



Economic conditions and the number of children in foster care

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ABSTRACT

In the late 2010s, foster care capacity was declining. In this study, we show that increasing the affordability of fostering a child could increase foster care capacity. We use administrative data from Adoption & Foster Care Statistics (AFCARS) to examine the association between state-level economic factors and the number of children in foster care from 1996 to 2016. Using a panel regression, we found that a 10 % increase in state foster care payments was associated with a 0.9 % increase in the number of children in foster care in that state. As an example, North Carolina increased its payment rates to foster parents in 2008. Using a triple-difference strategy, we found that this increase led to a 20 % increase in the number of children in foster care relative to children placed in other settings and relative to other states. Second, we examined the role of housing affordability: higher housing prices were associated with a lower number of children in foster care, consistent with the cost of space being a constraint for foster parents. Third, we examined the role of labor market opportunities: a higher minimum wage and higher female employment were associated with a *greater* number of children in foster care. This result is inconsistent with the idea that foster care is just a job, so that higher pay in other jobs and more time spent in employment would dissuade people from fostering a child. Instead, our results are consistent with foster parents acting out of altruism under financial constraints. Our results suggest that relaxing these financial constraints by, for example, increasing board rates enables people to act on their altruistic motives and foster a child.

1. Introduction

The shortage of qualified foster homes in the U.S. has reached a crisis point. At least half of the states in the U.S. have seen their foster care capacity decrease between 2012 and 2017 (Kelly et al., 2017). A decrease in foster homes can result in multiple placements, use of residential care, and untimely permanency (Ahn, DePanfilis, Frick, & Barth, 2018). Unstable or multiple placements are frequently linked to children's diminished well-being (Rubin et al., 2008; Villodas, Litrownik, Newton, & Davis, 2016). To increase child well-being, it is important to understand how states can increase prospective foster parents' motivation and ability to foster.

Prior studies show that most parents decide to become foster parents out of altruism rather than to obtain a foster care payment (Colton, Roberts, & Williams, 2008; Kirton, Beecham, & Ogilvie, 2007). At the same time, financial factors are significantly associated with foster parents' satisfaction and the willingness to continue fostering (Cooley, Farineau, & Mullis, 2015; Daniel, 2011; Geiger, Hayes, & Lietz, 2013;

Mihalo, Strickler, Triplett, & Trunzo, 2016). Inadequate board rates for foster care and concerns about financial burdens impact foster parents' decisions to discontinue fostering (Colton et al., 2008; Geiger et al., 2013; Kirton et al., 2007). Beyond financial constraints, a lack of time could also discourage prospective parents from fostering. We would therefore expect economic conditions that influence people's incomes and available time to affect their decisions to foster. However, we lack a systematic picture of how both state economic conditions and foster care board rates influence the number of children in foster care at the state level.

In the current study, we use administrative data from the Adoption & Foster Care Statistics (AFCARS) from 1996 to 2016 to examine the association between state-level economic factors, board rates, and the number of children in family foster care. In terms of state-level economic factors, we focus on housing prices, minimum wages, and the male and female employment rates. These findings may contribute to state-level policymaking to increase foster care capacity.

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2. Background and significance

Foster care parents must have enough financial security to care for a child. Yet, many foster parents have low income and board rates for foster care are often inadequate. Foster parents often come from disadvantaged backgrounds and have experienced adverse childhood experiences themselves (Cooley, Womack, Rush, & Slinsky, 2020). Many foster parents are less educated, less likely to be working and more likely to be disabled as compared to their non-foster parent peers (O'Hare, 2008). Foster parents experience financial burdens if the board payments are inadequate to cover the cost of care (Freundlich, 2014)). One study of the foster care "minimum adequate rates for children" (MARC).

found that all but four states (Columbia, Mississippi, Montana, and North Dakota) have lower foster care rates than the MARC, and some states even need to double their reimbursement rates to meet the MARC (Ahn et al., 2018). Given the financial difficulties that foster care parents encounter, higher payment rates or economic conditions leading to higher incomes could increase the number of prospective parents who are financially able to foster. Using more comprehensive and recent data compared to previous studies, this study investigates the effect of increasing foster care board payments on the number of placements in foster families.

