data, it is difficult to measure the efficacy of these earlier programs.

More recently, the Fostering Connections Act of 2008 (FCA) incentivized states to implement extended foster care. In 2010, nine states implemented extended foster care under the FCA, in 2011, another four states were approved, and as of December 2016, 23 states operate under this federal policy. Additionally, from 2012 to 2016, 12 states enacted their own state-funded extended foster care programs. Figure 1 shows the geographic and timing variation of extended foster care in the United States from 2012 to 2016. In this figure, there are six different shades of gray used to identify the treatment and control states. No shading identifies states that had not implemented extended foster care as of 2016 (control 1), light shading identifies states that changed their policy between 2012 and 2016 (treatment), and dark shading identifies states that adopted policies prior to 2012 (control 2). Additionally, there is variation within the shading level to indicate the difference between federally-funded and state-funded extended foster care. There are 22 states that changed their extended foster care polices between the years 2012 and 2016.[8] Youth in these states across different cohorts live under different policies. I exploit this within state, cross cohort variation to estimate the effect of extended foster care on the transition to adulthood for foster youth.[9]

4. Hypothesized Effects of Extended Foster Care

Extended foster care is additional time as a non-minor dependent that helps foster youth between the ages 18 and 21 maintain a safety net of support while experiencing independence in a supervised environment. Youth in extended foster care may be living with foster families, in group homes, institutions, or supervised independent living settings, such as dorms, shared housing, and apartments. Regardless of their placement, youth in extended foster care meet with a caseworker monthly and receive specialized case management appropriate for their developmental

[8] Three states (California, Hawaii, and North Dakota) implemented federally-funded extended foster care. Seven states (Connecticut, Indiana, Maine, Michigan, Nebraska, Pennsylvania, and Wisconsin) switched from a state to federal policy. The remaining 12 states (Arizona, Colorado, Delaware, Florida, Georgia, Kansas, Kentucky, Missouri, Mississippi, Nevada, Utah, and Virginia) implemented state-funded extended foster care.

[9] Appendix A discusses the data collection process, details for policy changes, a table of the effective policy dates, and a summary table of characteristics for states within each treatment.

needs. In some states, foster care maintenance payments are paid directly to the youth.[10] In short, extended foster care provides youth with additional housing, social, and financial resources that should shift their budget constraint outward and ease the transition to adulthood.

To be eligible for these resources, youth must either be enrolled in school, or working at least part-time or participating in training programs to reduce employment barriers, or have a documented medical condition that prevents them from working or attending school. For youth without a documented medical condition, these eligibility requirements increase the marginal benefit of attending school or working, which then incentivizes behaviors that aid in the transition to adulthood.

Assuming optimal policy design, extended foster care should reduce hardships and smooth the transition to adulthood. As a direct effect, extended foster care should reduce homelessness. Reducing homelessness is important as it potentially has spillover effects on other outcomes of interest. For example, youth who experience homelessness between 19 and 21 years old are less likely to go to college or be employed (Kim & Rosenberg, 2017). Additionally, a former foster youth spoke about her experience transitioning to adulthood and said that she was aware of the importance of school and work, but without a safe place to live, she could not invest in these activities.[11] Stable housing may allow youth to better invest time and money in their own human capital accumulation and labor productivity.

Alternatively, to receive housing support, youth have to meet specific eligibility requirements. These eligibility requirements increase the marginal benefit of school and work; therefore, extended foster care indirectly impacts these outcomes. However, altering one's preferences over school and work may not be enough to induce these behaviors for those who are resource constrained. Foster youth often list "unable to pay for school" as the main reason for not going to college (Courtney et al., 2011). In addition to housing support, extended foster care provides educational aid, mentoring, career preparation, and employment skills training. Educational aid and employment skills training are correlated with connectedness (Rosenberg et al., 2020) and receiving educational aid is the strongest predictor of post-secondary education (Hunter, 2013).

[10] Foster care maintenance payments cover the cost of food, clothing, shelter, daily supervision, school supplies, etc. and average $1,600 per month across the country. As of February 2014, 12 states allowed for direct payment to the youth. (JCYOI, 2014, pg.23).

[11] Eprise Armstrong discussed her experiences in the panel, "Extending foster care to 21: implications to providers and impact on budgets" on May 12, 2011. The video can be found online.

The net effect of extended foster care on college enrollment[12] and employment should be positive (i.e. the effect on disconnectedness should be negative). Whether extended foster care has a larger impact on college enrollment or employment is an empirical question and depends on which supports are more beneficial. For example, if extended foster care provides financial stability for youth in college, then there may be a tradeoff between college enrollment and employment.

Lastly, extended foster care should decrease the incidence of incarceration. Incarceration is a result of inadequate resources and/or a low opportunity cost of going to jail. As foster youth age out of care, they may be at an increased risk of committing crime. For example, one-in-five foster youth aging out of care rely on illegal ways of making money (Vaughn et al., 2008). Once arrested, lacking financial resources needed to make bail or afford an attorney may increase the likelihood of incarceration. Extended foster care offers financial resources and social support that can reduce criminal behavior and incarceration. Additionally, as youth acquire more human capital, they make better decisions and have a higher opportunity cost of going to jail, so they are less likely to commit street crimes (Lochner, 2004). Similarly, employed youth have a higher opportunity cost of going to jail, so they should also be deterred from committing crime. Regardless of the youth's decision to continue in school or work, the incidence of incarceration should decrease. Extended foster care has the potential to directly and indirectly reduce incarceration.

Extended foster care should both directly and indirectly alter a youth's transition to adulthood, but by how much is the empirical question of interest. The transition to adulthood is a function of both past experiences and current resources (Benson, 2014). Once youth turn 18, past experiences are fixed, although they can differ across youth. Alternatively, governments have the ability to influence current resources through ILPs, CFCIP, and extended foster care, so resources are a function of where the youth lives. At age 17, assume all foster youth have housing, social capital (i.e. case worker and/or foster parents), and financial assistance (via foster care maintenance payments). At age 18, there are three main scenarios. One, youth living in states without extended foster care lose access to these resources.[13] Two, youth living in states with federally-funded extended foster care have continued access to all three resources until age 21. And three, youth

[12] I use the term "college enrollment" to refer to any post-secondary enrollment, so this term includes enrollment in community college, 4-year universities/colleges, and technical colleges.

[13] In some cases, youth can remain in their current placement setting until they graduate high school, so they might not lose access to these resources as abruptly. It is also possible that foster parents may let youth remain in care beyond 18 and maintain a relationship, but the foster care maintenance payments end at this age.

living in states with state-funded extended foster care may have access to all or some of these resources, but there is less accountability and scope.

Since the size of the effect of extended foster care relies on where youth live, there are potentially heterogeneous effects by funding source. Extended foster care is hypothesized to be more effective in states with federally-funded extended foster care than states with state-funded programs for two reasons. First, states with federally-funded extended foster care may have increased quality and quantity of resources compared to states with state-funded programs. Second, states with federally-funded extended foster care can plausibly support more youth (even if the youth do not meet eligibility requirements) than states with state-funded extended foster care (GAO, 2019).[14] For example, eligible youth can be funded with Title IV-E funds, which are reimbursed by the federal government, and non-eligible youth can be funded with state funds, which are not reimbursed. One limitation of this paper, is that the specific mechanism cannot be identified.

Finally, there may be heterogeneous effects by placement setting. Despite the general consensus that foster home placements provide higher quality care and better connections to supportive adults than group homes (Dozier et al., 2014; Lo et al., 2015), it is unclear whether youth who lived in foster homes prior to aging out will benefit more or less from extended foster care than youth who lived in group homes. Youth transitioning from a foster home to independence in states without extended foster care might lose access to supportive adults and quality care relative to youth transitioning from a group home to independence in these states. Alternatively, a foster family might maintain a relationship and continue caring for the youth aging out, in which case these youth would lose less than their peers transitioning from a group home. Overall, foster youth living in states with extended foster care should fare better than foster youth in other states without extended foster care and there may be heterogeneous effects by policy and placement setting.

5. Data

Data for this analysis come from three main sources; the National Youth in Transition Database (NYTD), the Adoption and Foster Care Analysis and Reporting System (AFCARS), and the University of Kentucky Center for Poverty Research (UKCPR) Poverty and Inequality National

[14] See footnote 40 from this GAO report for an example.

Welfare Dataset. NYTD is a national survey that collects demographic information and outcome measures for the universe of foster youth aging out of care, AFCARS is a national dataset that contains rich descriptive information about children in foster care, and the UKCPR Welfare Dataset contains state-level information about the economy and safety net programs in a given year. I link individuals from the two most recent NYTD cohorts to their AFCARS data and control for time-varying state characteristics with the welfare dataset. The first cohort was 17 in fiscal year (FY) 2011 and the second cohort was 17 in FY 2014.

NYTD is the first national survey to collect outcome measures for foster youth aging out of care.[15] States identify and survey all youth in foster care at age 17 and then follow up with these same youth at ages 19 and 21, regardless of their foster care status. Youth answer questions about their educational attainment, employment status, and incidence of homelessness and incarceration, among other outcomes.[16] NYTD also collects i) demographic information, such as date-of-birth, race, gender, and state, ii) report details, such as date-of-report and survey participation (or reason for not participating),[17] and iii) service use, such as foster care status, academic support, career preparation, budgeting, mentoring, health education, and financial assistance. In 2011 and 2014 nationwide, there were approximately 38,000 and 31,000 youth in foster care at age 17, respectively.[18] Just under 32,000 of these youth were eligible[19] to participate in the NYTD surveys. For the remainder of this section, I discuss the analysis sample, and later I discuss the differences between respondents across the different surveys and address potential non-response bias.

[15] National accountability of foster youth outcomes began in 2011 as a result of the 2008 accountability mandate proposed by the Administration for Children and Families. States are required to collect and report reliable responses every 6 months and are fined for noncompliance. States must report outcomes for at least 80% of youth in foster care and 60% discharged from care. These numbers were based on research on response rates and reviewing the Office of Management and Budget's guidance on surveys. States are fined up to 5% of their CFCIP funds if they do not comply and meet reporting requirements. For more specific details about NYTD data collection and reporting requirements, visit https://www.childwelfare.gov/cb/research-data-technology/reporting-systems/nytd/faq/.

[16] The college enrollment outcome is derived from the current enrollment and educational attainment questions. Youth that have graduated from high school and are enrolled in school are assumed to be enrolled in college. I use "college enrollment" loosely to include any post-educational program beyond high school such as 2-year, 4-year, and trade school enrollment.

[17] Reasons for not participating include declined, incarceration, incapacitation, death, not in sample, and missing or unable to locate.

[18] Author's estimate based on the number of 17-year-old foster youth in care at the start of the fiscal year (from AFCARS 2011 & AFCARS 2014 data).

[19] Survey eligibility is based on age, foster care status, and survey completion. Eligible youth must turn 17 during the fiscal year, be in foster care on the day of the survey, complete the survey within 45 days of their 17th birthday, and answer at least one survey question.

I restrict my analysis sample to youth who participated in the survey, had foster care history information from AFCARS, and do not have any missing outcome measures, resulting in 11,120 observations (or one-third of the eligible NYTD participants).[20] Table 1 provides summary statistics for the sample of NYTD participants.[21] Cohort 1 makes up 47 percent and cohort 2 makes up the remaining 53 percent of the analytical sample, 46 percent of the sample is young men, 54 percent is young women, and 42 percent of the sample is Non-Hispanic white, 30 percent is Non-Hispanic black, and 20 percent is Hispanic. Representative of the foster care population, black youth are disproportionately represented compared to the general population (30% versus 14%). More than half of the sample (58%) have been diagnosed with a disability at some point in their life. Of these youth that have been diagnosed with a disability, 80 percent were diagnosed with an emotional disorder such as ADHD, ADD, anxiety, an eating disorder, or a mood or personality disorder.

On average, this sample of foster youth entered care at 12 years old and have been in care for a cumulative total of about 4.5 years. The most common removal reasons are neglect (56%), child-related issues (32%), and abuse (27%). Most youth were first placed in a foster home (49%), group home (29%), or kinship care (16%). The last placement settings as a minor included foster homes (44%), group homes (29%), kinship care (12%), and other placements (16%), such as supervised independent living, trial home visit, and runaway.[22]

By 17 years old, 17 percent had experienced homelessness, 27 percent had been incarcerated, 23 percent had been referred for substance abuse, and 15 percent were employed. In contrast, the average adolescent has a 3 percent chance of experiencing homelessness (Bassuk et al., 2014) and a 0.15 percent chance of incarceration.[23] By 19 years old, 56 percent of NYTD respondents had graduated from high school or received their GED, 28 percent enrolled in college or some other post-secondary education program, 38 percent were employed, 20 percent had been homeless in the past two years, and 19 percent had been incarcerated in the past two years. Finally, only 40 percent were in foster care at age 19, despite 75 percent having access to extended foster care.

[20] About half (n=16,320) of the eligible youth were missing demographic information and foster care history from AFCARS. Another 1,983 youth declined to participate in the survey and another 2,630 youth were missing at least one of the outcome measures.
[21] Refer to Appendix Table 1 for summary statistics with the full list of controls and Appendix Table 2 for summary statistics by treatment.
[22] A "trial home visit" is when a youth returns home under state agency supervision before reunification is complete. "Runaway" is designated for youth who have run away from the foster care setting.
[23] Estimate comes from the Kids Count Data Center provided by the Annie E. Casey Foundation.

Fewer youth responded to NYTD at age 21, resulting in 8,416 observations. The respondents at 21 are similar to those at 19 based on demographic characteristics and foster care history. At 21 years old, 81 percent had graduated from high school, 27 percent were enrolled in college, and 56 percent were employed. Thirty-seven percent have experienced homelessness and 28 percent have been incarcerated by age 21. Only 20 percent were in foster care at age 21. This is unsurprising as many states with extended foster care end care at age 21.

6. Empirical Strategy

Participation in extended foster care is a function of youth eligibility and selection. Measuring participation is a function of data availability. Per the NYTD codebook, youth are reported as being in foster care if they are under the responsibility of a qualified agency in accordance with the federal definition of foster care.[24] In practice, foster care status should only be reported "yes" for eligible, participating youth in states with federally-funded extended foster care programs.[25] In the majority of states with federally-funded extended foster care, less than 50 percent of the youth in care are eligible for federal reimbursement (GAO, 2019). In other words, foster care status in NYTD should have been reported "no" for the majority of participants. This practice limits the ability to observe participation for ineligible youth and across all states. Moreover, states with extended foster care cannot mandate participation, so youth can leave at any time for any reason introducing selection bias. For these reasons, I focus on estimating the intent-to-treat effect of extended foster care and leave the treatment-on-treated effect for future research.

To determine the effect of extended foster care on the transition to adulthood, I use a difference-in-differences approach and estimate a two-way fixed effects linear probability model with the following equation:

$$Prob(y_{iasc} = 1) = \beta_0 + \beta_1 FedEFC_{iasc} + \beta_2 StEFC_{iasc} + \boldsymbol{X_{iasc}\beta} + \boldsymbol{S_{sc}\beta} + \gamma_s + \gamma_c \quad (1)$$

Where y is the outcome for individual i of age a in state s and cohort c. *FedEFC* is a binary indicator equaling one if federally-funded extended foster care was available in state s when individual i of age 19 in cohort c turned 18 years old and zero otherwise. *StEFC* is a binary indicator equaling

[24] See 45 CFR 1355.20 for the federal definition of foster care.

[25] According to personal correspondence with the Administration for Children and Families. Some states misunderstood this question giving insight into their state policy. For example, Georgia and Kentucky reported that 20 to 30 percent of youth from the FY2011 and FY2014 NYTD cohorts were in foster care beyond 18 years old, despite not having a federally-funded extended foster care program during this period.

one if state-funded extended foster care was available in state s when individual i of age 19 in cohort c turned 18 years old and zero otherwise. These extended foster care indicators are mutually exclusive, and they are derived using the effective date of the policy and the youth's birthday. **X** is a vector of youth demographic characteristics and other individual-level controls, such as race, gender, experiences prior to 17 years old, reason for entry into foster care, length of stay, number of placements in foster care, and first placement setting, that are plausibly correlated with a foster youth's transition to adulthood. **S** is a vector of observable state-level time-varying controls such as the unemployment rate, poverty rate, and measures of safety net program generosity. I calculate the 3-year average for each of these controls to most effectively summarize the economic conditions for cohort c in state s as they may be correlated with implementation of extended foster care and a youth's transition to adulthood. State fixed effects are included to control for unobservable state time-invariant characteristics that may be correlated with youth outcomes, such as ILPs and the CFCIP. Finally, the cohort fixed effect can also be thought of as a year fixed effect since I am using cross-sectional data for two distinct cohorts.

The coefficients of interest, β_1 and β_2, estimate the intent-to-treat effect of having extended foster care at 18 years old for youth within a state, controlling for state and cohort/year effects and individual characteristics. β_1 estimates the impact of the federal policy and is identified off of three states. β_2 estimates the impact of state policies and is identified off of 11 states. The difference between β_1 and β_2 estimates the impact of changing from a state to federal policy, which happens in seven states.

The validity of this difference-in-differences approach relies on the assumptions that the timing of the policy changes is exogenous to unobservable time-varying cohort characteristics and that the policy is uncorrelated with survey participation.[26] Extended foster care legislation appears to take anywhere from two months to two years to pass, so the effective date of implementation in which my model is identified is arguably random, relative to cohort characteristics. Even if there are non-random differences in the timing of implementation, including the set of individual, state, and cohort controls should alleviate this concern.[27] I test this assumption by excluding different

[26] Recent discussion also emphasizes the difficulty in interpreting the difference-in-differences treatment effect for multiple groups with multiple time periods when the timing of the policy varies (Callaway & Sant'Anna, 2018; de Chaisemartin & D'Haultfoeuille, 2019; Goodman-Bacon, 2018). Although timing of the policy varies, since there are only two time periods in this analysis, this is less of a concern.

[27] Furthermore, in Appendix B, I demonstrate that it is difficult to predict which states implement extended foster care, at least based on economic factors and the foster care environment.

combinations of controls and find that the estimated effects can be attributed to the policy and are not confounded by other factors. These results are discussed in more detail later as well. Second, extended foster care appears to be correlated with survey participation. However, after addressing non-response, this correlation is not driving the results.[28]

To quantify the policy effect, I estimate equation 1 for outcomes at age 21. However, instead of *FedEFC* and *StEFC* being binary indicators equaling one or zero, I allow them to take discrete values between zero and four to count the number of years federally-funded and state-funded extended foster care has been available in state s for individual i in cohort c. This new variable takes into account both the youth's age when the policy was implemented, as well as the youth's age when they lose access to extended foster care services. For outcomes measured at age 21, exposure to extended foster care is more flexible and informative than the binary indicator.

To understand who benefits the most from the extended foster care program, I interact extended foster care policies with placement settings and experiences prior to 17 years old (separately). I estimate the following equations:

$$Prob(y_{iasc} = 1) = \delta_0 + \delta_1 FedEFC_{iasc} + \sum_p \delta_{1p}(FedEFC\ x\ p)_{iasc} + \delta_2 StEFC_{iasc} + \sum_p \delta_{2p}(StEFC\ x\ p)_{iasc} + \boldsymbol{X_{iasc}\delta} + \boldsymbol{S_{sc}\delta} + \gamma_s + \gamma_c \qquad (2)$$

$$Prob(y_{iasc} = 1) = \delta_0 + \delta_1 FedEFC_{iasc} + \sum_e \delta_{1e}(FedEFC\ x\ e)_{iasc} + \delta_2 StEFC_{iasc} + \sum_e \delta_{2e}(StEFC\ x\ e)_{iasc} + \boldsymbol{X_{iasc}\delta} + \boldsymbol{S_{sc}\delta} + \gamma_s + \gamma_c \qquad (3)$$

Where most of the variables are the same as above, and the summation terms are shorthand for the interaction effects.[29] In equation 2, p indexes the last placement settings as a child. The three placement settings considered are foster homes, kinship care, and group homes. δ_{1p} estimates the effect of federally-funded extended foster care for youth in placement setting p, and δ_{2p} estimates the effect of state-funded extended foster care for youth in placement setting p. In this specification, the **X** vector also controls for placement setting p independently of the interaction term because the quality of care received as a child is plausibly correlated with participation in extended foster care and outcomes as a young adult.

[28] See section 9 for a detailed discussion of non-response and techniques employed to address non-response bias.

[29] For example, $\sum_p \delta_{1p}(FedEFC\ x\ p)_{iasc} = \delta_{1fh}(FedEFC\ x\ fh)_{iasc} + \delta_{1kc}(FedEFC\ x\ kc)_{iasc} + \delta_{1gh}(FedEFC\ x\ gh)_{iasc}$ where fh indicates foster home, kc indicates kinship care, and gh indicates group home.

In equation 3, e indexes experiences prior to 17 years old. The three experiences considered are incarceration, homelessness, and substance abuse referral. δ_{1e} and δ_{2e} estimate the effect of federally-funded and state-funded extended foster care, respectively, for youth with experiences e. Like in equation 1, the **X** vector also controls for experiences prior to 17 years old.

7. Results

I estimate equation 1 separately for outcomes at ages 19 and 21 to determine the impact of extended foster care on the transition to adulthood for foster youth across the country. Then, I estimate equations 2 and 3 for outcomes at age 19 to understand who primarily benefits from this program in the short-run. In all analyses, standard errors are clustered at the state level.[30]

7.1. Extended foster care smooths the transition to adulthood

Table 2 reports results from the intent-to-treat analysis and shows that extended foster care reduces hardships, like homelessness, incarceration, and disconnectedness, and increases educational attainment and employment in the short-run. The effects are often larger and more precisely estimated for the federal policy relative to the state policies, confirming the notion that the federal policy is more effective.[31] For this reason, I focus most of the discussion on the federal policy here on out. Finally, impacts persist for all outcomes at age 21, except employment. Overall, this implies that youth continue to benefit through the three years the policy ought to be impacting them.

On average, the probability of experiencing homelessness between the ages 17 and 19 decreases by 22 percent for youth living in states with federally-funded extended foster care compared to youth living in states without extended foster care. All else equal, an additional year exposed to federally-funded extended foster care decreases the probability of ever experiencing homelessness as an adult by almost 6 percent. Similarly, the likelihood of being incarcerated between the ages 17 and 19 is reduced by 26 percent for youth living in states with federally-funded extended foster care compared to youth living in states without extended foster care. An additional year exposed to federally-funded extended foster care reduces incarceration by 12

[30] Cameron & Miller (2015) and Conley and Taber (2011) caution that models may be inconsistent when there are few treated groups. To alleviate this concern, I also calculated standard errors using clustered bootstrap estimation. Results do not change and are available upon request.

[31] The federal policy also appears to yield more homogenous effects. I estimate two additional models, one that omits the state policy, and another that combines the federal and state policy, to demonstrate this point. In these models, for outcomes at age 19, the effect of the federal policy is often less precisely estimated. Results are in Appendix Table 3.

percent, ceteris parabis. The existence of federally-funded extended foster care when youth turn 18 years old decreases disconnectedness age at 19 by 16 percent relative to no policy. For each additional year with federally-funded extended foster care, disconnectedness is reduced by almost 10 percent.

In most states, federally-funded extended foster care prolongs access to social, housing, and financial support for three years, from age 18 to 21, so it is more policy-relevant to discuss the impact of full exposure, as opposed to marginal effects. There are two ways to estimate the full impact of the policy: assume linear effects and scale the marginal effect by three or directly estimate the 3-year effect.[32] These approaches imply that federally-funded extended foster care reduces homelessness by 18 to 30 percent, incarceration by 36 to 46 percent, and disconnectedness by 7 to 30 percent.

Consistent with the reduction in disconnectedness, extended foster care appears to help youth complete high school and enroll in college, at the expense of employment. Approximately three in ten foster youth are enrolled in high school at 19 years old, and they are 19 percent more likely to be enrolled in high school in states with federally-funded extended foster care. Each additional year with federally-funded extended foster care increases the probability of graduating high school by age 21 by 2 percent. The policy effect on high school graduation ranges from an increase of 4 to 6 percent. There is no statistically significant effect of having extended foster care available at age 18 on college enrollment for 19-year-olds, but the sign suggests increased enrollment, conditional on high school graduation or a GED. With each additional year exposed to federally-funded extended foster care, results in Table 2 suggest the probability of college enrollment increases by 21 percent. However, results in Appendix Table 4 suggest the marginal effect is driven by the first year and so the full policy effect is less clear. Finally, for 19-year-olds, employment is 14 to 23 percent higher in states with extended foster care compared to those without. Alternatively, at age 21, the effects on employment decrease by 5 percent with each additional year exposed to federally-funded extended foster care, or by 15 percent with full exposure to the policy.

I further investigate whether the availability of extended foster care influences decision-making by estimating the effect of having extended foster care at age 17. In all states, youth can remain in care until 18 years old regardless of a state's extended foster care policy. Therefore,

[32] Results from these exercises are provided in Appendix Table 4.

there should be no difference between having extended foster care at age 17 or 18, unless youth use this information to plan for the future. Results from this exercise are presented in Appendix Table 5. I find evidence that youth may rely on extended foster care policies to experiment living on their own. For example, youth are equally likely to experience homelessness and/or incarceration between the ages of 17 and 19, regardless of extended foster care availability at age 17. This suggests that youth in states with extended foster care may try to live on their own and experience these hardships before deciding to return to care, whereas youth in states without extended foster care may experience these hardships as a result of aging out at 18.

7.2. Who benefits the most from extended foster care?

Federally-funded extended foster care primarily benefits youth that were living in foster homes prior to turning 18 years old and potentially mitigates some hardships experienced as a foster child. The last placement setting prior to turning 18 for many youth is a foster home (44%), kinship care (12%), or a group home (29%). About one in five NYTD participants experienced homelessness and substance abuse during their childhood. Tables 3 and 4 report results from the specifications that interact extended foster care with placement settings (equation 2) and adverse childhood experiences (equation 3).

Youth that lived in foster homes prior to aging out in states with extended foster care are less likely to experience homelessness between the ages of 17 and 19 and more likely to be employed at 19 years old. Extended foster care also increases high school enrollment among youth in group homes and kindship care.

On average, youth living in states with federally-funded extended foster care that experienced homelessness as a child are less likely to be disconnected at age 19 compared to similar youth living in states without extended foster care. Similarly, youth living in states with federally-funded extended foster care referred for substance abuse are also less likely to be disconnected at 19 years old. Furthermore, these youth are more likely to be enrolled in college or employed at 19. Interestingly, extended foster care does not mitigate the hardships of experiencing juvenile incarceration, but instead exaggerates this hardship. One explanation might be that these "trouble-makers" are stigmatized and now have more eyes watching them.

8. Additional Analyses

This section discusses alternative specifications, sensitivity analyses, and their implications. In its entirety, this section demonstrates that the results presented in the previous section are robust

to changes in models, controls, and samples, with the exception of omitting state fixed effects. Foster care environments vary considerably across states, so it is important to control for unobservable time-invariant differences. In addition, the need to address non-response becomes apparent through these sensitivity analyses.

8.1. Alternative Specifications

I consider alternative approaches and models to show that my equation is correctly identified and specified. These results are provided in Appendix Table 6.

First, I employ a triple differences approach which exploits individuals' birthdays from the same cohort and state as the source of variation. The validity of this approach relies on the assumption that states did not choose effective policy dates based on an individual's birthday. Overall, the triple differences estimates are slightly smaller or similar in magnitude relative to the estimates from the main specification, and less precise. One reason for slightly smaller estimates might be that youth within the same cohort and state, that differ in age by a few months, may have similar experiences transitioning to adulthood, attenuating the effects to zero. They may have already made plans to age out before the policy went into effect or the policy may take time to be effective. Alternatively, loss of precision may come from lack of statistical power. This approach has cleaner identification but less statistical power, and so the estimates suffer from imprecision.

I also consider alternative specifications by estimating equation 1 using probit and logit models. These models assume different functional forms for the explanatory variables and error term, but usually yield similar results to a linear probability model (Angrist & Pischke, 2009; Hellevik, 2009; Wooldridge, 2010). As expected, the results from these models are comparable to my main specification.

8.2. Sensitivity Analyses

This section discusses the findings from various sensitivity analyses. I alter the set of control variables, states, and observations to test the robustness of the results. Overall, results are robust, but the need to address non-response becomes apparent.

8.2.1. Changing the set of control variables

I consider alternative analyses by estimating equation 1 excluding foster care history, experiences at age 17, and state-level controls. Results are reported in Appendix Table 7. Foster care history is correlated with outcomes as an adult regardless of the policy. Excluding these controls (column 3) and obtaining similar results demonstrates that the estimated effects are in

response to the policy and not confounded by one's experiences in foster care. I exclude experiences at age 17 (column 4) and obtain similar results, which verifies that states did not implement extended foster care based on observable cohort-specific experiences.[33] If policy implementation was correlated with cohort-specific experiences, then removing these controls would have resulted in larger estimates.

Finally, excluding state controls for safety net generosity and economic conditions (column 5) yields slightly smaller estimates at age 19 and slightly larger estimates at age 21, although neither set of results are statistically different from the main results. This observation implies that state controls have more explanatory power over time and are more important to control for to properly isolate the effect of the policy. I also estimate equation 1 excluding state fixed effects (column 6). The validity of cross state comparisons relies on the assumptions that the timing of the policy is random across states and that states have similar foster care environments. This exercise yields statistically insignificant results, suggesting that states have considerably different foster care climates and other unobservable time-invariant characteristics that need to be accounted for when trying to identify the impact of the extended foster care policy.

8.2.2. Changing the set of states

Next, I change the set of states in the analysis to determine if any are driving the results. Results are reported in Appendix Table 8. First, I restrict the sample to the 22 states that changed their extended foster care policy between 2012 and 2016 (column 2). This analysis excludes the always-taker and never-taker states. Overall, the estimated effects in this sample are similar in magnitude, but less precise compared to the main analysis that includes all 51 states (column 1). This is expected and reassuring since the identification in both models comes from within state changes. Including the non-switcher states adds to the overall model fit and precision, but does not affect the point estimates on extended foster care.

Second, I exclude the seven states that went from state to federal extended foster care policies (column 3). Even though the main results are not statistically different from the estimates in this exercise, there are a few notable differences worth highlighting. First, these seven states appear to be dampening the effect of federal extended foster care on homelessness, high school enrollment, and college enrollment at age 19. Alternatively, they seem to be driving the effect on employment

[33] Additionally, excluding cohort fixed effects (column 7), which controls for unobservable cohort-specific trends, yields statistically similar results.

and incarceration at age 19. To explain this phenomena, recall that the main specification for outcomes at age 19 only estimates the effect of a specific extended foster care policy at 18. In the seven states that switch from state to federal policies, some youth are living under two different policies. For example, youth in cohort 1 in Connecticut had state extended foster care at 18, and then federal extended foster care starting at 19. In Michigan and Maine, federal extended foster care was implemented less than a year after state extended foster care.

As a third check, I omit the 19 states with state-funded extended foster care to obtain a cleaner effect of federally-funded extended foster care. In this exercise, I have two control groups and one treatment group. One control group is the set of states with no policy. The other control group is the set of states that adopted federally-funded extended foster care prior to 2012 (always-takers). The treatment group consists of the states that adopted federally-funded extended foster care between 2012 and 2016. The results from this exercise show the effect of implementing federally-funded extended foster care without being complicated by the state policy. Overall, results are larger for most outcomes, suggesting that the main results are relatively modest. Two outcomes worth noting are incarceration and employment at age 19. In this exercise, they are smaller suggesting that the effect of the federal policy may be overstated for these two outcomes in the short-run. However, by age 21 the effect size from this exercise is similar to the main results, so whatever differences exist at age 19 do not persist to age 21.

Finally, I repeatedly estimate equation 1 omitting one state at a time. Appendix Figures 1-2 plot the effect size and the 95 percent confidence interval for the coefficient on federally-funded extended foster care for each regression omitting a state. Each graph displays a different outcome. These results suggest that California drives some of the precision of the results. About 22 percent of the NYTD respondents live in California. The next largest states represented are Michigan (4.6%), Texas (4.5%), and Florida (4%).

8.2.3. Changing the sample size

As a final robustness check, I consider different analysis samples by letting the sample size vary by outcome measure and restricting the sample to youth that participated in the survey at both 19 and 21 years old. These variations provide more insight into non-response and results are presented in Appendix Table 9.

The first exercise, letting the sample vary by outcome measure (column 2), shows that the impact of extended foster care is similar whether it comes from youth who just answer a specific

question or all questions. This exercise alleviates any concern that the construction of my sample may have introduced additional biases.

The second exercise, comparing the estimates in the unrestricted sample to the restricted sample (columns 1 and 3) indicates that some of the impact of extended foster care is plausibly coming from changes in respondents between survey years. At age 19, the estimated effects are slightly larger in the restricted sample compared to the unrestricted sample, but at age 21 the opposite is true. Appendix Table 10 shows that survey drop-outs and returners, meaning they participated in two out of the three surveys, appear to be similar along most characteristics, aside from childhood experiences such as homelessness and incarceration. Survey returners are more likely to have experienced these hardships. In order to observe these patterns, it must be that survey returners benefit more from extended foster care than survey drop-outs.

9. Addressing Non-response

Non-response is a major concern with these data, as indicated from the number of observations dropped when constructing the analytical sample and changes in sample size from year-to-year. The source of non-response can be systematic or selective. One source of systematic non-response comes from the survey design.[34] About one-fourth of the youth are excluded because they were not randomly selected to participate in the follow up surveys at 19 and 21 in their state. As long as states randomized correctly, this non-response is not a threat to the validity of estimated effects. Another source of systematic non-response comes from youth losing eligibility to participate in the survey as a result of incarceration, incapacitation, or death. This information is available so I can assume certain outcomes, like disconnectedness and incarceration, in these cases. Additionally, less than 2 percent of non-response is coming from these cases, so I do not perceive this source of non-response as a threat to my estimated effects. Alternatively, selective non-response comes from eligible youth choosing not to participate in the survey and may bias my results.

Non-response bias arises when the survey respondents are systematically different from the non-respondents leading to results that are not representative of the target population. The summary statistics discussed earlier indicate that NYTD participants have had different experiences with the foster care system than the average foster youth. For example, NYTD

[34] Some states opted to follow a random sample of their Cohort for follow up surveys at ages 19 and 21. There were 12 "samples states" in FY2011 and 15 in FY2014.

participants on average were 12 years old when they entered foster care and averaged about 1.5 placements per year.[35] The average foster child enters care at 7 years old and experiences 3 placements per year (ACF, 2017; Casey Family Programs). Appendix Table 10 further suggests that NYTD participation is positively selected. Participants in all three surveys are less likely to have been removed for child-related issues and more likely to have been employed at 17 versus non-respondents. Survey drop-outs and survey returners are also better off than non-respondents. In general, the more surveys a youth responded to, the better off they appear, providing suggestive evidence for positive selection.

Positive selection could overestimate or underestimate the effect of extended foster care, depending on how response rates vary by treatment. For example, if treated states have higher response rates and respondents are positively selected, then my analysis might overestimate the effect of extended foster care. I find that extended foster care is negatively correlated with non-response (i.e. youth with extended foster care are more likely to respond) and then address this concern. First, I predict the likelihood of non-response using equation (1) where the dependent variable is an indicator equaling one if the youth participated in the survey and zero otherwise. The results of this exercise are presented in Appendix Table 11. Youth seem to be more likely to participate in NYTD at age 19 if they had extended foster care at age 18. Each additional year exposed to extended foster care also increases the likelihood of participating at 21. Failing to correct for non-response, may overstate the beneficial effects of extended foster care.

I address non-response bias two ways. First, I estimate equation 1 using inverse survey participation weights at the state and individual level. This approach gives states and individuals with higher response rates less weight in the analysis since I am concerned with overstating the effect of extended foster care. Second, I estimate equation 1 using imputed outcomes and control for missing observations. I use mean and regression imputation techniques. Mean imputation assigns missing outcomes the average value of the non-missing observations. This technique preserves the overall mean and increases sample size. Regression imputation assigns missing outcomes a predicted value to preserve the relationship between covariates. In practice, I estimate equation 1 omitting the extended foster care variables, and then use the predicted values to impute the missing outcomes. I omit the extended foster care variables because I do not want to preserve

[35] The number 1.5 placements per year comes from dividing the average number of placements (7) by the average length of stay (4.5).

the relationship between the outcomes and extended foster care, since I suspect this relationship is biasing my results.

Table 5 shows that overall none of the estimates from these techniques are statistically different from the main results and gives a range of potential effect sizes. Additionally, for most outcomes, the main effects are in the middle of the range of effect sizes. Using this range of estimates, one may conclude that exposure to extended foster care decreases homelessness by 18 to 35 percent, incarceration by 36 to 67 percent, and disconnectedness by 20 to 30. Even after correcting for non-response, extended foster care still appears to provide beneficial effects.

10. Cost-benefit Analysis

Funding extended foster care programs is a worthy investment. It is estimated that only 2% of the national child welfare expenditures (approximately $582 million)[36] are spent on services and assistance for foster youth aged 17 to 21 years old. These services potentially provide both private and public returns, making this relatively small investment considerably more valuable. Cost-benefit analyses in California and Washington suggest that a dollar spent on extended foster care yields a return of $2 to $5 (National Conference of State Legislatures, 2019; Burley & Lee, 2010; Courtney et al., 2009), and the Annie E. Casey Foundation estimates that approximately $4.1 billion could be saved if foster youth graduated high school and experienced homelessness, incarceration, and early parenthood at similar rates to their non-foster youth peers (Future Savings, 2019). Extended foster care provides a potential way to ensure that foster youth have more similar experiences to their non-foster youth peers as they transition to adulthood.

I find that a dollar spent on extended foster care maintenance payments yielded a return of $2 to $4 for the NYTD participants in the FY2011 and FY2014 cohorts.[37] I estimate the cost of extended foster care for the sample of NYTD participants at age 21 using their age of exit from care and monthly maintenance payments obtained from the AFCARS data. I calculate the total cost for a youth in extended foster by multiplying the length of time beyond age 18 that they have been in care by the monthly maintenance payments. The median age of exit is 18 to 18.6 years, with a range from 18 to 22. Based on this sample, the average amount spent on extended foster

[36] Child Trends estimated that in FY2014, 2% of the $29.1 billion national child welfare expenditures was spent on services and support for older youth currently or previously in foster care. For more information, see https://www.childtrends.org/wp-content/uploads/2017/09/Transition-Age-Youth_United-States.pdf and Rosinsky & Connelly (2016).

[37] Table 6 provides a breakdown of these estimates and calculations.

care maintenance payments is $8,659 per youth in states with a federal policy, $3,469 with a state policy, and $3,413 with no policy. In total, $51.6 million was spent on extended foster care maintenance payments across the country.

I use the conservative estimates from this paper's main results to avoid overstating the benefits of extended foster care. I compare the actual incidence of homelessness, incarceration, and high school graduation for the NYTD participants at age 21 to the counterfactual outcome of having no policy. All else equal, if no states implemented extended foster care during 2012 to 2016, then 362 more youth might have experienced homelessness, 361 more youth might have been incarcerated, and 169 fewer youth might have graduated high school by age 21. To determine the monetary value of reducing these hardships and calculate the benefits of extended foster care, I use the costs of homelessness, incarceration, and not graduating high school from the 2019 Annie E. Casey Foundation Future Savings report.[38] Specific to the NYTD FY2011 and FY2014 cohorts, extended foster care reduced costs to society by $88.4 million to $190 million, depending on the cost of incarceration.

The benefits may be even larger since this calculation does not include the long-term benefits of reducing homelessness and incarceration at a young age.[39] Additionally, this analysis does not monetize the benefits of being employed at age 19 or being enrolled in college at age 21, nor does it account for nonpecuniary returns. The benefits of extended foster care outweigh the costs and indicate that this program is a worthy investment, with at least a $2 return on investment.

11. Conclusion

To date, much of the existing research shows beneficial associations, not causal evidence, between extended foster care and the transition to adulthood by comparing outcomes of youth across a handful of states. Citing this research, states continue to adopt extended foster care polices. For example, between January 2017 and July 2019, seven states were approved to implement federally-funded extended foster care, and currently another two are pending approval.[40] With

[38] The cost of homelessness is a conservative estimate that only takes into consideration the cost of a providing a bed, and not the cost of other services that shelters may provide. The cost of incarceration is based on the cost of a one-day detention placement, costs to society, and recidivism. Finally, the cost of not graduating high school is based on lifetime gross income and societal tax loss.

[39] Reducing youth homelessness and incarceration may prevent future episodes and other costly outcomes (Barnert et al., 2017; U.S. Department of Health and Human Services, 2017; McLaughlin et al., 2016; Hodgson et al., 2013).

[40] The seven states recently approved include Colorado, Florida, Georgia, New Mexico, North Carolina, Ohio, and Rhode Island. Louisiana and Nevada are pending approval.

increased uptake of extended foster care, it is important to demonstrate that this program is beneficial and cost-effective.

I estimate the intent-to-treat effect of extended foster care on the transition to adulthood and enrich the existing research by comparing youth within a state under different policy regimes nationwide. The intent-to-treat effect is advantageous over the treatment-on-treated effect because it is more policy relevant and is not biased by selection into treatment. I use a combination of relatively new individual-level survey data, rich administrative case-level data, and state-level data to reduce omitted variable and selection bias. I also provide estimates from a variety of different model specifications, showing that the results are invariant to specification changes, except in cases where we expect to observe differences.[41] Additionally, I have established that NYTD participants are positively selected. Failure to correct for non-response may lead to biased estimates depending on how the response rate is correlated with the treatment. After employing methods to mitigate non-response bias, I still conclude that extended foster care benefits foster youth as they transition to adulthood.

Extended foster care reduces homelessness, incarceration, and disconnectedness in the short run. Compared to *access* to Homebase Centers, extended foster care is twice as effective in reducing homelessness (Goodman et al., 2016), but relative to *receiving* emergency rent and Homebase services, extended foster care is only about half as effective (Evans et al., 2016; Rolston et al., 2013). Extended foster care is more effective in reducing incarceration among foster youth than each of the top five policy reforms in states across the country (Schrantz et al., 2018). Finally, reductions in disconnectedness mean that youth are more likely to be working and/or attending school. This result is reassuring as many states require school and/or work requirements for extended foster care participation. Although, this study does not measure participation, it would be concerning if an outcome related to eligibility was not improved by the existence of extended foster care.

Extended foster care also increases educational attainment through increased high school/GED completion and college enrollment. It is well known that the pecuniary and nonpecuniary returns to education are large for both individuals and society, even without degree completion.[42]

[41] For example, results are sensitive to excluding state fixed effects, so assuming states have similar foster care environments and other time-invariant characteristics to make comparisons across states is problematic.

[42] See Angrist & Krueger (1991), Ashenfelter & Krueger (1994), Oreopoulos & Salvanes (2011) and Oreopoulos & Petronijevic (2013) and Shapiro et al., (2014) for more information about the returns to education.