Several decades ago, Campbell and Downs (1987) demonstrated that increasing board rates could expand the supply of family foster homes. More recently, Doyle and Elizabeth Peters (2007) utilized data from 37 states over eight years (1987–1995) to estimate the relationship between the monthly subsidies paid to foster families and the quantity of foster care services provided. The results suggest that an increase in the subsidy by 10 % would increase the quantity of available foster homes by 3 % in states with shortages. Another study from Doyle (2007) showed that financial incentives positively affect foster parents' decisions to foster. Specifically, a 30 % reduction in the monthly subsidy provided to relative foster families was associated with a 15 % reduction in likelihood to provide care. At the same time, Duncan and Argys (2007) used AFCARS data from 1998 and found that increases in the basic monthly foster care payment reduced the number of children placed in group homes and increased nonrelative foster homes placements.

Our study also adds to this relatively sparse body of literature by examining other macroeconomic factors at the state level that may be associated with the number of children in foster care. We focus on factors that may affect biological and foster parents' behaviors and decisions, recognizing that reasons for children entering foster care are varied, and include for example the death of the parents.¹ Specifically, we investigated the role of housing prices, minimum wages, and male and female employment rates. Housing prices may affect both foster parents and biological parents. For both sets of parents, higher housing prices may reduce housing affordability, both directly for home buyers, and indirectly for renters.² For biological parents, this phenomenon could lead to additional family stressors that can lead to child maltreatment, and therefore more children potentially needing placement. At the same time, for prospective foster parents, higher housing costs could reduce their ability to take on a foster child. Labor market conditions may also affect both foster parents and biological parents. For biological parents, higher minimum wages increase incomes, which could reduce maltreatment and neglect, leading to fewer children in foster care. Foster parents are less educated than average (O'Hare,

2008), which implies that the minimum wage is a better measure of the work opportunities they may have than the average wage. Higher minimum wages have potentially offsetting effects on prospective foster parents. On the one hand, higher minimum wages can increase incomes and make it more economically feasible to foster a child. On the other hand, higher minimum wages may encourage prospective foster parents to work more, because they get more income for each hour of work: this could make it difficult for prospective foster parents to find the time to care for a child. To sum up, then, higher minimum wages may decrease or increase the number of children in foster care. As for employment rates, a higher employment rate leads to higher incomes. As we just discussed, a higher income could reduce maltreatment and neglect, while at the same time allowing more families to financially afford fostering. The effect of higher employment rates on the number of children in foster care is therefore theoretically ambiguous. Additionally, a higher employment rate also reduces the time available to foster a child, as people spend more time at work. This time scarcity factor could be particularly relevant for women, who are more likely to be primary caregivers.

The present study significantly contributes to the literature by investigating the impact of economic factors on the supply of family foster homes. Our investigation is guided by the following hypotheses.

First, we hypothesize that higher board rates are associated with a higher number of children in family foster care. Importantly, board rates only have an effect on foster parents, and not on birth parents.

Second, we expect state-level macroeconomic factors (housing prices, minimum wages, and male and female employment rates) to have a positive or negative association with the number of children in foster care. The direction of the association will depend on whether effects on foster parents' willingness to foster are larger than the effects on the maltreatment and neglect behavior of biological parents. Specifically, for housing costs, we expect the association to be positive if the effects on biological parents dominate: overcrowding and financial stress and housing insecurity can increase the probability of neglect and maltreatment, while housing subsidies decrease foster care placement for at risk children (Fowler, Brown, Schoeny, & Chung, 2018). For minimum wages and for the male and female employment rate, we expect the association to be positive if the effects on the income of foster parents dominate.

Third, we expect that, after a state significantly increases its board rates, the number of children in foster care in that state will increase. We will test this hypothesis using the case of North Carolina's 2008 board rate increase.

3. Data and methods

3.1. Data

Our main dataset is administrative data from Adoption & Foster Care Statistics (AFCARS) from 1996 to 2016 (fiscal year). This dataset allows us to calculate the number of children in foster care at the state by year level. It further contains the characteristics³ of each case, which we convert to state level averages, such as for example the percent of foster children below twelve years of age in Idaho in 2000. We will use these characteristics as controls in our regression models.

We complement this AFCARS data with data on state-level economic variables, including the employment rate of men and women respectively, the state-level minimum wage, and the average housing prices in the state. The minimum wages were drawn from the U.S. Department of Labor (State Minimum Wage Rate [STTMINWG], retrieved from FRED,

¹ Appendix tables list the many reasons for placement used as control variables in our regressions.