Interestingly, youth appear to be making a tradeoff between college enrollment and employment. Extended foster care availability at age 18 initially increases employment, however over time, youth are less likely to work. This finding taken together with college enrollment and disconnectedness, indicates that extended foster care may provide youth with enough resources so that they can attend school without the additional burden of working.

Importantly, extended foster care appears to mitigate the consequences of common hardships that foster youth experience as minors, such as substance abuse and homelessness. Mitigating these hardships might have beneficial long-run effects that should be considered as states design and enact programs in the future.

All of these beneficial effects are primarily driven by the federal program. This finding suggests that the federal program is more effective than the state programs, which may result from greater reach and increased quality and quantity of resources.[43] Implementing federally-funded extended foster care is a tangible way for states to assist foster youth through their transition to adulthood.

There are two limitations of this study and recommendations for future research. First, the specific mechanism (i.e. housing, social, or financial support) is ignored. Extended foster care programs vary by state, and this analysis estimates the effect of the bundle of services and supports. Exploratory research reveals that most of the effect may be driven by the housing and social support. Interviewed foster youth often acknowledge that the program has helped them by providing housing and mentors to develop life skills.[44] The availability of these supports is also consistent with the finding that extended foster care mitigates childhood hardships such as homelessness and substance abuse. Future research will focus on specific programs in states proving to be successful to better understand the most beneficial and cost-effective services.[45] Second, due to data limitations, this analysis is unable to estimate take-up rates and the treatment-on-treated effect. Without administrative records and correspondence with individual state agencies, extended foster care participation is not accurately identified. Future research will focus on overcoming this challenge, so that we can learn more about extended foster care participants.

[43] Pinning down how much each of these mechanisms drive the results is left for future research.
[44] See this AJC article for an example.
[45] Some extended foster care programs to investigate include California's AB12 and Nebraska's Bridge to Independence. Existing research shows both of these programs are effective (Courtney et al., 2018; Sepulveda et al., 2019). Nebraska's program offers medical care, housing assistance, and case management.

This analysis provides emerging causal evidence of the beneficial impacts of extended foster care nationwide and provides many directions for future research.

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Tables and Figures

Figure 1 – States that extended foster care between 2012 and 2016

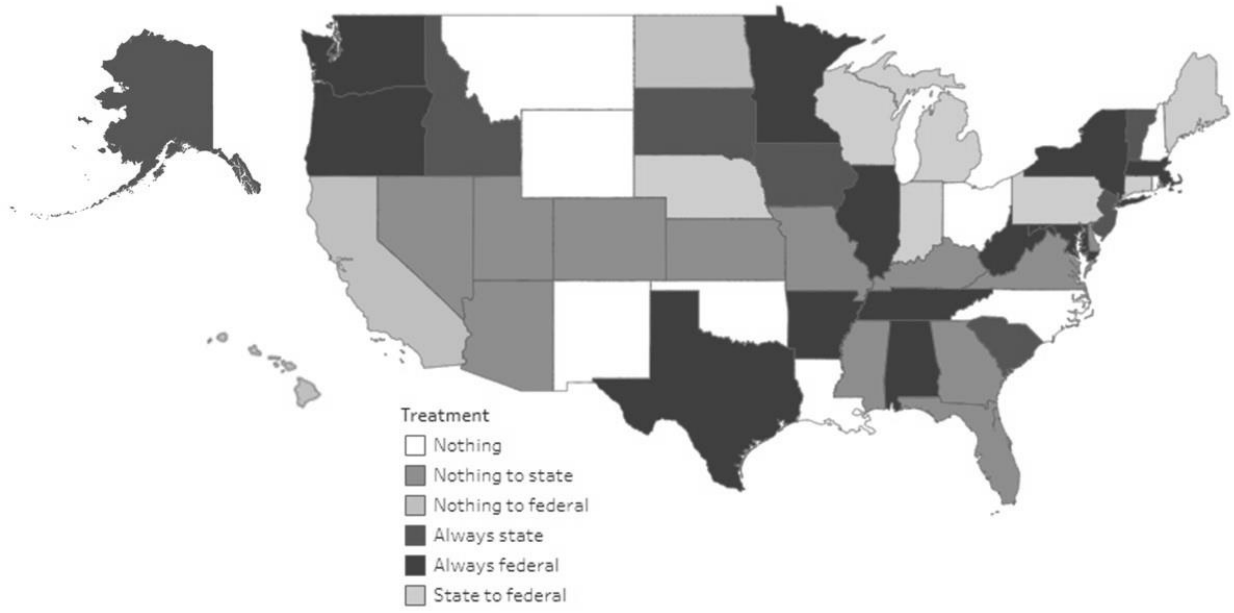


Figure 1 shows the geographic and timing variation of extended foster care in the United States from 2012 to 2016. In this figure, there are six different shades of gray used to identify the treatment and control states. No shading identifies states that had not implemented extended foster care as of 2016 (control 1), light shading identifies states that changed their policy between 2012 and 2016 (treatment), and dark shading identifies states that adopted policies prior to 2012 (control 2). There is variation within the shading level to indicate the difference between federally-funded and state-funded extended foster care. There are 22 states that changed their extended foster care polices between the years 2012 and 2016. Three states (California, Hawaii, and North Dakota) implemented federally-funded extended foster care. Seven states (Connecticut, Indiana, Maine, Michigan, Nebraska, Pennsylvania, and Wisconsin) switched from a state to federal policy. The remaining 12 states (Arizona, Colorado, Delaware, Florida, Georgia, Kansas, Kentucky, Missouri, Mississippi, Nevada, Utah, and Virginia) implemented state-funded extended foster care. Youth in these states across different cohorts live under different policies. Appendix A discusses the data collection process, details for policy changes, a table of the effective policy dates, and a summary table of characteristics for states within each treatment.

Table 1 – Summary statistics for NYTD participants

		For 19 Year Olds (N=11,120)		For 21 Year Olds (N=8,416)	
	Variable	Mean	Std. Dev.	Mean	Std. Dev.
Extended Foster Care Policy	Federal EFC at 18	0.51	0.50	0.51	0.50
	State EFC at 18	0.24	0.43	0.23	0.42
NYTD Cohort	Cohort 1 (17 in FY2011)	0.47		0.46	
	Cohort 2 (17 in FY2014)	0.53	0.50	0.54	0.50
Demographic Characteristics	Female	0.54	0.50	0.57	0.50
	Non-Hispanic White	0.42	0.49	0.41	0.49
	Non-Hispanic Black	0.30	0.46	0.30	0.46
	Non-Hispanic Other	0.08	0.27	0.08	0.28
	Hispanic	0.20	0.40	0.21	0.40
	Ever diagnosed with a disability	0.58	0.49	0.58	0.49
Experiences at 17	Ever been homeless	0.17	0.38	0.17	0.38
	Employed at 17	0.15	0.36	0.15	0.36
	Ever been incarcerated	0.27	0.44	0.26	0.44
	Ever been referred for substance abuse	0.23	0.42	0.22	0.41
Foster Care History	Total removals from home as a child	1.39	0.66	1.39	0.67
	Total placements as a child	7.16	7.15	7.13	6.98
	Cumulative length of stay in foster care as a child (in years)	4.43	3.65	4.44	3.64
	Age at first removal	11.72	4.76	11.72	4.72
	Age at last removal	17.28	1.98	17.27	1.99
First Placement	Kinship Care	0.16	0.37	0.16	0.37
	Foster home	0.49	0.50	0.50	0.50
	Group home	0.29	0.45	0.28	0.45
	Other	0.06	0.23	0.06	0.24
Ever removed for… These do not add up to 100% because a child may be removed for multiple reasons.	Abuse	0.27	0.45	0.27	0.45
	Neglect	0.56	0.50	0.56	0.50
	Parental Incarceration	0.06	0.24	0.06	0.24
	Parental Substance Abuse	0.19	0.39	0.19	0.39
	Inadequate Housing	0.10	0.30	0.10	0.30
	Child-related issue	0.32	0.47	0.31	0.46
Outcomes	Homelessness	0.20	0.40	0.37	0.48
	Enrolled in high school	0.29	0.45	0.06	0.24
	Finished high school/GED	0.56	0.50	0.81	0.40
	Enrolled in college/post-secondary education	0.28	0.45	0.27	0.44
	Employed	0.38	0.49	0.56	0.50
	Incarceration	0.19	0.39	0.28	0.45
	Foster Care	0.40	0.49	0.21	0.41

The sample is restricted to foster youth who completed the NYTD survey at 19 and/or 21 years old and are not missing demographic information, foster care history, nor outcomes. Less than one percent of the observations are missing the indicator for high school graduation at age 19. The summary statistics do not vary much when restricting the sample to the youth that are not missing this variable and so I report the results of the larger sample. The similarity in demographic characteristics and foster care history across ages 19 and 21 indicates similar youth responded to the survey in both years.

Table 2 – Main regression results for youth that completed the NYTD survey at 19 and/or 21

	Outcomes at 19 Years Old (N=11,120)					
	Ever been Homeless in Past Two Years	Ever been Incarcerated in Past Two Years	Disconnected	High School Enrollment	College Enrollment	Employment
Federal EFC at 18	-0.048*	-0.053*	-0.043**	0.052*	0.010	0.083***
	(0.025)	(0.029)	(0.020)	(0.029)	(0.038)	(0.028)
State EFC at 18	-0.015	-0.021	0.017	-0.005	-0.041	0.051***
	(0.021)	(0.016)	(0.015)	(0.022)	(0.025)	(0.018)
Mean of Control Group (No EFC at 18)	0.218	0.201	0.264	0.274	0.493	0.366
Adjusted R-Squared	0.088	0.197	0.049	0.041	0.083	0.045
	Outcomes at 21 Years Old (N=8,416)					
	Ever been Homeless in Adult Life	Ever been Incarcerated in Adult Life	Disconnected	High School Graduation	College Enrollment	Employment
Years exposed to Federal EFC	-0.026*	-0.035***	-0.031**	0.014**	0.045**	-0.028***
	(0.014)	(0.007)	(0.013)	(0.006)	(0.019)	(0.010)
Years exposed to State EFC	-0.030***	-0.019**	-0.019	-0.012	0.014	0.009
	(0.010)	(0.008)	(0.012)	(0.009)	(0.013)	(0.012)
Mean of Control Group (No Policy Ever)	0.444	0.295	0.321	0.798	0.214	0.561
Adjusted R-Squared	0.139	0.234	0.062	0.069	0.143	0.066

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. All regressions control for demographic characteristics, foster care history, experiences at 17 years old, state controls, and include cohort and state fixed effects. EFC stands for extended foster care. The college enrollment outcome at 19 years old is conditioned on high school graduation/GED and consists of 6,155 observations.

Table 3 – Interaction between extended foster care policy and last placement setting as a child

	Outcomes at 19 Years Old					
	Homelessness	Incarceration	Disconnected	High School Enrollment	College Enrollment	Employment
Fed EFC at 18 x Last placement as a child: foster home (N=2,425)	-0.059**	-0.040	-0.033	0.002	0.012	0.049*
	(0.026)	(0.025)	(0.031)	(0.031)	(0.047)	(0.027)
Fed EFC at 18 x Last placement as a child: group home (N=1,567)	-0.045	-0.038	-0.007	0.062*	0.020	0.008
	(0.028)	(0.027)	(0.031)	(0.032)	(0.040)	(0.025)
Fed EFC at 18 x Last placement as a child: kinship care (N=802)	-0.019	-0.022	-0.070*	0.056*	-0.003	0.116**
	(0.029)	(0.023)	(0.036)	(0.029)	(0.064)	(0.045)
Observations	11,064	11,064	11,064	11,041	6,125	11,064
Adjusted R-squared	0.091	0.207	0.052	0.043	0.084	0.047

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. The number of observations in the interaction term is noted. All regressions control for demographic characteristics, foster care history (including last placement setting), experiences at 17 years old, state controls, and include cohort and state fixed effects. The abbreviation EFC is shorthand for extended foster care. The coefficients on the interaction between the placement setting and state EFC are statistically insignificant for all outcomes and so they are not reported in this table.

Table 4 – Interaction between extended foster care policy and experiences at 17 years old

	Outcomes at 19 Years Old					
	Homelessness	Incarceration	Disconnected	High School Enrollment	College Enrollment	Employment
Fed EFC at 18 x has been incarcerated (N=1,326)	0.047**	0.029	0.086***	-0.023	-0.077*	-0.033
	(0.020)	(0.027)	(0.020)	(0.025)	(0.046)	(0.023)
Fed EFC at 18 x has been homeless (N=894)	-0.044	-0.015	-0.062**	0.021	0.008	0.013
	(0.030)	(0.031)	(0.026)	(0.024)	(0.051)	(0.029)
Fed EFC at 18 x has been referred for substance abuse (N=1,222)	0.010	0.018	-0.055*	0.017	0.073**	0.053**
	(0.028)	(0.022)	(0.032)	(0.025)	(0.035)	(0.026)
Observations	11,120	11,120	11,120	11,097	6,155	11,120
Adjusted R-squared	0.089	0.197	0.051	0.040	0.083	0.046

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. The number of observations in the interaction term is noted. All regressions control for state-funded extended foster care, demographic characteristics, foster care history, experiences at 17 years old, state controls, and include cohort and state fixed effects. The abbreviation EFC is shorthand for extended foster care.

Table 5 – Results from techniques that address non-response

	Outcomes at 19 Years Old				
	(1)	(2)	(3)	(4)	(5)
	Main Results	Inversely Weighted by State Survey Participation Rate	Inversely Weighted by Individual Response Rate	Mean Imputed	Regression Imputed
			Outcome: Homelessness		
Fed EFC at 18	-0.048*	-0.043	-0.046**	-0.034*	-0.030*
	(0.025)	(0.029)	(0.022)	(0.018)	(0.018)
Observations	11,120	11,120	11,120	15,733	15,733
Adjusted R-squared	0.088	0.088	0.087	0.062	0.124
			Outcome: Incarceration		
Fed EFC at 18	-0.053*	-0.059*	-0.046	-0.038**	-0.038*
	(0.029)	(0.029)	(0.028)	(0.016)	(0.022)
Observations	11,120	11,120	11,120	15,733	15,733
Adjusted R-squared	0.197	0.197	0.193	0.155	0.281
			Outcome: Disconnected		
Fed EFC at 18	-0.043**	-0.046**	-0.047***	-0.037**	-0.047***
	(0.020)	(0.021)	(0.016)	(0.014)	(0.015)
Observations	11,120	11,120	11,120	15,733	15,733
Adjusted R-squared	0.049	0.049	0.046	0.035	0.070
			Outcome: High School Enrollment		
Fed EFC at 18	0.052*	0.049	0.054*	0.038**	0.035
	(0.029)	(0.030)	(0.032)	(0.018)	(0.022)
Observations	11,097	11,097	11,097	15,733	15,733
Adjusted R-squared	0.040	0.041	0.039	0.029	0.063
			Outcome: College Enrollment		
Fed EFC at 18	0.010	0.014	0.012	0.011	0.016
	(0.038)	(0.039)	(0.036)	(0.037)	(0.037)
Observations	6,155	6,155	6,155	6,657	6,657
Adjusted R-squared	0.083	0.084	0.081	0.080	0.089
			Outcome: Employment		
Fed EFC at 18	0.083***	0.093***	0.070***	0.050**	0.069**
	(0.028)	(0.033)	(0.023)	(0.021)	(0.027)
Observations	11,120	11,120	11,120	15,733	15,733
Adjusted R-squared	0.045	0.046	0.047	0.036	0.065

	Outcomes at 21 Years Old				
	(1)	(2)	(3)	(4)	(5)
	Main Results	Inversely Weighted by State Survey Participation Rate	Inversely Weighted by Individual Response Rate	Mean Imputed	Regression Imputed
Outcome: Homelessness					
Years with Fed EFC	-0.026*	-0.029*	-0.023	-0.052***	-0.055***
	(0.014)	(0.015)	(0.014)	(0.007)	(0.009)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.139	0.140	0.133	0.099	0.214
Outcome: Incarceration					
Years with Fed EFC	-0.035***	-0.039***	-0.036***	-0.066***	-0.058***
	(0.007)	(0.008)	(0.006)	(0.017)	(0.007)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.234	0.238	0.231	0.206	0.388
Outcome: Disconnected					
Years with Fed EFC	-0.031**	-0.029**	-0.033**	-0.021*	-0.017
	(0.013)	(0.013)	(0.012)	(0.011)	(0.013)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.062	0.062	0.059	0.041	0.088
Outcome: High School Graduation					
Years with Fed EFC	0.014**	0.014**	0.013**	0.047***	0.049***
	(0.006)	(0.006)	(0.006)	(0.014)	(0.017)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.069	0.069	0.067	0.077	0.100
Outcome: College Enrollment					
Years with Fed EFC	0.045**	0.043**	0.045**	0.036*	0.035**
	(0.019)	(0.018)	(0.018)	(0.018)	(0.015)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.143	0.142	0.152	0.091	0.148
Outcome: Employment					
Years with Fed EFC	-0.028***	-0.025**	-0.026**	-0.007	-0.012
	(0.010)	(0.010)	(0.011)	(0.007)	(0.011)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.066	0.067	0.060	0.056	0.100

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. All regressions control for demographic characteristics, foster care history, experiences at 17 years old, state controls, and include cohort and state fixed effects, unless otherwise noted. The abbreviation EFC is shorthand for extended foster care. The first column reports the main results again for easy reference, the second and third columns report estimates weighted by response rate at the state and individual level, respectively. The fourth and fifth columns report results from imputation methods. These regressions also control for missingness.

Table 6 – Cost-benefit analysis

	No EFC	State EFC	Federal EFC
Number of youth	2121	1961	4334
Median age at exit	18.0	18.0	18.6
Average of total foster care maintenance payments received as an adult	$3,413	$3,469	$8,659
Total amount spent on foster care maintenance payments: **$51.6 million**			
Number of youth ever homeless if had similar transition as non-foster youth peers: 337			
Number of youth ever homeless	887	787	1411
Counterfactual if no policy	887	932	1628
Difference in counterfactual versus actual	0	145	217
Cost of being homeless for 7 days per youth: $252			
Cost avoidance: **$91,177**			
Number of youth ever incarcerated if had similar transition as non-foster youth peers: 5			
Number of youth ever incarcerated	654	615	1080
Counterfactual if no policy	654	690	1366
Difference in counterfactual versus actual	0	75	286
Cost of being incarcerated per youth: $52,080 to $334,230			
Cost avoidance: **$18.8 million** to **$120 million**			
Number of youth that graduated high school by age 21 if had similar transition as non-foster youth peers: 7490			
Number of youth that graduated high school by age 21	1742	1568	3560
Counterfactual if no policy	1742	1529	3430
Difference in actual versus counterfactual	0	39	130
Cost of not graduating per youth: $410,659			
Cost avoidance: **$69.5 million**			
Benefit-cost ratio: $1.71/$1 to $3.69/$1			

The first panel presents the cost of extended foster care using the foster care maintenance payment amounts reported in AFCARS, and panels two through four present the amount of money saved using the costs of homelessness, incarceration, and not graduating high school from the Future Savings report produced by the Annie E. Casey Foundation. All counts of youth are specific to the two NYTD cohorts (FY 2011 and FY 2014), the counterfactual numbers if foster youth had similar experiences as their non-foster youth peers comes from probability estimates from the Annie E. Casey Foundation Future Savings Report, and the counterfactual counts of no extended foster care policy is based on the main results of this paper.

Appendix Tables and Figures

Appendix Table 1 – Summary statistics for NYTD participants (full set of controls)

		For 19 Year Olds (N=11,120)		For 21 Year Olds (N=8,416)	
	Variable	Mean	Std. Dev.	Mean	Std. Dev.
Extended Foster Care Policy	Federal EFC at 18	0.51	0.50	0.51	0.50
	State EFC at 18	0.24	0.43	0.23	0.42
	Average Number of Years with Federal EFC			1.92	1.74
	Average Number of Years with State EFC			0.86	1.35
NYTD Cohort	Cohort 1 (17 in FY2011)	0.47		0.46	
	Cohort 2 (17 in FY2014)	0.53	0.50	0.54	0.50
Demographic Characteristics	Female	0.54	0.50	0.57	0.50
	Non-Hispanic White	0.42	0.49	0.41	0.49
	Non-Hispanic Black	0.30	0.46	0.30	0.46
	Non-Hispanic Other	0.08	0.27	0.08	0.28
	Hispanic	0.20	0.40	0.21	0.40
	Ever diagnosed with a disability	0.58	0.49	0.58	0.49
Experiences at 17	Ever been homeless	0.17	0.38	0.17	0.38
	Employed at 17	0.15	0.36	0.15	0.36
	Ever been incarcerated	0.27	0.44	0.26	0.44
	Ever been referred for substance abuse	0.23	0.42	0.22	0.41
Foster Care History	Total removals from home as a child	1.39	0.66	1.39	0.67
	Total placements as a child	7.16	7.15	7.13	6.98
	Cumulative length of stay in foster care as a child (in years)	4.43	3.65	4.44	3.64
	Age at first removal	11.72	4.76	11.72	4.72
	Age at last removal	17.28	1.98	17.27	1.99
First Placement	Kinship Care	0.16	0.37	0.16	0.37
	Foster home	0.49	0.50	0.50	0.50
	Group home	0.29	0.45	0.28	0.45
	Other	0.06	0.23	0.06	0.24
Ever removed for… These do not add up to 100% because a child may be removed for multiple reasons.	Abuse	0.27	0.45	0.27	0.45
	Neglect	0.56	0.50	0.56	0.50
	Parental Incarceration	0.06	0.24	0.06	0.24
	Parental Substance Abuse	0.19	0.39	0.19	0.39
	Inadequate Housing	0.10	0.30	0.10	0.30
	Child-related issue	0.32	0.47	0.31	0.46
Last Placement Setting under 18	Kinship Care	0.12	0.32	0.12	0.33
	Foster home	0.44	0.50	0.45	0.50

	Variable	For 19 Year Olds (N=11,120) Mean	Std. Dev.	For 21 Year Olds (N=8,416) Mean	Std. Dev.
	Group home	0.29	0.45	0.28	0.45
	Other	0.16		0.15	
State Controls (3-Year Average)	Unemployment Rate	6.69	1.86	5.22	1.31
	Poverty Rate	13.98	2.65	12.99	2.69
	Income per Capita (in 2016 USD)	$48,115	$7,509	$50,146	$8,065
	Gross State Product (in millions of 2016 USD)	$855,344	$904,501	$939,415	$986,356
	TANF Recipients (per 1,000 people)	15.50	13.55	13.61	12.49
	Child-only TANF Recipients (per 1,000 children)	10.82	7.56	9.53	6.35
	Monthly TANF Benefit for 3-person family	$500	$197	$500	$200
	SNAP Recipients (per 1,000 people)	137.04	33.17	130.63	31.88
	Monthly SNAP Benefit for 1-person household	$202	$11	$194	$9
	Medicaid Beneficiaries (per 1,000 people)	202.28	54.09	218.15	64.18
Outcomes	Supervised Independent Living	0.23	0.42	0.24	0.42
	Foster Care	0.40	0.49	0.21	0.41
	Uses ILP Services	0.86	0.35	0.78	0.42
	Homelessness	0.20	0.40	0.37	0.48
	Enrolled in high school	0.29	0.45	0.06	0.24
	Finished high school/GED	0.56	0.50	0.81	0.40
	Enrolled in college/post-secondary education	0.28	0.45	0.27	0.44
	Employed	0.38	0.49	0.56	0.50
	Disconnected	0.25	0.43	0.30	0.46
	Incarceration	0.19	0.39	0.28	0.45

The sample is restricted to foster youth who completed the NYTD survey at 19 and/or 21 years old and are not missing demographic information, foster care history, nor outcomes. Less than one percent of the observations are missing the indicator for high school graduation at age 19. The summary statistics do not vary much when restricting the sample to the youth that are not missing this variable and so I report the results of the larger sample. The similarity in demographic characteristics and foster care history across ages 19 and 21 indicates similar youth responded to the survey in both years. This table includes the three-year average state-level controls, in addition to those already presented in Table 1.

Appendix Table 2 – Summary statistics for NYTD participants by treatment

		No EFC (N=2,804)		State EFC (N=2,670)		Federal EFC (N=5,646)	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
NYTD Cohort	Cohort 1 (17 in FY2011)	0.73		0.42		0.36	
	Cohort 2 (17 in FY2014)	0.27	0.44	0.58	0.49	0.64	0.48
Demographic Characteristics	Female	0.53	0.50	0.54	0.50	0.55	0.50
	Non-Hispanic White	0.52	0.50	0.50	0.50	0.34	0.47
	Non-Hispanic Black	0.27	0.44	0.33	0.47	0.30	0.46
	Non-Hispanic Other	0.08	0.28	0.08	0.27	0.08	0.27
	Hispanic	0.13	0.33	0.10	0.29	0.28	0.45
	Ever diagnosed with a disability	0.52	0.50	0.45	0.50	0.66	0.47
Experiences at 17	Ever been homeless	0.19	0.39	0.17	0.38	0.16	0.37
	Employed at 17	0.15	0.36	0.17	0.37	0.14	0.35
	Ever been incarcerated	0.31	0.46	0.30	0.46	0.23	0.42
	Ever been referred for substance abuse	0.24	0.43	0.23	0.42	0.22	0.41
Foster Care History	Total removals from home as a child	1.35	0.63	1.40	0.67	1.40	0.67
	Total placements as a child	8.08	8.52	7.18	7.24	6.70	6.26
	Cumulative length of stay in foster care as a child (in years)	4.24	3.44	3.87	3.09	4.79	3.95
	Age at first removal	12.16	4.46	12.33	4.40	11.22	5.00
	Age at last removal	17.08	1.77	17.07	1.69	17.47	2.18
First Placement	Kinship Care	0.15	0.36	0.12	0.33	0.19	0.39
	Foster home	0.51	0.50	0.48	0.50	0.49	0.50
	Group home	0.29	0.45	0.34	0.48	0.26	0.44
	Other	0.05	0.21	0.06	0.23	0.06	0.24
Ever removed for… These do not add up to 100% because a child may be removed for multiple reasons.	Abuse	0.26	0.44	0.29	0.45	0.27	0.44
	Neglect	0.53	0.50	0.51	0.50	0.59	0.49
	Parental Incarceration	0.08	0.27	0.07	0.26	0.04	0.20
	Parental Substance Abuse	0.20	0.40	0.22	0.41	0.17	0.37
	Inadequate Housing	0.12	0.32	0.11	0.32	0.08	0.28

		No EFC (N=2,804)		State EFC (N=2,670)		Federal EFC (N=5,646)	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Child-related issue	0.35	0.48	0.41	0.49	0.27	0.45
Last Placement Setting under 18	Kinship Care	0.10	0.30	0.09	0.29	0.14	0.35
	Foster home	0.45	0.50	0.43	0.50	0.43	0.50
	Group home	0.28	0.45	0.31	0.46	0.28	0.45
	Other	0.17		0.17		0.15	
State Controls (3-Year Average)	Unemployment Rate	7.03	1.86	6.26	1.82	6.73	1.83
	Poverty Rate	14.36	2.89	13.61	2.94	13.96	2.34
	Income per Capita (in 2016 USD)	$43,924	$4,619	$45,768	$7,659	$51,306	$7,156
	Gross State Product (in millions of 2016 USD)	$394,817	$453,910	$309,506	$224,578	$1,342,184	$1,000,992
	TANF Recipients (per 1,000 people)	9.51	7.17	7.78	3.51	22.13	15.51
	Child-only TANF Recipients (per 1,000 children)	8.42	5.86	7.03	3.55	13.80	8.42
	Monthly TANF Benefit for 3-person family	$404	$136	$404	$152	$594	$197
	SNAP Recipients (per 1,000 people)	143.85	34.57	141.24	35.84	131.68	30.11
	Monthly SNAP Benefit for 1-person household	$206	$11	$202	$10	$200	$11
	Medicaid Beneficiaries (per 1,000 people)	174.19	53.16	178.89	39.78	227.28	48.32
Outcomes	Supervised Independent Living	0.13	0.34	0.13	0.33	0.32	0.47
	Foster Care	0.19	0.39	0.15	0.36	0.61	0.49
	Uses ILP Services	0.85	0.36	0.86	0.35	0.86	0.35
	Homelessness	0.22	0.41	0.21	0.41	0.18	0.38
	Enrolled in high school	0.27	0.45	0.29	0.46	0.29	0.46
	Finished high school/GED	0.57	0.50	0.51	0.50	0.57	0.49
	Enrolled in college	0.28	0.45	0.24	0.43	0.30	0.46
	Employed	0.37	0.48	0.41	0.49	0.38	0.48

	No EFC (N=2,804)		State EFC (N=2,670)		Federal EFC (N=5,646)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Disconnected	0.26	0.44	0.27	0.44	0.24	0.43
Incarceration	0.20	0.40	0.20	0.40	0.17	0.38

This table reports the summary statistics by treatment status for youth in the 19-year-old analytical sample.

Appendix Table 3 – Differences in controlling for and omitting the state policy

	Outcomes at 19 Years Old		
	(1)	(2)	(3)
	Main Results	Omit State Policy	Combine State and Federal Policy
	Outcome: Homelessness		
Fed EFC at 18	-0.048*	-0.037	
	(0.025)	(0.026)	
State EFC at 18	-0.015		
	(0.021)		
Any EFC at 18			-0.021
			(0.022)
Observations	11,120	11,120	11,120
Adjusted R-squared	0.088	0.088	0.088
	Outcome: Incarceration		
Fed EFC at 18	-0.053*	-0.039*	
	(0.029)	(0.023)	
State EFC at 18	-0.021		
	(0.016)		
Any EFC at 18			-0.027*
			(0.013)
Observations	11,120	11,120	11,120
Adjusted R-squared	0.197	0.196	0.196
	Outcome: Disconnected		
Fed EFC at 18	-0.043**	-0.055***	
	(0.020)	(0.014)	
State EFC at 18	0.017		
	(0.015)		
Any EFC at 18			0.006
			(0.020)
Observations	11,120	11,120	11,120
Adjusted R-squared	0.049	0.049	0.048
	Outcome: High School Enrollment		
Fed EFC at 18	0.052*	0.056**	
	(0.029)	(0.021)	
State EFC at 18	-0.005		
	(0.022)		
Any EFC at 18			0.004
			(0.028)
Observations	11,097	11,097	11,097
Adjusted R-squared	0.041	0.041	0.040
	Outcome: College Enrollment		
Fed EFC at 18	0.010	0.035	
	(0.038)	(0.039)	
State EFC at 18	-0.041		
	(0.025)		

Any EFC at 18			-0.029
			(0.026)
Observations	6,155	6,155	6,155
Adjusted R-squared	0.083	0.082	0.083
	Outcome: Employment		
Fed EFC at 18	0.083***	0.047**	
	(0.028)	(0.019)	
State EFC at 18	0.051***		
	(0.018)		
Any EFC at 18			0.056***
			(0.016)
Observations	11,120	11,120	11,120
Adjusted R-squared	0.045	0.045	0.045
	Outcomes at 21 Years Old		
	(1)	(2)	(3)
	Main Results	Omit State Policy	Combine State and Federal Policy
	Outcome: Homelessness		
Years with Fed EFC	-0.026*	-0.021*	
	(0.014)	(0.012)	
Years with State EFC	-0.030***		
	(0.010)		
Years with Any EFC			-0.030***
			(0.010)
Observations	8,416	8,416	8,416
Adjusted R-squared	0.139	0.138	0.139
	Outcome: Incarceration		
Years with Fed EFC	-0.035***	-0.031***	
	(0.007)	(0.006)	
Years with State EFC	-0.019**		
	(0.008)		
Years with Any EFC			-0.029***
			(0.006)
Observations	8,416	8,416	8,416
Adjusted R-squared	0.234	0.234	0.234
	Outcome: Disconnected		
Years with Fed EFC	-0.031**	-0.028*	
	(0.013)	(0.015)	
Years with State EFC	-0.019		
	(0.012)		
Years with Any EFC			-0.024**
			(0.009)
Observations	8,416	8,416	8,416
Adjusted R-squared	0.062	0.062	0.062
	Outcome: High School Graduation		
Years with Fed EFC	0.014**	0.016***	

	(0.006)	(0.006)	
Years with State EFC	-0.012		
	(0.009)		
Years with Any EFC			0.003
			(0.007)
Observations	8,416	8,416	8,416
Adjusted R-squared	0.069	0.069	0.068
	Outcome: College Enrollment		
Years with Fed EFC	0.045**	0.043**	
	(0.019)	(0.019)	
Years with State EFC	0.014		
	(0.013)		
Years with Any EFC			0.027*
			(0.016)
Observations	8,416	8,416	8,416
Adjusted R-squared	0.143	0.143	0.142
	Outcome: Employment		
Years with Fed EFC	-0.028***	-0.029***	
	(0.010)	(0.010)	
Years with State EFC	0.009		
	(0.012)		
Years with Any EFC			-0.007
			(0.011)
Observations	8,416	8,416	8,416
Adjusted R-squared	0.066	0.066	0.066

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. All regressions control for demographic characteristics, foster care history, experiences at 17 years old, state controls, and include cohort and state fixed effects. The abbreviation EFC is shorthand for extended foster care. "Fed" and "State" indicate how the program is funded. The first column reports the main results again for easy reference, the second column reports the results when the state EFC variable is omitted, and the third column reports the results when the federal and state policy are combined, effectively a state either has EFC or not.

Appendix Table 4 – Measuring the full policy potential

Outcomes at 21 Years Old					
(1)		(2)		(3)	
Effect of having EFC at Age 18		Marginal Effect of an Additional Year Exposed to EFC		Policy Effect of being Exposed to EFC	
Outcome: Homelessness					
Fed EFC at 18	-0.061**	Years exposed to Fed EFC	-0.026*	1 Year exposed to Fed EFC	-0.003
	(0.029)		(0.014)		(0.054)
State EFC at 18	-0.038	Years exposed to State EFC	-0.030***	2 Years exposed to Fed EFC	-0.087*
	(0.023)		(0.010)		(0.044)
				3 Years exposed to Fed EFC	-0.133***
					(0.048)
				4 Years exposed to Fed EFC	-0.144***
					(0.046)
				1 Year exposed to State EFC	0.017
					(0.027)
				2 Years exposed to State EFC	-0.056
					(0.036)
				3 Years exposed to State EFC	-0.074**
					(0.033)
				4 Years exposed to State EFC	-0.138***
					(0.039)
Mean of Control Group (No EFC at 18)	0.418	Mean of Control Group (No Policy Ever)	0.444	Mean of Control Group (No Policy Ever)	0.444
Adjusted R-Squared	0.138	Adjusted R-Squared	0.139	Adjusted R-Squared	0.139
Outcome: Incarceration					

Fed EFC at 18	-0.086***	Years exposed to Fed EFC	-0.035***	1 Year exposed to Fed EFC	-0.023
	(0.019)		(0.007)		(0.049)
State EFC at 18	-0.039	Years exposed to State EFC	-0.019**	2 Years exposed to Fed EFC	-0.086
	(0.026)		(0.008)		(0.071)
				3 Years exposed to Fed EFC	-0.137**
					(0.067)
				4 Years exposed to Fed EFC	-0.160**
					(0.065)
				1 Year exposed to State EFC	0.016
					(0.028)
				2 Years exposed to State EFC	-0.006
					(0.041)
				3 Years exposed to State EFC	-0.032
					(0.037)
				4 Years exposed to State EFC	-0.082**
					(0.035)
Mean of Control Group (No EFC at 18)	0.308	Mean of Control Group (No Policy Ever)	0.295	Mean of Control Group (No Policy Ever)	0.295
Adjusted R-Squared	0.233	Adjusted R-Squared	0.234	Adjusted R-Squared	0.234
		Outcome: Disconnected			
Fed EFC at 18	-0.053*	Years exposed to Fed EFC	-0.031**	1 Year exposed to Fed EFC	-0.092**
	(0.031)		(0.013)		(0.039)
State EFC at 18	-0.046*	Years exposed to State EFC	-0.019	2 Years exposed to Fed EFC	0.033

	(0.025)		(0.012)		(0.050)
				3 Years exposed to Fed EFC	-0.024
					(0.054)
				4 Years exposed to Fed EFC	-0.064
					(0.055)
				1 Year exposed to State EFC	0.022
					(0.032)
				2 Years exposed to State EFC	0.012
					(0.035)
				3 Years exposed to State EFC	-0.048
					(0.040)
				4 Years exposed to State EFC	-0.052
					(0.042)
Mean of Control Group (No EFC at 18)	0.321	Mean of Control Group (No Policy Ever)	0.321	Mean of Control Group (No Policy Ever)	0.321
Adjusted R-Squared	0.061	Adjusted R-Squared	0.062	Adjusted R-Squared	0.063
Outcome: High School Graduation					
Fed EFC at 18	0.000	Years exposed to Fed EFC	0.014**	1 Year exposed to Fed EFC	0.007
	(0.022)		(0.006)		(0.042)
State EFC at 18	-0.035	Years exposed to State EFC	-0.012	2 Years exposed to Fed EFC	0.044
	(0.021)		(0.009)		(0.042)
				3 Years exposed to Fed EFC	0.036
					(0.037)

				4 Years exposed to Fed EFC	0.053
					(0.038)
				1 Year exposed to State EFC	-0.020
					(0.025)
				2 Years exposed to State EFC	-0.016
					(0.035)
				3 Years exposed to State EFC	-0.043
					(0.037)
				4 Years exposed to State EFC	-0.050
					(0.038)
Mean of Control Group (No EFC at 18)	0.821	Mean of Control Group (No Policy Ever)	0.798	Mean of Control Group (No Policy Ever)	0.798
Adjusted R-Squared	0.069	Adjusted R-Squared	0.069	Adjusted R-Squared	0.068
Outcome: College Enrollment					
Fed EFC at 18	-0.010	Years exposed to Fed EFC	0.045**	1 Year exposed to Fed EFC	0.063**
	(0.043)		(0.019)		(0.029)
State EFC at 18	-0.012	Years exposed to State EFC	0.014	2 Years exposed to Fed EFC	-0.053
	(0.026)		(0.013)		(0.038)
				3 Years exposed to Fed EFC	-0.051
					(0.044)
				4 Years exposed to Fed EFC	0.033
					(0.045)
				1 Year exposed to State EFC	0.010

					(0.020)
				2 Years exposed to State EFC	0.002
					(0.020)
				3 Years exposed to State EFC	-0.051
					(0.034)
				4 Years exposed to State EFC	0.003
					(0.036)
Mean of Control Group (No EFC at 18)	0.249	Mean of Control Group (No Policy Ever)	0.214	Mean of Control Group (No Policy Ever)	0.214
Adjusted R-Squared	0.141	Adjusted R-Squared	0.143	Adjusted R-Squared	0.146
		Outcome: Employment			
Fed EFC at 18	0.001	Years exposed to Fed EFC	-0.028***	1 Year exposed to Fed EFC	-0.014
	(0.039)		(0.010)		(0.045)
State EFC at 18	0.035	Years exposed to State EFC	0.009	2 Years exposed to Fed EFC	-0.060
	(0.034)		(0.012)		(0.050)
				3 Years exposed to Fed EFC	-0.082
					(0.050)
				4 Years exposed to Fed EFC	-0.114**
					(0.050)
				1 Year exposed to State EFC	-0.033
					(0.039)
				2 Years exposed to State EFC	-0.036
					(0.055)

				3 Years exposed to State EFC	0.031
					(0.056)
				4 Years exposed to State EFC	0.032
					(0.051)
Mean of Control Group (No EFC at 18)	0.550	Mean of Control Group (No Policy Ever)	0.561	Mean of Control Group (No Policy Ever)	0.561
Adjusted R-Squared	0.066	Adjusted R-Squared	0.066	Adjusted R-Squared	0.066

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. All regressions control for demographic characteristics, foster care history, experiences at 17 years old, state controls, and include cohort and state fixed effects. The abbreviation EFC is shorthand for extended foster care. "Fed" and "State" indicate how the program is funded. The first column reports the results using a binary indicator for whether EFC was available when the youth turned 18. The second column reports the marginal effect of an additional year exposed to EFC. The final column reports the fixed effect for the number of years exposed. If the effect were identical over time, then results in column 1 would be similar to results at 3 and 4 years in column 3. If the effect were perfectly linear, then the results in column 2 multiplied by 3 would be the same as the results at year 3 in column 3.

Appendix Table 5 – Regression results testing the impact of extended foster care at age 17

	Outcomes at 19 Years Old (N=11,120)					
	Homelessness	Incarceration	Disconnectedness	High School Enrollment	College Enrollment	Employment
Fed EFC at 18	-0.048*	-0.053*	-0.043**	0.052*	0.010	0.083***
	(0.025)	(0.029)	(0.020)	(0.029)	(0.038)	(0.028)
State EFC at 18	-0.015	-0.021	0.017	-0.005	-0.041	0.051***
	(0.021)	(0.016)	(0.015)	(0.022)	(0.025)	(0.018)
Fed EFC at 17	0.011	0.006	-0.071***	0.013	0.041	0.059**
	(0.023)	(0.029)	(0.014)	(0.032)	(0.052)	(0.025)
State EFC at 17	-0.022	-0.026	-0.004	0.007	-0.073**	0.014
	(0.025)	(0.023)	(0.027)	(0.024)	(0.036)	(0.030)

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. All regressions control for demographic characteristics, foster care history, experiences at 17 years old, state controls, and include cohort and state fixed effects. The abbreviation EFC is shorthand for extended foster care. "Fed" and "State" indicate how the program is funded. The main results are presented in the first panel for ease of comparison. The second panel presents results when the independent variable is an indicator for EFC at 17 years old, as opposed to 18. The adjusted R-squared is similar across both models. See the main results for the adjusted R-squared.