² Higher housing prices push landlords to increase rents in order to recoup the higher cost of buying a house. On the other hand, increases in rents incentivizes landlords to buy more houses, which pushes the price of housing higher.

³ The characterizations of children's situations in AFCARS is a complex process that does not only reflect biological parents' behavior but includes many layers, including reporting propensities for different sub-populations (Smith, Li, Wang, & Smith, 2021).

Table 1
Regression Analysis: Payments and Children (All States).

	M1	M2	M3	M4
	Avg. payment	Log (kids)	Log (kids)	Log(kids)
Log avg. FC Monthly Payment		0.0626***	0.0942***	-0.0269
		(0.0165)	(0.0214)	(0.0256)
Log minimum wage	0.237*		0.212***	0.138**
	(0.139)		(0.0747)	(0.0701)
Female employment rate	-0.546		1.297*	1.627***
	(1.443)		(0.694)	(0.576)
Male employment rate	2.803**		-0.674	-0.0545
	(1.094)		(0.528)	(0.466)
Housing price	-0.000563		-0.000517***	-0.000484***
	(0.000411)		(0.000198)	(0.000173)
State f.e.	✓	✓	✓	✓
Year f.e.	✓	✓	✓	✓
State f.e.*Year	-	-	-	✓
Controls	✓	-	✓	✓
Observations	652	910	652	652
R-squared	0.808	0.963	0.985	0.992

Robust standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.
Notes: OLS regressions. Controls are averages at the state level of the characteristics of foster children: percent female, percent white, percent with various disabilities, percent ever adopted, percent below 12 years old, average removals, average placement settings, percent voluntary removals, percent for each reason for foster care placement, percent placed out of state, percent with a goal of reunion, average stay in foster care (current, overall, and previous episode), average days since latest removal. Full details about the controls and the coefficients for controls are to be found in Appendix Table A1.

Federal Reserve Bank of St. Louis), and the state housing prices were represented by the house price index from the U.S. Federal Housing Finance Agency (All-Transactions House Price Index [STHPI], retrieved from FRED, Federal Reserve Bank of St. Louis). The house price index is set to 100 in the first quarter of 1980, so the index can be understood to reflect prices in percent of 1980 Q1 prices in each state. The house price index is a proxy for the general cost of housing and is more readily available than rents as the state level. The male and female employment rates were from the U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics (LAUS).

3.2. Methods

We run panel ordinary least square (OLS) regressions at the state by year level. The outcomes of interest are either the log average foster care payment, or the log number of children in foster care. All models include state and year fixed effects, which account for any systematic differences in the number of children in foster care across states (for all years), or across years (for all states). In some models, we add controls for the characteristics of foster care children in AFCARS (averages at the state level of the characteristics of foster children: percent female, percent white, etc.). Finally, we also experiment with adding state-specific time trends, i.e. an interaction between state fixed effects and year. These state-specific time trends allow each state to have its own linear trend (increase or decrease) in the number of foster children across the years in the sample (1996 to 2016). Therefore, in models with such state-specific trends, an explanatory variable will only be significant if it induces a significant deviation from the state trend. We use robust standard errors in all models.

These panel models allow us to determine whether generally increases in foster care payments are associated with a higher number of children in foster care across all US states. To better understand how

state policy can influence the number of children in foster care, we focus on a particular state that significantly increased its payments during our sample period: North Carolina.

In our analysis of the impact of higher payments to foster parents in North Carolina, we run a difference-in-differences model. In 2007, there was a national Foster Care MARC (Minimum Adequate Rates for Children) campaign to support adequate foster care rates. The campaign reached North Carolina, and House Bill 2436 was adopted in July 2008 to increase payment rates. The maximum rates for state participation in the foster care assistance program was established on a graduated scale as follows: (1) increase from \$390.00 to \$475.00 per child per month for children aged biological through 5; (2) increase from \$440.00 to \$581.00 per child per month for children aged 6 through 12; and (3) increase from \$490.00 to \$634.00 per child per month for children aged 13 through 18. In our data, the most common payment amount before the 2008 increase was about \$350, while after that, the most common payment amount was about \$520.