Appendix Table 6 – Regression results from alternative specifications

	Outcomes at 19 Years Old			
	(1)	(2)	(3)	(4)
	Main Results	DDD Results	Probit - Marginal Effects	Logit - Odds Ratio
	Outcome: Homelessness			
Fed EFC at 18	-0.048*	-0.049	-0.047*	0.715*
	(0.025)	(0.029)	(0.027)	(0.140)
State EFC at 18	-0.015	0.022	-0.020	0.868
	(0.021)	(0.024)	(0.021)	(0.133)
Observations	11,120	11,120	11,120	11,120
Adjusted R-squared	0.088	0.089		
	Outcome: Incarceration			
Fed EFC at 18	-0.053*	-0.039	-0.053**	0.650**
	(0.029)	(0.024)	(0.025)	(0.136)
State EFC at 18	-0.021	-0.030	-0.024	0.831
	(0.016)	(0.021)	(0.015)	(0.101)
Observations	11,120	11,120	11,120	11,120
Adjusted R-squared	0.197	0.198		
	Outcome: Disconnected			
Fed EFC at 18	-0.043**	-0.022	-0.042**	0.783**
	(0.020)	(0.028)	(0.019)	(0.081)
State EFC at 18	0.017	0.038**	0.018	1.100
	(0.015)	(0.016)	(0.015)	(0.092)
Observations	11,120	11,120	11,120	11,120
Adjusted R-squared	0.049	0.049		
	Outcome: High School Enrollment			
Fed EFC at 18	0.052*	0.081***	0.057*	1.325
	(0.029)	(0.020)	(0.032)	(0.227)
State EFC at 18	-0.005	-0.003	0.002	1.000
	(0.022)	(0.016)	(0.026)	(0.132)
Observations	11,097	11,097	11,097	11,097
Adjusted R-squared	0.040	0.043		
	Outcome: College Enrollment			
Fed EFC at 18	0.010	-0.010	0.008	1.036
	(0.038)	(0.045)	(0.039)	(0.178)
State EFC at 18	-0.041	-0.052	-0.044*	0.824
	(0.025)	(0.038)	(0.026)	(0.098)
Observations	6,155	6,155	6,150	6,150
Adjusted R-squared	0.083	0.085		
	Outcome: Employment			
Fed EFC at 18	0.083***	0.052***	0.087***	1.485***
	(0.028)	(0.014)	(0.029)	(0.196)
State EFC at 18	0.051***	0.034**	0.054***	1.286***
	(0.018)	(0.014)	(0.019)	(0.113)

Observations	11,120	11,120	11,120	11,120
Adjusted R-squared	0.045	0.047		
	Outcomes at 21 Years Old			
	(1)	(2)	(3)	(4)
	Main Results	DDD Results	Probit - Marginal Effects	Logit - Odds Ratio
	Outcome: Homelessness			
Years with Fed EFC	-0.026*	-0.026	-0.026*	0.875*
	(0.014)	(0.018)	(0.014)	(0.061)
Years with State EFC	-0.030***	-0.062***	-0.029***	0.860***
	(0.010)	(0.014)	(0.010)	(0.044)
Observations	8,416	8,416	8,416	8,416
Adjusted R-squared	0.139	0.142		
	Outcome: Incarceration			
Years with Fed EFC	-0.035***	-0.043***	-0.035***	0.796***
	(0.007)	(0.009)	(0.008)	(0.042)
Years with State EFC	-0.019**	-0.048***	-0.018**	0.885**
	(0.008)	(0.015)	(0.008)	(0.047)
Observations	8,416	8,416	8,416	8,416
Adjusted R-squared	0.234	0.237		
	Outcome: Disconnected			
Years with Fed EFC	-0.031**	-0.046***	-0.032**	0.845**
	(0.013)	(0.010)	(0.014)	(0.060)
Years with State EFC	-0.019	-0.008	-0.019	0.908
	(0.012)	(0.019)	(0.012)	(0.057)
Observations	8,416	8,416	8,416	8,416
Adjusted R-squared	0.062	0.065		
	Outcome: High School Graduation			
Years with Fed EFC	0.014**	0.011	0.014**	1.107***
	(0.006)	(0.007)	(0.006)	(0.043)
Years with State EFC	-0.012	-0.000	-0.012	0.919
	(0.009)	(0.013)	(0.010)	(0.069)
Observations	8,416	8,416	8,411	8,411
Adjusted R-squared	0.069	0.071		
	Outcome: College Enrollment			
Years with Fed EFC	0.045**	0.067***	0.051***	1.291***
	(0.019)	(0.014)	(0.019)	(0.124)
Years with State EFC	0.014	0.028**	0.017	1.092
	(0.013)	(0.011)	(0.014)	(0.081)
Observations	8,416	8,416	6,870	6,870
Adjusted R-squared	0.143	0.146		
	Outcome: Employment			
Years with Fed EFC	-0.028***	-0.029***	-0.028***	0.884***
	(0.010)	(0.011)	(0.010)	(0.038)
Years with State EFC	0.009	-0.006	0.010	1.047

	(0.012)	(0.016)	(0.011)	(0.052)
Observations	8,416	8,416	8,416	8,416
Adjusted R-squared	0.066	0.068		

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. All regressions control for demographic characteristics, foster care history, and experiences at 17 years old, state controls, and include cohort and state fixed effects, unless otherwise noted. The abbreviation EFC is shorthand for extended foster care. "Fed" and "State" indicate how the program is funded. The first column reports the main results again for easy reference. The second column reports the results from a triple differences specification, so it includes a cohort by state fixed effect and does not include state controls. The third column reports marginal effects from a probit model, and the fourth column reports the odds ratio from the logit model.

Appendix Table 7 – Regression results changing the set of control variables

	Outcomes at 19 Years Old						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Main Results	Excludes all Controls	Excludes Foster Care History Controls	Excludes Controls for Experiences at 17 Years Old	Excludes State Controls	Excludes State Fixed Effects	Excludes Cohort Fixed Effects
Outcome: Homelessness							
Fed EFC at 18	-0.048*	-0.023	-0.044*	-0.042	-0.035	-0.011	-0.049*
	(0.025)	(0.023)	(0.024)	(0.026)	(0.026)	(0.021)	(0.025)
State EFC at 18	-0.015	-0.018	-0.020	-0.012	-0.014	0.002	-0.016
	(0.021)	(0.023)	(0.021)	(0.022)	(0.022)	(0.016)	(0.021)
Observations	11,120	11,120	11,120	11,120	11,120	11,120	11,120
Adjusted R-squared	0.088	0.023	0.070	0.061	0.086	0.075	0.088
Outcome: Incarceration							
Fed EFC at 18	-0.053*	-0.049	-0.051*	-0.053	-0.049*	0.024	-0.054*
	(0.029)	(0.031)	(0.028)	(0.033)	(0.026)	(0.022)	(0.028)
State EFC at 18	-0.021	-0.034*	-0.025	-0.017	-0.024	0.014	-0.021
	(0.016)	(0.017)	(0.016)	(0.018)	(0.016)	(0.018)	(0.016)
Observations	11,120	11,120	11,120	11,120	11,120	11,120	11,120
Adjusted R-squared	0.197	0.030	0.184	0.117	0.196	0.183	0.197
Outcome: Disconnected							
Fed EFC at 18	-0.043**	-0.034	-0.042**	-0.043**	-0.037*	0.012	-0.039*
	(0.020)	(0.020)	(0.020)	(0.021)	(0.020)	(0.018)	(0.020)
State EFC at 18	0.017	0.016	0.012	0.017	0.020	0.021	0.018
	(0.015)	(0.016)	(0.015)	(0.015)	(0.016)	(0.015)	(0.014)
Observations	11,120	11,120	11,120	11,120	11,120	11,120	11,120
Adjusted R-squared	0.049	0.015	0.036	0.042	0.048	0.043	0.049
Outcome: High School Enrollment							
Fed EFC at 18	0.052*	0.052*	0.053*	0.050*	0.053*	0.031	0.054*

	(0.029)	(0.027)	(0.028)	(0.029)	(0.028)	(0.025)	(0.027)
State EFC at 18	-0.005	-0.007	-0.003	-0.007	-0.008	0.017	-0.004
	(0.022)	(0.025)	(0.021)	(0.022)	(0.026)	(0.025)	(0.021)
Observations	11,097	11,097	11,097	11,097	11,097	11,097	11,097
Adjusted R-squared	0.040	0.041	0.040	0.033	0.040	0.038	0.040
			Outcome: College Enrollment				
Fed EFC at 18	0.010	-0.009	0.009	0.003	-0.002	-0.007	0.005
	(0.038)	(0.036)	(0.037)	(0.039)	(0.037)	(0.028)	(0.038)
State EFC at 18	-0.041	-0.032	-0.040	-0.040	-0.036	-0.044**	-0.044*
	(0.025)	(0.023)	(0.026)	(0.026)	(0.024)	(0.020)	(0.024)
Observations	6,155	6,155	6,155	6,155	6,155	6,155	6,155
Adjusted R-squared	0.083	0.039	0.074	0.075	0.083	0.070	0.083
			Outcome: Employment				
Fed EFC at 18	0.083***	0.070***	0.083***	0.087***	0.074***	0.006	0.076***
	(0.028)	(0.023)	(0.027)	(0.029)	(0.025)	(0.020)	(0.026)
State EFC at 18	0.051***	0.051**	0.055***	0.053***	0.049**	0.020	0.048***
	(0.018)	(0.020)	(0.017)	(0.018)	(0.020)	(0.018)	(0.017)
Observations	11,120	11,120	11,120	11,120	11,120	11,120	11,120
Adjusted R-squared	0.045	0.015	0.039	0.033	0.045	0.040	0.045
			Outcomes at 21 Years Old				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Main Results	Excludes all Controls	Excludes Foster Care History Controls	Excludes Controls for Experiences at 17 Years Old	Excludes State Controls	Excludes State Fixed Effects	Excludes Cohort Fixed Effects
			Outcome: Homelessness				
Years with Fed EFC	-0.026*	-0.036***	-0.030**	-0.029**	-0.029**	-0.017**	-0.027*
	(0.014)	(0.012)	(0.012)	(0.014)	(0.014)	(0.008)	(0.014)
Years with State EFC	-0.030***	-0.034**	-0.035***	-0.031***	-0.031***	-0.007	-0.030***
	(0.010)	(0.014)	(0.011)	(0.010)	(0.011)	(0.007)	(0.010)

Observations	8,416	8,416	8,416	8,416	8,416	8,416	8,416
Adjusted R-squared	0.139	0.035	0.114	0.117	0.139	0.125	0.139
				Outcome: Incarceration			
Years with Fed EFC	-0.035***	-0.050***	-0.037***	-0.040***	-0.037***	0.004	-0.035***
	(0.007)	(0.008)	(0.007)	(0.007)	(0.007)	(0.009)	(0.007)
Years with State EFC	-0.019**	-0.021	-0.023***	-0.018*	-0.016	0.004	-0.018**
	(0.008)	(0.013)	(0.008)	(0.009)	(0.010)	(0.007)	(0.008)
Observations	8,416	8,416	8,416	8,416	8,416	8,416	8,416
Adjusted R-squared	0.234	0.041	0.218	0.166	0.233	0.217	0.234
				Outcome: Disconnected			
Years with Fed EFC	-0.031**	-0.037**	-0.033**	-0.033**	-0.033**	0.001	-0.033**
	(0.013)	(0.014)	(0.014)	(0.013)	(0.013)	(0.008)	(0.013)
Years with State EFC	-0.019	-0.014	-0.022*	-0.019	-0.013	-0.003	-0.017
	(0.012)	(0.014)	(0.012)	(0.012)	(0.013)	(0.006)	(0.012)
Observations	8,416	8,416	8,416	8,416	8,416	8,416	8,416
Adjusted R-squared	0.062	0.017	0.058	0.051	0.061	0.051	0.061
				Outcome: High School Graduation			
Years with Fed EFC	0.014**	0.018***	0.014***	0.015**	0.017**	-0.004	0.013**
	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.007)	(0.006)
Years with State EFC	-0.012	-0.006	-0.010	-0.012	-0.009	-0.006	-0.012
	(0.009)	(0.012)	(0.009)	(0.009)	(0.012)	(0.008)	(0.009)
Observations	8,416	8,416	8,416	8,416	8,416	8,416	8,416
Adjusted R-squared	0.069	0.031	0.056	0.059	0.068	0.049	0.069
				Outcome: College Enrollment			
Years with Fed EFC	0.045**	0.052***	0.046**	0.047**	0.045**	0.007	0.047**
	(0.019)	(0.019)	(0.019)	(0.018)	(0.018)	(0.010)	(0.018)
Years with State EFC	0.014	0.013	0.015	0.014	0.013	0.011	0.012
	(0.013)	(0.020)	(0.013)	(0.013)	(0.016)	(0.008)	(0.012)
Observations	8,416	8,416	8,416	8,416	8,416	8,416	8,416
Adjusted R-squared	0.143	0.044	0.141	0.138	0.142	0.121	0.143
				Outcome: Employment			

Years with Fed EFC	-0.028***	-0.018*	-0.026***	-0.026**	-0.022**	-0.010**	-0.027**
	(0.010)	(0.010)	(0.009)	(0.010)	(0.010)	(0.005)	(0.010)
Years with State EFC	0.009	0.004	0.012	0.009	0.004	-0.006	0.008
	(0.012)	(0.010)	(0.011)	(0.012)	(0.010)	(0.007)	(0.012)
Observations	8,416	8,416	8,416	8,416	8,416	8,416	8,416
Adjusted R-squared	0.066	0.013	0.062	0.058	0.066	0.060	0.066

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. The abbreviation EFC is shorthand for extended foster care. "Fed" and "State" indicate how the program is funded. The first column reports the main results again for easy reference. The main results regression controls for demographic characteristics, foster care history, and experiences at 17 years old, state controls, and include cohort and state fixed effects. The remaining columns indicate which set of controls are excluded from the regression.

Appendix Table 8 – Regression results changing the set of states in the sample

	Outcomes at 19 Years Old			
	(1)	(2)	(3)	(4)
	Main Results	Sample of treated states only	Sample excludes states that went from state to federal policy	Sample excludes states with state policy
	Outcome: Homelessness			
Fed EFC at 18	-0.048*	-0.053*	-0.082***	-0.078***
	(0.025)	(0.026)	(0.016)	(0.012)
State EFC at 18	-0.015	-0.002	0.019	
	(0.021)	(0.020)	(0.024)	
Observations	11,120	6,851	9,610	7,639
Adjusted R-squared	0.088	0.082	0.090	0.092
	Outcome: Incarceration			
Fed EFC at 18	-0.053*	-0.056*	-0.002	-0.028
	(0.029)	(0.032)	(0.006)	(0.020)
State EFC at 18	-0.021	-0.027	-0.023	
	(0.016)	(0.020)	(0.016)	
Observations	11,120	6,851	9,610	7,639
Adjusted R-squared	0.197	0.208	0.197	0.203
	Outcome: Disconnected			
Fed EFC at 18	-0.043**	-0.015	-0.057***	-0.043
	(0.020)	(0.027)	(0.011)	(0.026)
State EFC at 18	0.017	0.039**	0.025*	
	(0.015)	(0.016)	(0.014)	
Observations	11,120	6,851	9,610	7,639
Adjusted R-squared	0.049	0.049	0.047	0.050
	Outcome: High School Enrollment			
Fed EFC at 18	0.052*	0.061**	0.100***	0.057**
	(0.029)	(0.025)	(0.007)	(0.027)
State EFC at 18	-0.005	0.007	-0.042*	
	(0.022)	(0.016)	(0.025)	
Observations	11,097	6,835	9,594	7,625
Adjusted R-squared	0.040	0.047	0.044	0.026
	Outcome: College Enrollment			
Fed EFC at 18	0.010	-0.010	0.039***	0.043
	(0.038)	(0.043)	(0.011)	(0.034)
State EFC at 18	-0.041	-0.049	-0.089***	
	(0.025)	(0.035)	(0.016)	
Observations	6,155	3,936	5,417	4,315
Adjusted R-squared	0.083	0.090	0.078	0.061
	Outcome: Employment			
Fed EFC at 18	0.083***	0.069**	0.040***	0.061***
	(0.028)	(0.025)	(0.007)	(0.019)
State EFC at 18	0.051***	0.032*	0.074***	

	(0.018)	(0.016)	(0.022)	
Observations	11,120	6,851	9,610	7,639
Adjusted R-squared	0.045	0.049	0.043	0.039
	Outcomes at 21 Years Old			
	(1)	(2)	(3)	(4)
	Main Results	Sample of treated states only	Sample excludes states that went from state to federal policy	Sample excludes states with state policy
	Outcome: Homelessness			
Years with Fed EFC	-0.026*	-0.014	-0.027	-0.024
	(0.014)	(0.012)	(0.019)	(0.014)
Years with State EFC	-0.030***	-0.034**	-0.035***	
	(0.010)	(0.013)	(0.011)	
Observations	8,416	5,037	7,467	5,827
Adjusted R-squared	0.139	0.126	0.145	0.143
	Outcome: Incarceration			
Years with Fed EFC	-0.035***	-0.039***	-0.035***	-0.031***
	(0.007)	(0.007)	(0.007)	(0.007)
Years with State EFC	-0.019**	-0.040***	-0.021**	
	(0.008)	(0.012)	(0.010)	
Observations	8,416	5,037	7,467	5,827
Adjusted R-squared	0.234	0.244	0.228	0.242
	Outcome: High School Graduation			
Years with Fed EFC	0.014**	0.018**	0.007	0.017**
	(0.006)	(0.008)	(0.005)	(0.007)
Years with State EFC	-0.012	-0.022*	-0.008	
	(0.009)	(0.012)	(0.011)	
Observations	8,416	5,037	7,467	5,827
Adjusted R-squared	0.069	0.068	0.063	0.070
	Outcome: Disconnected			
Years with Fed EFC	-0.031**	-0.037**	-0.040***	-0.036***
	(0.013)	(0.016)	(0.011)	(0.011)
Years with State EFC	-0.019	-0.028**	-0.011	
	(0.012)	(0.012)	(0.012)	
Observations	8,416	5,037	7,467	5,827
Adjusted R-squared	0.062	0.062	0.063	0.061
	Outcome: College Enrollment			
Years with Fed EFC	0.045**	0.054**	0.067***	0.049**
	(0.019)	(0.022)	(0.016)	(0.019)
Years with State EFC	0.014	0.027**	-0.003	
	(0.013)	(0.011)	(0.010)	
Observations	8,416	5,037	7,467	5,827
Adjusted R-squared	0.143	0.147	0.145	0.126
	Outcome: Employment			
Years with Fed EFC	-0.028***	-0.035***	-0.037***	-0.025**

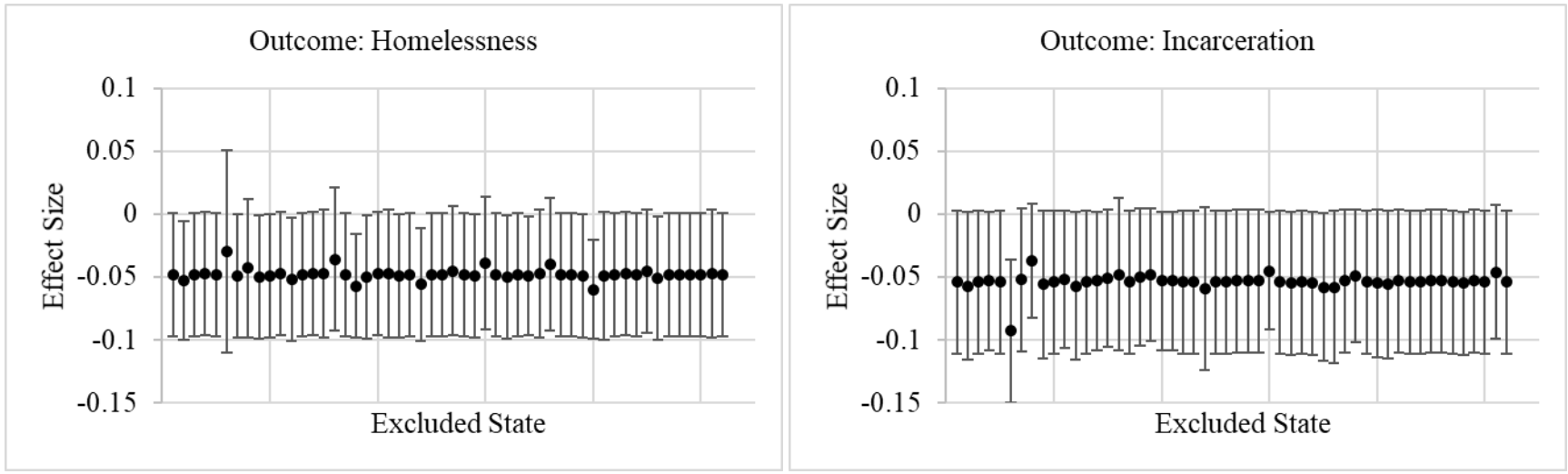
	(0.010)	(0.010)	(0.010)	(0.010)
Years with State EFC	0.009	0.013	0.016	
	(0.012)	(0.012)	(0.012)	
Observations	8,416	5,037	7,467	5,827
Adjusted R-squared	0.066	0.073	0.065	0.065

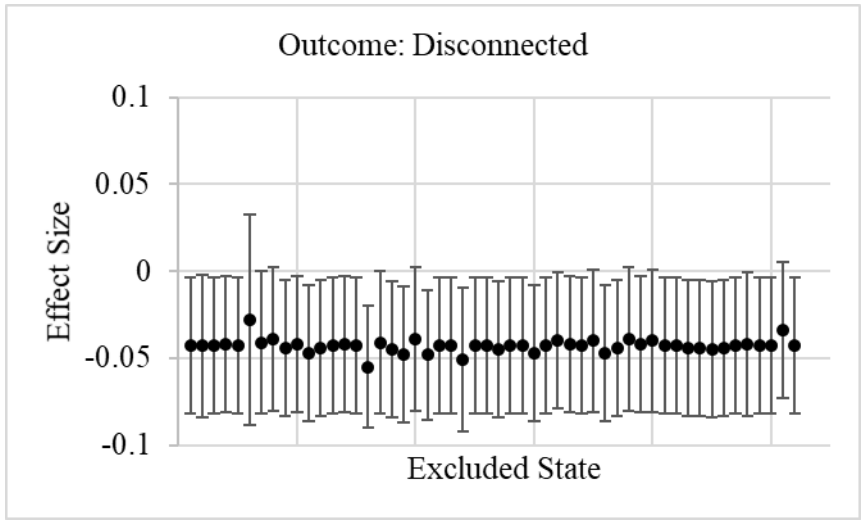
*** p<0.01, ** p<0.05, * p<0.1

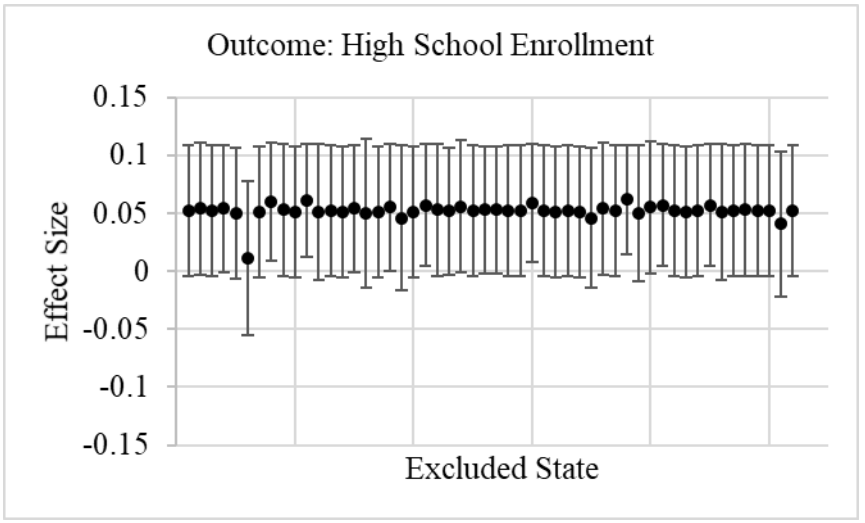
Standard errors clustered at the state level are in parentheses. All regressions control for demographic characteristics, foster care history, experiences at 17 years old, state controls, and include cohort and state fixed effects. The abbreviation EFC is shorthand for extended foster care. "Fed" and "State" indicate how the program is funded. The first column reports the main results again for easy reference, the second column limits the sample to the 22 treated states, the third column excludes the 7 states that changed from a state to federal policy, and the fourth column excludes the 19 states with state policies.

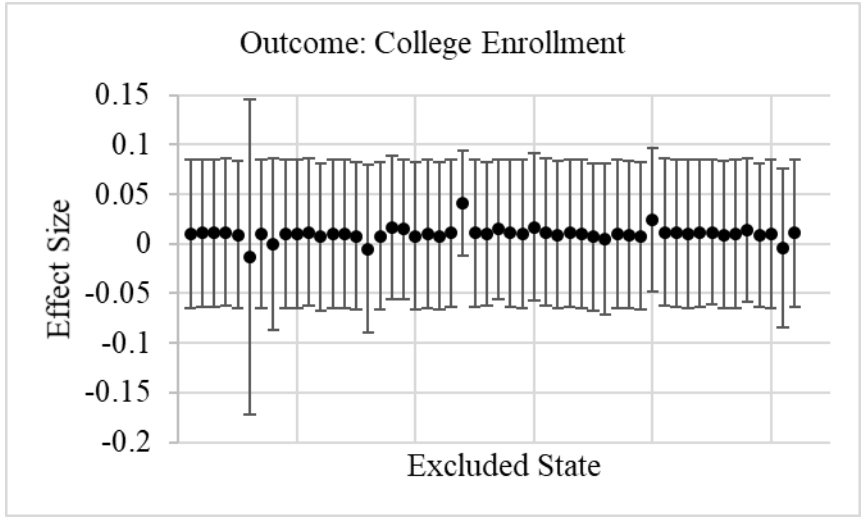
Appendix Figure 1 – Graphical display of effect size for outcomes at age 19 omitting one state at a time

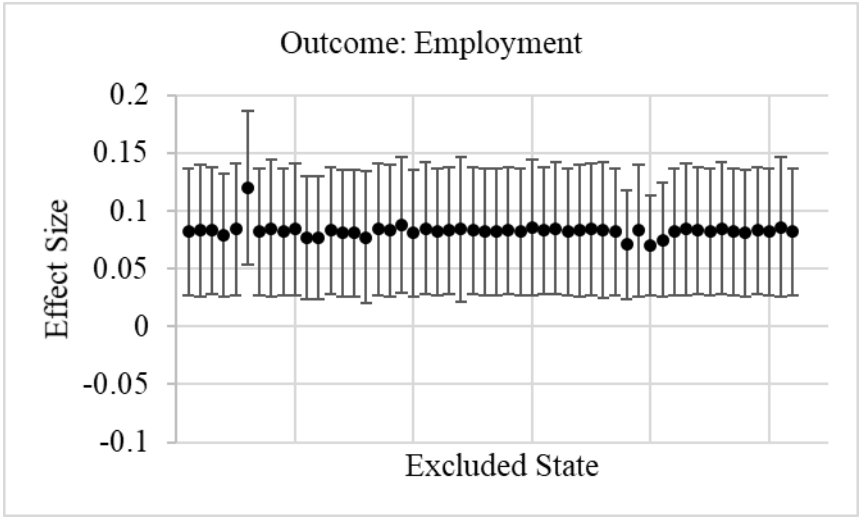
Each graph plots the effect size (in percentage points) and the 95 percent confidence interval for the federally-funded extended foster care indicator variable for each outcome at age 19. There are 52 estimates plotted in each graph. The first estimate (left most) is the main result, and the remaining 51 are the results when a single state is omitted from the analysis. States are dropped in alphabetical order, so the sixth estimate is the result when California is excluded.




Outcome: Disconnected
Effect Size
0.1
0.05
0
-0.05
-0.1
Excluded State

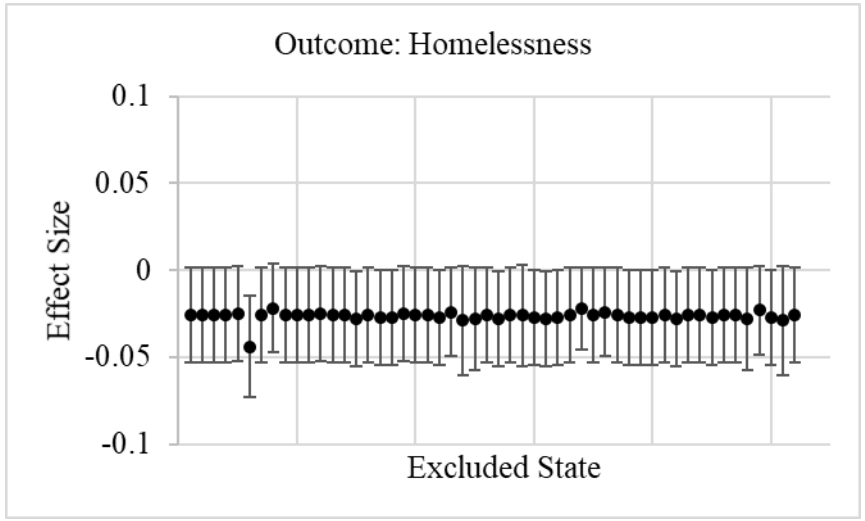

Outcome: High School Enrollment
Effect Size
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
Excluded State

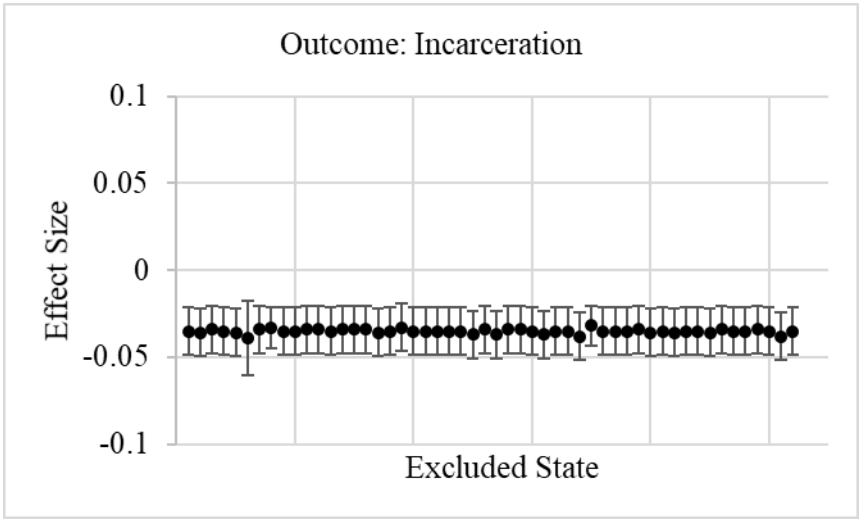

Outcome: College Enrollment
Effect Size
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
Excluded State

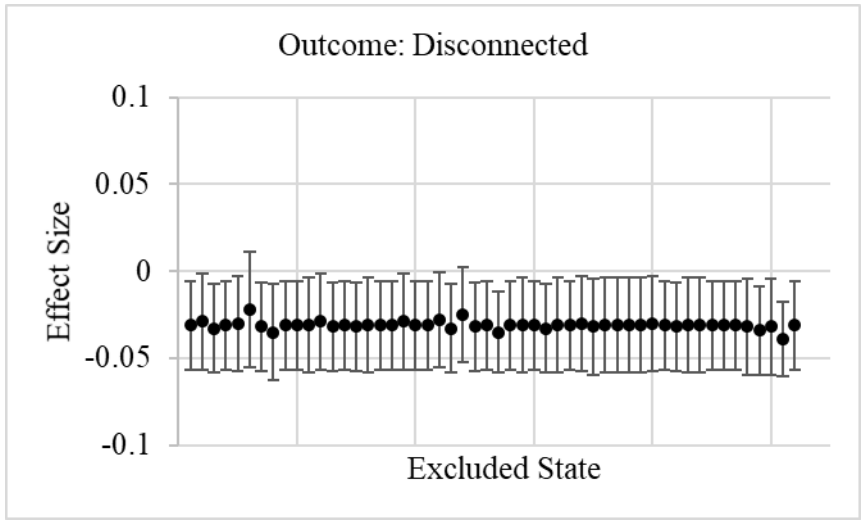

Outcome: Employment
Effect Size
0.2
0.15
0.1
0.05
0
-0.05
-0.1
Excluded State

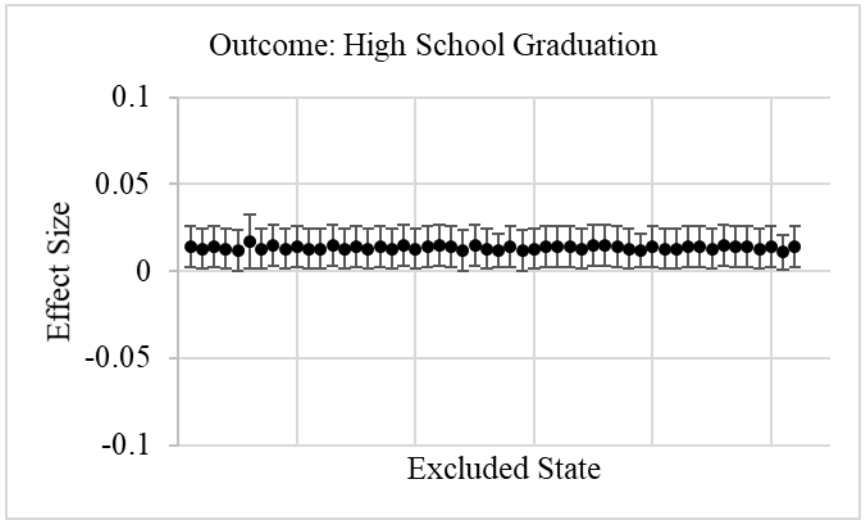
Appendix Figure 2 – Graphical display of effect size for outcomes at age 21 omitting one state at a time

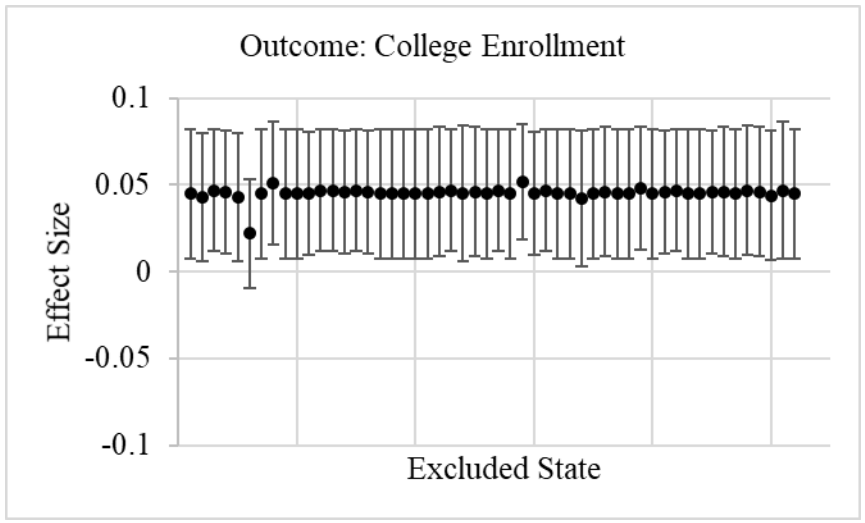
Each graph plots the marginal effect size (in percentage points) and the 95 percent confidence interval for the federally-funded extended foster care counter variable for each outcome at age 21. There are 52 estimates plotted in each graph. The first estimate (left most) is the main result, and the remaining 51 are the results when a single state is omitted from the analysis. States are dropped in alphabetical order, so the sixth estimate is the result when California is excluded.

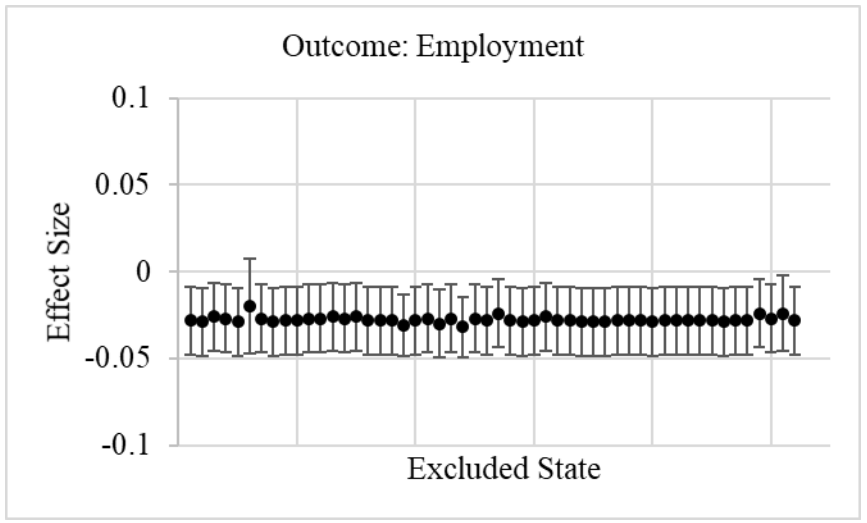





Outcome: Disconnected
0.1
0.05
0
-0.05
-0.1
Effect Size
Excluded State


Outcome: High School Graduation
0.1
0.05
0
-0.05
-0.1
Effect Size
Excluded State


Outcome: College Enrollment
0.1
0.05
0
-0.05
-0.1
Effect Size
Excluded State


Outcome: Employment
0.1
0.05
0
-0.05
-0.1
Effect Size
Excluded State

Appendix Table 9 – Regression results changing the sample size

	Outcomes at 19 Years Old		
	(1)	(2)	(3)
	Main Results	Sample varies by outcome measure	Sample limited to those who participated in survey at 21
	Outcome: Homelessness		
Fed EFC at 18	-0.048*	-0.041	-0.054**
	(0.025)	(0.026)	(0.024)
State EFC at 18	-0.015	-0.010	-0.015
	(0.021)	(0.021)	(0.028)
Observations	11,120	11,420	7,994
Adjusted R-squared	0.088	0.087	0.094
	Outcome: Incarceration		
Fed EFC at 18	-0.053*	-0.048*	-0.057***
	(0.029)	(0.026)	(0.018)
State EFC at 18	-0.021	-0.019	-0.014
	(0.016)	(0.015)	(0.016)
Observations	11,120	11,697	7,994
Adjusted R-squared	0.197	0.214	0.184
	Outcome: Disconnected		
Fed EFC at 18	-0.043**	-0.050**	-0.064***
	(0.020)	(0.021)	(0.013)
State EFC at 18	0.017	0.009	0.024*
	(0.015)	(0.014)	(0.013)
Observations	11,120	11,498	7,994
Adjusted R-squared	0.049	0.048	0.050
	Outcome: High School Enrollment		
Fed EFC at 18	0.052*	0.057*	0.065***
	(0.029)	(0.029)	(0.020)
State EFC at 18	-0.005	-0.004	-0.027
	(0.022)	(0.022)	(0.021)
Observations	11,097	11,485	7,980
Adjusted R-squared	0.040	0.040	0.044
	Outcome: College Enrollment		
Fed EFC at 18	0.010	0.012	0.043
	(0.038)	(0.039)	(0.039)
State EFC at 18	-0.041	-0.037	-0.001
	(0.025)	(0.024)	(0.026)
Observations	6,155	6,362	4,780
Adjusted R-squared	0.083	0.083	0.077
	Outcome: Employment		
Fed EFC at 18	0.083***	0.080***	0.070*
	(0.028)	(0.026)	(0.037)
State EFC at 18	0.051***	0.050***	0.032

	(0.018)	(0.016)	(0.021)
Observations	11,120	11,915	7,994
Adjusted R-squared	0.045	0.047	0.048

Outcomes at 21 Years Old

	(1) Main Results	(2) Sample varies by outcome measure	(3) Sample limited to those who participated in survey at 19
	Outcome: Homelessness		
Years with Fed EFC	-0.026*	-0.058***	-0.020
	(0.014)	(0.012)	(0.015)
Years with State EFC	-0.030***	-0.042***	-0.022**
	(0.010)	(0.010)	(0.011)
Observations	8,416	9,435	7,994
Adjusted R-squared	0.139	0.145	0.124
	Outcome: Incarceration		
Years with Fed EFC	-0.035***	-0.064***	-0.030***
	(0.007)	(0.008)	(0.008)
Years with State EFC	-0.019**	-0.037***	-0.004
	(0.008)	(0.010)	(0.008)
Observations	8,416	9,470	7,994
Adjusted R-squared	0.234	0.273	0.217
	Outcome: High School Graduation		
Years with Fed EFC	0.014**	0.048**	0.018***
	(0.006)	(0.021)	(0.006)
Years with State EFC	-0.012	-0.029***	-0.016*
	(0.009)	(0.010)	(0.008)
Observations	8,416	14,165	7,994
Adjusted R-squared	0.069	0.104	0.066
	Outcome: Disconnected		
Years with Fed EFC	-0.031**	-0.028**	-0.022
	(0.013)	(0.013)	(0.014)
Years with State EFC	-0.019	-0.017	-0.012
	(0.012)	(0.012)	(0.012)
Observations	8,416	10,189	7,994
Adjusted R-squared	0.062	0.059	0.060
	Outcome: College Enrollment		
Years with Fed EFC	0.045**	0.037**	0.042**
	(0.019)	(0.015)	(0.019)
Years with State EFC	0.014	0.014	0.013
	(0.013)	(0.010)	(0.014)
Observations	8,416	12,354	7,994
Adjusted R-squared	0.143	0.180	0.142
	Outcome: Employment		
Years with Fed EFC	-0.028***	-0.017	-0.036***

	(0.010)	(0.011)	(0.010)
Years with State EFC	0.009	0.013	0.003
	(0.012)	(0.010)	(0.012)
Observations	8,416	10,407	7,994
Adjusted R-squared	0.066	0.072	0.064

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. All regressions control for demographic characteristics, foster care history, experiences at 17 years old, state controls, and include cohort and state fixed effects. The abbreviation EFC is shorthand for extended foster care. "Fed" and "State" indicate how the program is funded. The first column reports the main results again for easy reference. The main analysis sample is restricted to youth that are linked across NYTD and AFCARS and not missing any of the above outcomes. The second column lets the sample size vary by outcome measure, and the third column limits the sample to youth who participated in all three waves of the NYTD survey.