In our difference-in-differences model for North Carolina only, foster homes are in the treated group and other types of placement are in the control group. Indeed, we expect prospective foster parents to be more willing to foster with higher payments, while the higher payments should not influence other settings such as group homes. We defined the treatment as beginning in 2008, given that we observed a significant increase in payments to foster home parents that year. If the increase in payments induced more people to foster children, we should see an increase in the number of placements in foster homes (treated group) relative to other types of placement (control group).

Finally, we also run a triple difference model, where we compare foster homes to other placements in North Carolina vs the rest of the country. We compare North Carolina with other states because it's possible that the increase in foster home placements in North Carolina is affected by a general national trend in foster home placements. To address this potential factor, we compare foster homes in North Carolina to both other settings in the same state and to the situation in other states. This comparison accounts for any national change in foster homes placements over time.

4. Results

4.1. Regression results using AFCARS data

Results are in Table 1.⁴ We start with asking whether macroeconomic variables at the state level have any influence on the average payments to foster parents. In Model 1, we find that the minimum wage and the male employment rate have a statistically significant influence on payments to foster parents. Payments to foster parents do not seem to be adjusted to consider other state-level economic conditions. In particular, when housing prices increase, payments to foster families are not adjusted to preserve the affordability of an extra room.

We analyze the impact of foster care payments on the number of children in foster care (Models 2–4 in Table 1). Models 2 and 3 show that higher payments are associated with more children in foster families. After controlling for other factors in Model 3, we find that a 10 % increase in the average payment to foster families in a state is associated with a 0.9 % increase for the number of foster children in that state. This result is statistically significant at the 1 % level. However, after accounting for state-specific trends in Model 4, payments to foster care parents no longer have a statistically significant impact on the number of children in foster care. To interpret this result, note that including state trends means we are removing any linear increase (or decrease) in the number of foster children in a state that happens over the whole period

⁴ In the interest of space, we show just coefficients for key variables of interest. For interested readers, tables with the coefficients on all covariates are located in the Appendix.

Table 2
Additional Regression Analysis: Payments and Children (All States), additional controls.

	M1 Log(kids)	M2 Log(kids)	M3 Log(kids)
Log avg. FC Monthly Payment	0.0721*** (0.0209)	0.0689 (0.0447)	0.0706*** (0.0253)
Log minimum wage	0.3181*** (0.0764)	0.3181*** (0.0764)	0.1106 (0.0774)
Female employment rate	2.0574*** (0.7012)	2.0557*** (0.7017)	1.6231** (0.7549)
Housing price	-0.0006*** (0.0002)	-0.0006*** (0.0002)	-0.0008*** (0.0002)
Male employment rate	-0.6492 (0.5934)	-0.6442 (0.6017)	-1.1920* (0.6252)
Log income per capita	0.1062 (0.2158)	0.1079 (0.2161)	
Log avg. FC Monthly Payment * Low income state		0.0043 (0.0505)	
Log SNAP recipients			-0.2678*** (0.0684)
State f.e.	✓	✓	✓
Year f.e.	✓	✓	✓
Controls	✓	✓	✓
Observations	604	604	572
Adj. R ²	0.98	0.98	0.98

Robust standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1. Notes: OLS regressions. Controls are averages at the state level of the characteristics of foster children: percent female, percent white, percent with various disabilities, percent ever adopted, percent below 12 years old, average removals, average placement settings, percent voluntary removals, percent for each reason for foster care placement, percent placed out of state, percent with a goal of reunion, average stay in foster care (current, overall, and previous episode), average days since latest removal.

Table 3
Regression Results for North Carolina.

	M1 Log (kids)	M2 Log (kids)	M3 Log (kids)
Foster family home after 2008	0.444*** (0.0535)	0.150*** (0.0375)	0.201*** (0.0597)
Foster family home	0.501*** (0.0434)	0.750*** (0.154)	0.505*** (0.0700)
Log minimum wage			-0.0502 (0.0853)
Female employment rate			-0.638 (0.946)
Male employment rate			-0.938 (0.722)
Housing price			-0.0007** (0.0003)
State f.e.	-	✓	✓
Year f.e.	✓	✓	✓
Year*foster home f.e.	-	✓	✓
Controls	-	✓	✓
Observations	42	2,022	1,353
R-squared	0.971	0.899	0.940