Appendix Table 10 – Characteristics of NYTD survey participants

	Full Sample (N=15,733)		All Surveys (N=9,349)		Returned (N=1,696)		Drop-out (N=2,705)		No Surveys (N=1,983)	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Any EFC at 18	0.733	0.443	0.748	0.434	0.686	0.464	0.747	0.435	0.680	0.466
Fed EFC at 18	0.484	0.500	0.514	0.500	0.420	0.494	0.471	0.499	0.415	0.493
State EFC at 18	0.249	0.432	0.235	0.424	0.266	0.442	0.276	0.447	0.266	0.442
NYTD Cohort 2014	0.520	0.500	0.534	0.499	0.481	0.500	0.524	0.500	0.482	0.500
Female	0.513	0.500	0.551	0.497	0.514	0.500	0.445	0.497	0.429	0.495
Non-Hispanic White	0.426	0.494	0.414	0.493	0.415	0.493	0.443	0.497	0.466	0.499
Non-Hispanic Black	0.297	0.457	0.305	0.460	0.312	0.463	0.296	0.457	0.249	0.432
Non-Hispanic Other Race	0.0828	0.276	0.0829	0.276	0.0825	0.275	0.0791	0.270	0.0877	0.283
Hispanic	0.194	0.396	0.198	0.399	0.191	0.393	0.182	0.386	0.197	0.398
Homeless at 17	0.177	0.382	0.170	0.376	0.201	0.401	0.173	0.378	0.198	0.399
Employment at 17	0.144	0.351	0.153	0.360	0.141	0.348	0.133	0.340	0.119	0.324
Incarcerated at 17	0.307	0.461	0.264	0.441	0.376	0.485	0.336	0.472	0.407	0.491
Referred for substance abuse at 17	0.251	0.434	0.220	0.414	0.293	0.455	0.275	0.446	0.331	0.471
Total time in foster care under 18 (in years)	4.299	3.604	4.477	3.674	4.029	3.515	4.302	3.605	3.685	3.249

	Full Sample (N=15,733)		All Surveys (N=9,349)		Returned (N=1,696)		Drop-out (N=2,705)		No Surveys (N=1,983)	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Total removals from home under 18	1.398	0.673	1.391	0.662	1.428	0.714	1.399	0.676	1.402	0.684
Total number of placements under 18	7.311	7.499	7.197	7.223	7.837	8.417	7.436	7.395	7.224	8.050
Ever removed for abuse	0.260	0.439	0.279	0.449	0.227	0.419	0.244	0.429	0.221	0.415
Ever removed for neglect	0.538	0.499	0.559	0.497	0.500	0.500	0.531	0.499	0.482	0.500
Ever removed for parental incarceration	0.0587	0.235	0.0600	0.238	0.0560	0.230	0.0591	0.236	0.0545	0.227
Ever removed for parental substance abuse	0.184	0.387	0.191	0.393	0.182	0.386	0.176	0.381	0.160	0.367
Ever removed for inadequate housing	0.0974	0.296	0.101	0.301	0.0861	0.281	0.0972	0.296	0.0918	0.289
Ever removed for child-related issue	0.350	0.477	0.321	0.467	0.390	0.488	0.372	0.484	0.424	0.494
Ever diagnosed with disability	0.571	0.495	0.581	0.493	0.551	0.498	0.569	0.495	0.548	0.498
Age at first removal	11.85	4.736	11.67	4.765	12.20	4.655	11.79	4.808	12.49	4.497
Age at most recent placement	17.27	1.876	17.27	1.991	17.26	1.643	17.30	1.939	17.24	1.337

	Full Sample (N=15,733)		All Surveys (N=9,349)		Returned (N=1,696)		Drop-out (N=2,705)		No Surveys (N=1,983)	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
First Placement: Foster home	0.634	0.482	0.658	0.474	0.598	0.490	0.615	0.487	0.575	0.494
First Placement: Group home or institution	0.305	0.460	0.286	0.452	0.327	0.469	0.326	0.469	0.345	0.476
Monthly foster care maintenance payment as an adult	$1,507	$2,530	$1,461	$2,431	$1,541	$2,633	$1,613	$2,658	$1,555	$2,710

"Full sample" consists of all NYTD and AFCARS records that were successfully linked. Youth that participated in all surveys answered at least one question at ages 17, 19, and 21. "Returned" means youth completed the survey at ages 17 and 21, but not at age 19. "Drop-out" means youth completed the survey at ages 17 and 19, but not at age 21. "No surveys" means youth with records that were successfully linked across NYTD and AFCARS did not answer any questions in the surveys at ages 17, 19, nor 21.

Appendix Table 11 – Results from NYTD participation regression

	Participated at 19	Participated at 21
Fed EFC	0.032	0. 175***
	(0.045)	(0.044)
State EFC	0.031	0. 102***
	(0.028)	(0.021)
Average Participation Rate without EFC	0.72	0.66
Observations	15,733	15,733
R-Squared	0.0526	0.1004

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. Regressions include a dummy variable for sample states, and cohort and state fixed effects. Sample states only followed up with the youth randomly selected. Positive coefficients suggest NYTD participation is positively correlated with EFC.

Appendix Table 12 – Full set of results from techniques that address non-response

	Outcomes at 19 Years Old				
	(1)	(2)	(3)	(4)	(5)
	Main Results	Inversely Weighted by State Survey Participation Rate	Inversely Weighted by Individual Response Rate	Mean Imputed	Regression Imputed
	Outcome: Homelessness				
Fed EFC at 18	-0.048*	-0.043	-0.046**	-0.034*	-0.030*
	(0.025)	(0.029)	(0.022)	(0.018)	(0.018)
State EFC at 18	-0.015	-0.016	-0.008	-0.005	-0.010
	(0.021)	(0.021)	(0.023)	(0.015)	(0.017)
Observations	11,120	11,120	11,120	15,733	15,733
Adjusted R-squared	0.088	0.088	0.087	0.062	0.124
	Outcome: Incarceration				
Fed EFC at 18	-0.053*	-0.059*	-0.046	-0.038**	-0.038*
	(0.029)	(0.029)	(0.028)	(0.016)	(0.022)
State EFC at 18	-0.021	-0.023	-0.012	-0.008	-0.014
	(0.016)	(0.016)	(0.017)	(0.011)	(0.013)
Observations	11,120	11,120	11,120	15,733	15,733
Adjusted R-squared	0.197	0.197	0.193	0.155	0.281
	Outcome: Disconnected				
Fed EFC at 18	-0.043**	-0.046**	-0.047***	-0.037**	-0.047***
	(0.020)	(0.021)	(0.016)	(0.014)	(0.015)
State EFC at 18	0.017	0.016	0.009	0.007	0.003
	(0.015)	(0.015)	(0.012)	(0.009)	(0.014)
Observations	11,120	11,120	11,120	15,733	15,733
Adjusted R-squared	0.049	0.049	0.046	0.035	0.070
	Outcome: High School Enrollment				
Fed EFC at 18	0.052*	0.049	0.054*	0.038**	0.035
	(0.029)	(0.030)	(0.032)	(0.018)	(0.022)
State EFC at 18	-0.005	-0.005	-0.012	-0.013	-0.022
	(0.022)	(0.022)	(0.022)	(0.017)	(0.022)
Observations	11,097	11,097	11,097	15,733	15,733
Adjusted R-squared	0.040	0.041	0.039	0.029	0.063
	Outcome: College Enrollment				
Fed EFC at 18	0.010	0.014	0.012	0.011	0.016
	(0.038)	(0.039)	(0.036)	(0.037)	(0.037)
State EFC at 18	-0.041	-0.040	-0.038	-0.025	-0.029
	(0.025)	(0.025)	(0.027)	(0.024)	(0.022)
Observations	6,155	6,155	6,155	6,657	6,657
Adjusted R-squared	0.083	0.084	0.081	0.080	0.089
	Outcome: Employment				
Fed EFC at 18	0.083***	0.093***	0.070***	0.050**	0.069**

	(0.028)	(0.033)	(0.023)	(0.021)	(0.027)
State EFC at 18	0.051***	0.051***	0.058***	0.031**	0.043**
	(0.018)	(0.019)	(0.018)	(0.012)	(0.016)
Observations	11,120	11,120	11,120	15,733	15,733
Adjusted R-squared	0.045	0.046	0.047	0.036	0.065

Outcomes at 21 Years Old

	(1)	(2)	(3)	(4)	(5)
	Main Results	Inversely Weighted by State Survey Participation Rate	Inversely Weighted by Individual Response Rate	Mean Imputed	Regression Imputed
Outcome: Homelessness					
Years with Fed EFC	-0.026*	-0.029*	-0.023	-0.052***	-0.055***
	(0.014)	(0.015)	(0.014)	(0.007)	(0.009)
Years with State EFC	-0.030***	-0.033***	-0.028***	-0.028***	-0.035***
	(0.010)	(0.011)	(0.010)	(0.008)	(0.009)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.139	0.140	0.132	0.099	0.214
Outcome: Incarceration					
Years with Fed EFC	-0.035***	-0.039***	-0.036***	-0.066***	-0.058***
	(0.007)	(0.008)	(0.006)	(0.017)	(0.007)
Years with State EFC	-0.019**	-0.021**	-0.018**	-0.033***	-0.033***
	(0.008)	(0.008)	(0.008)	(0.010)	(0.009)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.234	0.238	0.231	0.206	0.388
Outcome: Disconnected					
Years with Fed EFC	-0.031**	-0.029**	-0.033**	-0.021*	-0.017
	(0.013)	(0.013)	(0.012)	(0.011)	(0.013)
Years with State EFC	-0.019	-0.020*	-0.018	-0.015**	-0.019*
	(0.012)	(0.011)	(0.012)	(0.007)	(0.010)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.062	0.062	0.059	0.041	0.088
Outcome: High School Graduation					
Years with Fed EFC	0.014**	0.014**	0.013**	0.047***	0.049***
	(0.006)	(0.006)	(0.006)	(0.014)	(0.017)
Years with State EFC	-0.012	-0.016	-0.011	-0.008	-0.013
	(0.009)	(0.010)	(0.009)	(0.008)	(0.009)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.069	0.069	0.067	0.077	0.100
Outcome: College Enrollment					
Years with Fed EFC	0.045**	0.043**	0.045**	0.036*	0.035**
	(0.019)	(0.018)	(0.018)	(0.018)	(0.015)
Years with State EFC	0.014	0.015	0.013	0.013	0.013

	(0.013)	(0.012)	(0.013)	(0.009)	(0.010)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.143	0.142	0.152	0.091	0.148
			Outcome: Employment		
Years with Fed EFC	-0.028***	-0.025**	-0.026**	-0.007	-0.012
	(0.010)	(0.010)	(0.011)	(0.007)	(0.011)
Years with State EFC	0.009	0.007	0.008	0.015*	0.022**
	(0.012)	(0.011)	(0.011)	(0.008)	(0.009)
Observations	8,416	8,416	8,416	15,733	15,733
Adjusted R-squared	0.066	0.067	0.060	0.056	0.100

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. All regressions control for demographic characteristics, foster care history, experiences at 17 years old, state controls, and include cohort and state fixed effects, unless otherwise noted. The abbreviation EFC is shorthand for extended foster care. "Fed" and "State" indicate how the program is funded. The first column reports the main results again for easy reference, the second and third columns report estimates weighted by response rate at the state and individual level, respectively. The fourth and fifth columns report results from imputation methods. These regressions also control for missingness. This table is similar to Table 5, but includes the coefficient on state EFC as well.

Appendix A – Extended Foster Care Effective Dates and Policy Details

The source of identification comes from state and federal policy changes to extended foster care. Prior to the Fostering Connections Act of 2008 (FCA) only a handful of states allowed foster youth to remain in care beyond their 18th birthday. In response to the FCA, many states extended their age-out age to 21 years old via state funding and/or federal reimbursement. States that are federally reimbursed for extended foster care support and services face more reporting and accountability requirements compared to states that solely rely on state funds to implement extended foster care. In addition, states with federally-funded extended foster care can support more youth by using both federal and state dollars.

In 2010, 25 states and the District of Columbia had extended foster care, and in 2017, 48 states and the District of Columbia, had extended foster care. Oklahoma is the only state that does not offer extended foster care. Louisiana and South Dakota have an exception that youth still in high school can remain in foster care until 21 years old, but otherwise youth age-out at 18 years old. Wisconsin only offers extended foster care to youth with Individual Education Plans (IEPs). There is considerable variation in timing, age-out age, requirements to be in extended foster care, and transitional services available. Table A provides more specific details about extended foster care in each state.

Although there is variation across many dimensions, I primarily exploit the timing variation for a few reasons. First, federal funding for independent living programs (ILPs) have existed since the 1980s, well before the FCA; therefore, all states offer some sort of independent living support to their youth aging out of foster care. Second, the marginal costs of pinning down all of the intricacies in every single state outweigh the marginal benefits at this time. Lastly, there is not enough data to effectively estimate a model that exploits the variation within each of these alternative dimensions.

Information about extended foster care in each state comes from a host of sources ranging from government reports and documents to state statutes and house bills. First, I used reports and documents from 2014 to 2019 created by Child Trends, Child Welfare Information Gateway, Congressional Research Service, National Conference of State Legislatures (NCSL), Pew Charitable Trusts, and the U.S. Government Accountability Office to get a time frame as to when a state implemented extended foster care. Each of these reports lists either “HHS, Children’s Bureau,” or “responses from state agencies” as their source. These reports include a map or table

identifying states with state or federal extended foster care at a single point in time. Some of these resources also include current state statutes, administrative codes, and agency policies providing additional details and context. In combination, these sources allow me to observe changes over time and infer a time frame in which a state implemented extended foster care. For example, the 2014 Pew Charitable Trusts report shows that North Carolina does not have extended foster care, but the 2017 NCSL webpage shows that North Carolina does have extended foster care, so I can infer that North Carolina implemented extended foster care sometime between 2014 and 2017. Although the time frame provides a good starting point, for my analysis I need specific dates in which extended foster care was implemented.

Next, I used legal databases to verify details and record effective dates of statutes and policies. The Juvenile Law Center (JLC) developed a tool that provides state-level information about implementation of extended foster care, such as availability, eligibility, and funding. Additionally, this tool provides the statute or policy from which the information comes. Using Westlaw Campus Research, a legal database provided by Georgia State University, I then looked up the referenced statutes and recorded the appropriate effective date. This database tracks the history of the statues, so I can read older versions and determine the first year a state implemented the extended foster care program. I use the earliest effective date, as long as there have not been revisions.

I used the NCSL's child welfare database to differentiate between state and federal extended foster care and to double check statue codes against JLC and effective dates against the Westlaw database. The NCSL database contains child welfare legislation related to foster care, services for older youth, and funding for child welfare services, among other topics, that have been enacted between 2012 and 2018 for all 50 states and D.C. For some states, the legal documentation can be viewed and tracked, and for others the state legal database was accessible to further look up the statute. Another way I determined if a state has federally-funded extended foster care was by noting the definition of a child and language related to juvenile court jurisdiction. States eventually seeking federal reimbursement, at a minimum, must change the statutory definition of "child" for Title IV-E programs[46]. The NCSL resource provides rich detail about more recent legislation, but I needed to use Westlaw for policies that predated 2012. Together these resources were used to verify and adjust effective dates of the state or federally-funded extended foster care.

[46] JCYOI. 2014. A Guide to Support the Implementation of Foster Care beyond 18. Pg. 6.

Finally, for states where dates were still missing or resources yielded conflicting dates, I google searched "<<state>> extended foster care." Often this search resulted in state specific journal articles discussing the policy climate at the time of publication, and sometimes referenced specific house bills.

Table A1. Effective dates and details of policy changes

State	Date effective	Age-Out Age	Federal Reimbursement	Treatment	Eligibility Requirements	Process to Stay	Re-entry Allowed	Direct Payment to Youth	Law/Bill/Act and extra notes
AL	10/1/2010	21	yes	Always federal	least restrictive	Automatic with VPA	yes		Ala. Admin. Code § 660-5-22-.06(11)(a).; state policy prior to FCA
AK	1/1/2011	21	no	Always state	unknown	Court approved with VPA	unknown	yes	HB126; HB27 adds eligibility requirements and reentry in 2016
AZ	11/30/2012	21	no	Nothing to state	least restrictive	VPA	yes, until 20	yes	AZ ADC R21-5-205; Navajo Nation and Pascua Yaqui federally reimbursed starting in 2014 and 2016
AR	6/1/2011	21	yes	Always federal	least restrictive	VPA	yes		
CA	1/1/2012	19; 21 in 2014	yes	Nothing to federal	least restrictive	Automatic with VPA	yes	yes	AB12; age-out age increased incrementally until 2014
CO	1/1/2012	21	no	Nothing to state	least restrictive	Court ordered	no		CO ST § 19-3-205
CT	6/30/2007	21	no	State to federal	enrolled in school		unknown		CT ST § 46b-129; Youth can stay until 23 in some cases.
	10/1/2013		yes		least restrictive	Voluntary opt-in	yes		
DC	10/1/2010	21	yes	Always federal	least restrictive	Automatic	yes		DC CODE § 16-2303. State policy prior to FCA
DE	7/5/2012	21	no	Nothing to state	unknown	Automatic with VPA or court ordered	yes	yes	HJR18 (146th GA), SB113
FL	1/1/2014	21	no	Nothing to state	least restrictive	Automatic with VPA or court ordered	yes		FL ST § 39.6251; 22 if disability.
GA	2/6/2012	21.5	no	Nothing to state	enrolled in high school	VPA	yes, until 20		GA ST § 15-11-2 in 2014
HI	7/1/2014	21	yes	Nothing to federal	least restrictive	Court approved with VPA	yes		Senate Bill 1340 (Act252).Program name: Imua Kakou.
ID	7/1/2010	21	no	Always state	unknown	Court approved with VPA	no		ID ST § 39-1202. Referred to as "continued care".
IL	10/1/2010	21	yes	Always federal	least restrictive	Automatic with VPA or court ordered	yes		State policy prior to FCA
IN	3/14/2012	20	no	State to federal	least restrictive	Court approved with VPA	yes	yes	IN ST 31-28-5.8-5
	7/1/2012		yes						
IA	1/1/2009	19	no	Always state	enrolled in high school	VPA	yes		Iowa Code § 234.1(2)
KS	5/31/2012	21	no	Nothing to state	enrolled in high school	Court approved with VPA	no		Kan. Stat. § 38-2203

State	Date effective	Age-Out Age	Federal Reimbursement	Treatment	Eligibility Requirements	Process to Stay	Re-entry Allowed	Direct Payment to Youth	Law/Bill/Act and extra notes
KY	4/11/2012	21	no	Nothing to state	none specified	VPA	yes, until 19		KY S 213
LA	6/1/2018	21	no	Nothing	enrolled in high school	VPA	no		La. Stat. § 46:286.24(A). 21 if still in HS. Young Adult Program (YAP) prior to 2013, ended due to budget cuts.
ME	9/28/2011	20	no	State to federal	least restrictive	VPA	yes		Me. Rev. Stat. tit 22, § 4037-A(1)(a). V9 Program/Agreement
	1/1/2012		yes						
MD	10/1/2010	21	yes	Always federal	least restrictive	Court approved with VPA	yes, until 20.5		State policy prior to FCA
MA	10/1/2010	21	yes	Always federal	least restrictive	VPA	yes	yes	MA ST 119 § 21. State policy prior to FCA
MI	11/22/2011	21	no	State to federal	least restrictive	VPA	yes		MI ST 400.645
	7/1/2012		yes						
MN	10/1/2010	21	yes	Always federal	least restrictive	VPA	yes	yes	MN ST § 260C.451; State policy prior to FCA
MS	7/1/2013	21	no	Nothing to state	enrolled in high school	Automatic with VPA	no		MS ST § 43-15-13
MO	8/28/2013	21	no	Nothing to state	none specified	Court approved with VPA	yes, until 20		MO ST 211.036
MT	11/29/2017	21	no	Nothing	enrolled in high school	Court approved with VPA	no		MT ADC 37.51.102. No age limit if in secondary school starting in 2018. Transitional living program.
NE	12/1/2008	19	no	State to federal	unknown		unknown		
	9/1/2014	21	yes		least restrictive	VPA	yes	yes	2013 Young Adult Voluntary Services and Supports Act. Program name: Bridge to Independence (b2i).
NV	10/1/2015	19	no	Nothing to state	NA	VPA	no	yes	
NH	1/1/2009	18	no	Nothing	unknown	VPA	yes		NH ST § 169-C:34 (V-a). Voluntary services until 21
NJ	7/1/2006	21	no	Always state	enrolled in school, working at least part time, or unable due to medical or disability	Court approved with VPA	yes	yes	NJ ST 30:4C-2.3. Direct payments used for independent living
NM	9/29/2015	18	no	Nothing	NA	Court approved with VPA	no	yes	N.M. Stat. § 32A-4-25.3. Navajo Nation federally reimbursed starting in 2014.
NY	10/1/2010	21	yes	Always federal	least restrictive		yes		NY FAM CT § 1055

State	Date effective	Age-Out Age	Federal Reimbursement	Treatment	Eligibility Requirements	Process to Stay	Re-entry Allowed	Direct Payment to Youth	Law/Bill/Act and extra notes
NC	1/1/2017	21	yes	Nothing	least restrictive	Court approved with VPA	yes, until 20	yes	N.C. Gen. Stat. §108A-48(c). Eastern Band federally reimbursed starting in 2015.
ND	1/1/2012	21	yes	Nothing to federal	least restrictive	Court approved with VPA	yes		ND ST 27-20-30.1
OH	9/13/2016	21	no	Nothing	least restrictive	VPA	no		HB 50 of the 131 GA
	10/1/2018		yes				yes	yes	
OK	11/1/2015	18	no	Nothing	unknown	Court ordered	yes		OK ST T. 10A § 1-9-107. Successful Adulthood Act.
OR	4/1/2011	21	yes	Always federal	least restrictive	Automatic	no	yes	OR ADC 413-030-0220; OR ST § 418.330. Direct payments used for tuition and waiver fees.
PA	1/1/2010	21	no	State to federal	enrolled in school or unable due to medical or disability	Court approved with VPA	no		
	7/1/2012		yes		least restrictive		yes		PA H 1261
RI	6/28/2018	21	no	Nothing	least restrictive	VPA	yes	yes	RI ST § 14-1-6 (c). Had extended foster care prior to 2007, but then scaled back.
	1/1/2019		yes						
SC	4/26/1996	21	no	Always state	enrolled in school or working at least part time	VPA	yes		SC ADC 114-595. Referred to as Aftercare Placement.
SD	1/1/1991	21	no	Always state	enrolled in high school	VPA	no		SD ST § 26-6-6.1
TN	10/1/2010	21	yes	Always federal	enrolled in school or unable due to medical or disability	VPA	yes	yes	Tennessee's Transitioning Youth Empowerment Act of 2010
TX	10/1/2010	21	yes	Always federal	least restrictive	VPA	yes		40 TX ADC § 700.346. 22 if still in HS. State policy prior to FCA.
UT	4/1/2015	21	no	Nothing to state	unknown	VPA	yes		Transition to Adult Living Program. Navajo Nation federally reimbursed starting in 2014.
VT	6/6/2007	22	no	Always state	least restrictive	VPA	yes		VT ST T. 33 § 4904
VA	7/1/2015	21	no	Nothing to state	unknown	VPA	yes		VA ST § 63.2-905.1
	7/1/2016		yes		least restrictive	Automatic with VPA		yes	Fostering Futures Program

State	Date effective	Age-Out Age	Federal Reimbursement	Treatment	Eligibility Requirements	Process to Stay	Re-entry Allowed	Direct Payment to Youth	Law/Bill/Act and extra notes
WA	7/22/2011	21	yes	Always federal	Restrictions loosened overtime. Most restrictive in 2011 and least restrictive in 2016.	VPA	yes	yes	WA ST 74.13.020. Pilot program prior to FCA.
WV	1/1/2011	21	yes	Always federal	enrolled in school	VPA	yes, until 20		WV ST § 49-2B-2
WI	8/1/2014	21	no	State to federal	enrolled in high school	Court approved with VPA. Needs IEP	unknown		Wisconsin Act 334
	7/14/2015		yes				yes		Wis. Stat. Ann. § 48.975(3m);
WY	3/4/2016	21	no	Nothing	unknown	Court approved with VPA	no		WY ST § 14-3-431

This table provides an overview of the dates and details about each states' extended foster care policy. The effective date is used to determine whether a youth has EFC available at the time they turned 18 years old. Most states with EFC extend the age-out age to 21; however, some states have younger ages. Federal reimbursement indicates that the state has an approved Title IV-E plan and receives federal reimbursement for EFC services. States that receive federal reimbursement are said to have "federally-funded EFC." The treatment column specifies how each state is represented in my sample. "Nothing" means that there was no policy prior to 2016. "Nothing to state" means that a state adopted a policy between 2012 and 2016. "Nothing to federal" means that a state adopted a policy and is receiving federal reimbursements between 2012 and 2016. "State to federal" identifies the seven states that have both a state and federal policy between the years 2012 and 2016. "Always state" means that the state had a policy prior to 2012, and "always federal" means that the state had a policy and is receiving federal reimbursement prior to 2012. Eligibility requirements are referred to as "least restrictive" in states that allow youth to participate in extended foster care if any of the following requirements are met: enrolled in secondary school, enrolled in post-secondary school, working part-time, participating in training programs to reduce barriers to work or school, or unable to do the above due to a medical condition or disability. More restrictive eligibility requirements are specified. Most states require youth to sign a voluntary placement agreement (VPA) in order to remain in care, and some have the additional step of court approval. The majority of states allow for re-entry and some states pay their foster care maintenance payments directly to the youth. The final column references laws, bills, and acts when appropriate and provides additional details about a state's specific program. All of the information in this table comes from the collection of sources discussed above. A more detailed excel spreadsheet is available upon request.