Robust standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1. Notes: OLS regressions. Controls are averages at the state level of the characteristics of foster children: percent female, percent white, percent with various disabilities, percent ever adopted, percent below 12 years old, average removals, average placement settings, percent voluntary removals, percent for each reason for foster care placement, percent placed out of state, percent with a goal of reunion, average stay in foster care (current, overall, and previous episode), average days since latest removal. Full details about the controls and the coefficients for controls are to be found in Appendix Table A2.

our data covers (i.e., 1996–2016). That payments to foster care parents are no longer significant after including these trends means that the increase in payments in some state s and year t did not increase the number of children in foster care *above and beyond* the overall trend from

1996 to 2016 in that state s. Another way of putting it is to say that states that increased board payments tended to have a positive linear trend in the number of foster children *throughout* 1996–2016, which made the coefficient on board rates positive in model 3. However, model 4 shows that we cannot disentangle the effect of specific increases in board rates from this overall positive trend. Therefore, there is some evidence that payments increase the number of children in foster care, as could be expected if these payments encourage more families to take in foster children, and consistent with prior literature (Doyle & Elizabeth Peters, 2007). However, this evidence is not fully conclusive because the impact of payments is no longer significant after we account for state trends.

Higher payments to foster parents should encourage more households to take in foster children, while having no effect on the number of children who need placement. Therefore, if higher payments increase the number of children in foster care, then this is likely due to an increase in capacity rather than an increase in need.

What are other macroeconomic factors at the state level that could predict the number of children in foster care? Housing prices have a negative effect on the number of children in foster care, consistent with housing being a constraint for families seeking to foster a child. Quantitatively, for every-one-unit increase in the house price index, there is a 0.05 % decrease in the number of children in foster homes (Models 3 and 4). The effect of housing prices is robust, even after accounting for state trends. This result is consistent with qualitative evidence showing that foster parents are discouraged from fostering a child when their house is too small (Geiger et al., 2013): as housing costs increase, it is harder and harder to afford a big enough house.

The minimum wage and female employment show a positive association with the number of children in foster care, and this association is robust to the inclusion of state-specific trends (Models 3 and 4). Quantitatively, a 10 % increase in the minimum wage is associated with a 2.12 % increase in the number of children in foster care in Model 3, and with a 1.38 % increase in Model 4. The positive association of the minimum wage with the number of children in foster care cannot be straightforwardly explained by the behavior of biological parents, since we expect that a higher minimum wage *reduces* maltreatment (Mihalo, Strickler, Triplett, & Trunzo, 2017). On the foster parent side, we might expect that a higher minimum wage encourages potential foster parents to work longer hours, which would make it harder to find time to foster a child. This explanation is not consistent with the positive association between the minimum wage and the number of children in foster care. The minimum wage may bring in more income to prospective foster families, which might make it more affordable to foster a child. This seems like the most plausible explanation for our results and suggests that the payments to foster families may be insufficient to cover the costs associated with fostering a child.

The female employment rate (but not the male employment rate) is positively associated with the number of children in foster care, and this association is again robust to the inclusion of state-specific trends (Models 3 and 4). This results again cannot be easily explained by the behavior of biological parents, since we would expect higher female employment rate to increase incomes and reduce maltreatment. On the foster parent side, a higher female employment rate constrains the time available to prospective foster mothers to take care of a child, and so, contrary to what we observe, one might have expected a negative effect of female employment on the availability of foster families. One potential explanation of the positive effect of female employment on the number of children in foster care is that a higher female employment rate increases incomes, and this allows foster parents to cover the costs associated with fostering a child. Again, if this is the case, it suggests that current foster payments are inadequate.

In Table 2, we check the robustness of our main results by adding additional controls, i.e. the state income per capita and the number of SNAP recipients. We use the specification from Model 3 in Table 1 and add more controls. When we control for either the state income per capita (M1), or the log number of SNAP recipients (M3), the impact of