Appendix B – What Factors Predicts Extended Foster Care Implementation?

A common concern using a difference-in-differences approach is that treated subjects differ from untreated subjects (i.e. the parallel trends assumption is not satisfied). In my analysis, I use cross-sectional data to compare outcomes for youth before and after the implementation of extended foster care in a specific state. Since I use cross-sectional data, I cannot verify the parallel trends assumption, but in this appendix, I demonstrate that treated states do not differ from the untreated states in ways that would bias the results.

First, I provide statistics by treatment status. Table B1 provides NYTD participant characteristics aggregated at the state level by treatment. The average high school enrollment rate ranges from 86 to 91 percent, and the youth employment rate ranges from 13 to 17 percent with no notable monotonic trend. The foster care environment, as indicated by age of entry, removal reasons, and placements, is similar across treatment status. One monotonic trend worth noting is survey participation. Average survey participation rates range from 53 to 76 percent, decline with age, and are higher among states with extended foster care. This pattern indicates differences in attrition between the treatment and control groups and is addressed in the main paper.

Next, Table B2 summarizes the economic conditions and safety net generosity as NYTD participants transition to adulthood by treatment. There are some differences across cohorts, but no notable differences across treatment status. For example, the unemployment rate ranges from 6.5 to 8 percent for the older cohort and 4.3 to 5.5 for the younger cohort. Income per capita (in 2016 USD) ranges from $42,000 to $51,000 for the older cohort and $44,000 to $53,000 for the younger cohort. Finally, the number of Medicaid beneficiaries ranges from 156 to 201 per 1,000 people for the older cohort and 189 to 250 per 1,000 people for the younger cohort. In the younger cohort, states that implemented extended foster care between 2012 and 2016 have overall fewer Medicaid beneficiaries.

Finally, I create a state panel of economic conditions, safety net generosity, and foster care environment for the years 2008 to 2017 to further demonstrate that these factors are uncorrelated with implementing federally-funded extended foster care and have little explanatory power. I estimate the following fixed effects linear in probability model:

$$Prob(FedEFC_{st} = 1) = \beta_0 + \boldsymbol{X_{st}\beta} + \gamma_s + \gamma_t + \gamma_s * Year \qquad \text{(B1)}$$

Where FedEFC is a binary indicator that equals one if state s has federally-funded extended foster care in year t, **X** is a vector of predictive factors for state s in year t, such as the unemployment

rate, and γ_s and γ_t are state and year fixed effects, respectively. The final term $\gamma_s * Year$ captures the state-specific linear trends. The results from this analysis are provided in Table B3.

The first three models reveal correlations between implementation and economic conditions and the foster care environment. There are only a few notable correlations. First, states with higher monthly SNAP benefits and fewer Medicaid beneficiaries are more likely to implement federally-funded extended foster care. Although statistically significant, this finding is economically insignificant. For example, increasing the monthly SNAP payment by $23 (one standard deviation) is correlated with a 0.23 percent increase in extended foster care implementation. Second, having a Democratic Governor is correlated with a 14 percent increase in the likelihood of implementing extended foster care. Finally, states with more disconnected youth between the ages of 16 to 24 are marginally less likely to have extended foster care.

The final model uses lagged independent variables to try to determine whether the conditions of the previous year have any explanatory power for future implementation. In this model, the earlier correlations go away and only the proportion of foster youth ages 16 to 21 funded with Title IV-E dollars has explanatory power. States that experienced a 1 percent increase in the proportion of youth ages 16 to 21 funded with Title IV-E dollars were 0.88 percent less likely to implement extended foster care. In other words, states with more Title IV-E eligible youth are less likely to implement extended foster care.

Overall, there are few notable correlations implying implementation of federally-funded extended foster care is unpredictable, at least based on a variety of observable characteristics. After controlling for state and cohort effects, implementation of extended foster care should be as good as random.

Table B1. State characteristics by treatment

	Federal policy prior to 2012		State policy prior to 2012		Nothing to federal policy between 2012 and 2016		Nothing to state policy between 2012 and 2016		State to federal policy between 2012 and 2016		No policy as of 2016	
Number of States	13		7		3		12		7		9	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Number of NYTD Participants	745.9	572.4	305.1	293.6	1,500	2,407	600	335.3	767.6	527.9	349.7	265.6
Percent of youth that participated in survey at 19	76.02	11.8	75.54	10.11	75.76	9.028	72.99	10.26	66.85	12.06	68.08	9.765
Percent of youth that participated in survey at 21	74.37	9.523	68.28	10.07	70.57	4.23	64.30	15.47	52.76	18.5	67.16	7.773
Percent female	49.13	4.808	51.09	5.268	55.54	3.645	49.03	6.380	45.9	5.039	45.54	5.479
Percent Non-Hispanic White	44.77	21.55	53.06	25.46	32.85	26.66	49.91	14.47	49.63	15.62	52.75	17.59
Percent Non-Hispanic Black	33.6	25.21	18.99	21.96	10.83	11.17	30.58	18.34	29.03	14.82	20.70	21.60
Percent Hispanic	12.87	10.84	8.811	6.1	17.64	25.3	13.70	11.44	12.6	6.55	14.25	14.90
Percent Other Race	8.757	7.55	19.14	23.64	38.68	35.24	5.802	3.578	8.74	1.914	12.29	8.904
Percent of youth ever diagnosed with disability	58.54	24.24	37.51	20.04	63.22	25.95	54.86	27.06	56.77	17.45	51.98	21.99
Total removals as a child	1.531	0.215	1.466	0.116	1.563	0.118	1.440	0.161	1.453	0.2	1.571	0.236
Total number of placements as a child	7.222	2.093	6.595	1.379	6.234	1.104	7.718	2.084	6.337	1.304	7.102	2.633
Cumulative length of stay in foster care as a child	4.446	1.36	3.721	0.597	4.173	1.136	3.615	0.374	3.987	1.004	3.918	0.682
Age of first removal	11.66	1.318	12.75	0.782	11.25	1.515	12.53	0.574	12.2	0.879	11.86	1.000
Percent placed in a foster home	60.73	13.88	58.75	14.27	66.81	15.99	59.73	11.39	61.18	10.34	60.59	15.92

	Federal policy prior to 2012		State policy prior to 2012		Nothing to federal policy between 2012 and 2016		Nothing to state policy between 2012 and 2016		State to federal policy between 2012 and 2016		No policy as of 2016	
Number of States	13		7		3		12		7		9	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Percent placed in a group home	32.69	15.1	33.2	12.37	25.04	13.35	34.56	12.97	32.47	10.81	34.61	16.96
Percent placed in other setting	6.588	2.6	8.053	6.631	8.144	2.658	5.705	4.106	6.346	5.025	4.802	2.027
Age of last placement	17.43	0.747	16.99	0.337	17.12	0.183	17.20	0.422	17.56	0.578	17.07	0.512
Last placement setting as a child: kinship care	10.47	5.861	11	5.385	17.66	12.11	8.338	4.967	12.96	3.106	12.32	6.420
Last placement setting as a child: foster family	39.37	8.528	40.79	13.2	43.77	3.29	41.57	10.51	39.94	12.14	35.60	10.40
Last placement setting as a child: group home	31.65	13.25	25.69	12.39	26.62	8.278	32.79	16.12	28.29	11.13	32.64	13.84
Last placement setting as a child: supervised independent living	5.901	3.155	4.87	4.861	1.709	2.961	4.538	3.998	6.91	8.194	6.846	8.225
Percent ever removed for abuse	27.14	13.3	26.68	10.8	24.58	15	25.39	7.537	24.45	7.215	23.83	10.07
Percent ever removed for neglect	48.32	20.89	54.2	25.25	48.8	23.9	53.61	20.30	56.78	28.02	59.66	18.07
Percent ever removed for parental incarceration	5.129	3.854	6.912	7.517	4.552	2.758	7.695	3.626	7.387	2.085	6.549	4.314
Percent ever removed for parental substance abuse	19.93	13.39	22.63	14.21	13.97	7.226	20.36	7.213	22.61	8.702	19.10	10.78

	Federal policy prior to 2012		State policy prior to 2012		Nothing to federal policy between 2012 and 2016		Nothing to state policy between 2012 and 2016		State to federal policy between 2012 and 2016		No policy as of 2016	
Number of States	13		7		3		12		7		9	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Percent ever removed for inadequate housing	8.831	6.746	7.628	7.516	11.66	13.64	14.29	8.468	12.93	5.469	7.693	6.488
Percent ever removed for child-related problems	40.23	17.75	38.61	24.51	34.52	33.26	45.49	24.78	42.58	16.11	36.86	23.15
Median monthly foster care payment	$2,233	$1,362	$1,086	$561	$1,858	$1,204	$2,029	$2,738	$2,216	$848	$1,510	$1,214
Percent in foster care at 17	100	0	99.88	0.312	100	0	99.13	2.052	99.54	0.914	99.64	0.882
Percent enrolled in HS at 17	91.39	3.231	91.61	4.189	89.22	3.651	86.25	14.30	92.51	3.253	87.80	4.550
Percent homeless prior to 17	15.58	7.653	19.09	12.76	23.83	7.173	17.70	6.082	17.88	7.506	21.94	11.37
Percent employed at 17	13.35	6.501	16.39	5.129	14.35	7.165	13.12	3.191	15.08	4.734	17.42	5.700
Percent incarcerated prior to 17	31.03	9.921	31.37	17.12	36.09	13.84	38.43	13.97	36.82	11.33	34.79	13.68
Percent referred for substance abuse prior to 17	26.37	7.531	29.99	8.968	34.08	9.601	28.29	11.26	29.34	6.982	29.88	10.88
Percent not enrolled or employed at 17	5.399	2.947	4.787	2.4	5.741	2.262	5.244	3.936	4.561	0.946	7.564	3.445
Percent enrolled in college at 17	2.792	1.276	2.887	1.729	4.803	1.966	7.833	13.98	2.953	1.893	3.847	1.808
Percent in foster care at 19	41.74	22.47	6.663	9.627	31.82	23.69	16.81	17.86	27.4	18.13	6.899	8.078
Percent homeless in past 2 years	19.23	7.053	29.64	13.72	31.26	12.99	21.01	6.323	20.81	4.946	27.37	9.192

	Federal policy prior to 2012		State policy prior to 2012		Nothing to federal policy between 2012 and 2016		Nothing to state policy between 2012 and 2016		State to federal policy between 2012 and 2016		No policy as of 2016	
Number of States	13		7		3		12		7		9	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Percent that have graduated high school by 19	40.41	16.21	43.85	21.52	55.99	4.375	47.33	20.04	40.77	10.38	46.63	11.53
Percent enrolled in college at 19	26.18	8.967	20.19	10.99	30.41	6.535	25.68	11.51	26.77	6.955	21.29	5.871
Percent employed at 19	35.99	4.473	40.54	3.771	38.68	6.222	38.36	8.905	35.86	4.895	37.41	5.028
Percent not enrolled or employed at 19	30.85	5.963	33.22	6.094	31.86	6.069	29.56	7.633	30.56	9.613	33.13	4.665
Percent incarcerated in past 2 years	24.33	8.126	24.62	11.67	21.03	5.741	25.29	9.342	27.59	8.741	25.66	11.29
Percent in foster care at 21	21.11	18.18	2.722	6.734	15.9	14.41	7.159	17.60	8.338	10.11	1.158	2.236
Percent homeless in past 2 years	25.77	8.335	37.63	13.07	27.39	4.009	32.36	7.813	30.33	6.717	35.12	8.765
Percent that have graduated high school by 21	69.37	12.31	74.74	9.011	83.28	5.753	78.25	10.86	68.57	12.8	71.78	11.42
Percent enrolled in college at 21	20.6	6.199	19.41	8.709	29.28	6.964	22.54	8.810	22.01	8.039	15.53	5.144
Percent employed at 21	49.28	5.516	48.71	7.683	56.19	8.779	53.85	11.06	50.99	6.744	52.86	9.480
Percent not enrolled or employed at 21	38.42	6.473	42.03	10.21	31.42	3.413	35.35	10.43	36.83	7.321	36.25	6.818
Percent incarcerated in past 2 years	24.69	7.947	30.12	13.27	23.58	7.109	27.37	10.11	26.14	12.38	27.15	9.787

Table B2. Average economic conditions and safety net generosity by treatment

	Federal policy prior to 2012		State policy prior to 2012		Nothing to federal policy between 2012 and 2016		Nothing to state policy between 2012 and 2016		State to federal policy between 2012 and 2016		No policy as of 2016	
Number of States	13		7		3		12		7		9	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
						Cohort 1 3-Year Average (2011, 2012, 2013)						
Unemployment Rate	7.82	1.02	6.69	1.96	6.47	3.62	7.92	1.64	7.48	1.69	7.10	1.77
Poverty Rate	14.92	3.24	12.36	2.57	12.88	2.79	15.12	3.27	12.55	1.45	15.14	4.22
Income per Capita (in 2016 USD)	$48,097	$10,259	$46,412	$8,143	$50,522	$4,124	$41,816	$5,060	$47,228	$9,323	$44,516	$5,937
Gross State Product (in millions of 2016 USD)	$470,440	$460,338	$154,951	$180,817	$793,747	$1,264,000	$279,790	$212,161	$303,536	$206,575	$194,921	$195,266
TANF Recipients (per 1,000 people)	13.35	7.30	9.12	4.06	20.87	15.60	8.85	4.11	10.75	3.46	9.04	6.72
Child-only TANF Recipients (per 1,000 children)	9.69	4.84	7.10	3.02	12.83	13.70	7.62	4.62	7.95	1.38	7.95	4.67
Monthly TANF Benefit for 3-person family	$449	$191	$524	$246	$617	$143	$350	$98	$482	$122	$461	$162
SNAP Recipients (per 1,000 people)	164.80	35.93	135.60	28.39	104.20	21.10	149.00	41.85	143.40	34.70	148.20	48.21
Monthly SNAP Benefit for 1-person household	$210	$0	$215	$15	$250	$70	$210	$0	$210	$0	$210	$0
Medicaid Beneficiaries (per 1,000 people)	201.60	49.10	171.90	45.37	181.50	80.99	156.00	42.93	180.60	35.72	179.50	60.37

	Federal policy prior to 2012		State policy prior to 2012		Nothing to federal policy between 2012 and 2016		Nothing to state policy between 2012 and 2016		State to federal policy between 2012 and 2016		No policy as of 2016	
Number of States	13		7		3		12		7		9	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
						Cohort 2 3-Year Average (2014, 2015, 2016)						
Unemployment Rate	5.54	0.83	4.76	1.38	4.31	1.85	5.29	1.03	4.95	0.95	5.23	1.05
Poverty Rate	13.66	3.16	11.79	1.91	11.79	2.38	13.99	3.75	11.73	1.56	13.92	4.32
Income per Capita (in 2016 USD)	$51,050	$11,166	$48,744	$8,032	$53,187	$3,232	$44,094	$5,252	$49,483	$9,052	$46,402	$6,191
Gross State Product (in millions of 2016 USD)	$507,666	$498,001	$164,549	$191,815	$898,508	$1,437,000	$302,953	$235,459	$323,665	$221,817	$205,675	$212,882
TANF Recipients (per 1,000 people)	12.77	9.96	7.85	4.05	19.97	19.00	6.95	3.60	12.31	13.37	7.30	4.85
Child-only TANF Recipients (per 1,000 children)	8.70	4.54	6.89	3.41	9.67	9.32	6.89	4.54	6.91	1.73	6.88	4.70
Monthly TANF Benefit for 3-person family	$442	$189	$519	$228	$628	$148	$342	$95	$469	$115	$460	$166
SNAP Recipients (per 1,000 people)	157.90	33.86	125.20	21.60	104.70	30.31	139.90	41.13	133.30	23.02	142.80	50.68
Monthly SNAP Benefit for 1-person household	$194	$0	$199	$14	$242	$83	$194	$0	$194	$0	$194	$0
Medicaid Beneficiaries (per 1,000 people)	250.90	56.41	200.60	59.25	195.00	71.81	189.20	55.89	193.30	34.53	218.00	84.66

Table B3. Predictors of implementing federally-funded extended foster care

	Outcome: Federally-funded extended foster care			
Independent Variables	(1)	(2)	(3)	(4)
Unemployment rate	-0.003	-0.002	-0.001	-0.004
	(0.025)	(0.025)	(0.026)	(0.031)
Gross state product (in millions of 2016 USD)	0.334	0.471	0.382	-1.046
	(0.703)	(0.760)	(0.751)	(1.197)
Poverty Rate	0.006	0.006	0.007	-0.001
	(0.008)	(0.008)	(0.008)	(0.010)
Income per capita (in 2016 USD)	0.011	0.015	0.012	0.024
	(0.018)	(0.017)	(0.016)	(0.019)
TANF recipients (per 1000 people)	-0.006	-0.006	-0.006	-0.005
	(0.007)	(0.007)	(0.007)	(0.007)
Monthly TANF benefit for 3-person family (in 2016 USD)	0.000	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
SNAP recipients (per 1000 people)	-0.001	-0.001	-0.001	0.002
	(0.003)	(0.002)	(0.002)	(0.002)
Monthly SNAP benefit for 1-person household (in 2016 USD)	0.010***	0.010***	0.009***	0.000
	(0.003)	(0.003)	(0.003)	(0.002)
Child-only TANF recipients (per 1000 children)	0.011	0.012	0.010	0.011
	(0.017)	(0.018)	(0.018)	(0.022)
Medicaid beneficiaries (per 1000 people)	-0.001	-0.002*	-0.002*	-0.001*
	(0.001)	(0.001)	(0.001)	(0.001)
Governor is Democrat	0.145**	0.141**	0.139**	0.106
	(0.061)	(0.061)	(0.061)	(0.077)
Federal medical assistance percentage	0.829	0.914	0.823	2.351
	(1.281)	(1.290)	(1.352)	(1.435)
Foster youth (per 1000 people)		0.049	0.060	-0.017
		(0.091)	(0.094)	(0.117)
Proportion of Foster Youth aged 16 to 21		0.158	0.021	0.970
		(1.234)	(1.242)	(0.969)
Proportion of Foster Youth that are Funded under Title IV-E		0.284	0.310	0.672
		(0.498)	(0.512)	(0.451)

Proportion of Foster Youth that are Funded under Title IV-E, age 16 to 21		0.001	-0.010	-0.888**
		(0.346)	(0.358)	(0.367)
Proportion of Foster Youth in Supervised Independent Living, age 16 to 21		-0.733	-0.758	-1.059
		(0.618)	(0.622)	(0.635)
Median Monthly Payment for Foster Youth, age 16 to 21		-0.000	-0.000	-0.000*
		(0.000)	(0.000)	(0.000)
Median Monthly Payment for Foster Youth		0.000	0.000	0.000**
		(0.000)	(0.000)	(0.000)
Homeless (per 1000 people)			0.015	0.021
			(0.050)	(0.041)
Percent of disconnected youth, age 16 to 24			-2.140*	0.579
			(1.135)	(1.154)
Percent of youth enrolled in college, age 18 to 24			-0.528	-0.844
			(0.755)	(0.881)
Observations	510	510	510	459
Number of States	51	51	51	51
Adjusted R-squared	0.629	0.632	0.632	0.565

*** p<0.01, ** p<0.05, * p<0.1

Standard errors clustered at the state level are in parentheses. All regressions include year fixed effects, state fixed effects, and a state linear time trend. The fourth column uses lagged independent variables, thus has one less year of data.