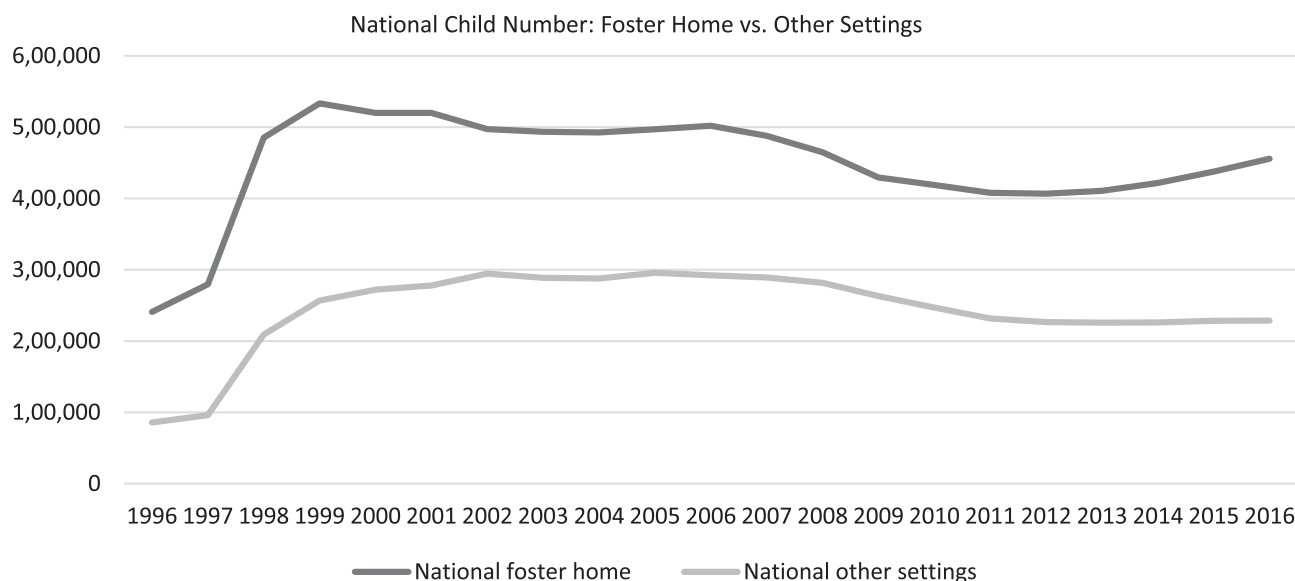


Fig. 1. Foster Children in North Carolina.

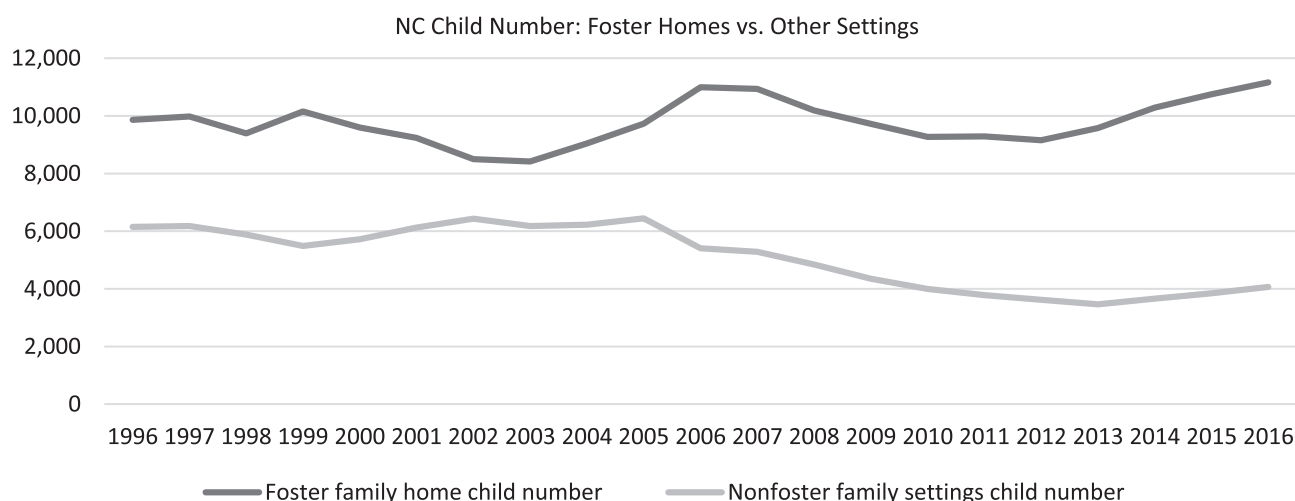


Fig. 2. National trends.

foster care payments on the number of children in foster care is similar to what was found in Table 1.

Income per capita controls for the general economic prosperity in the state, but it does not significantly predict the number of children in foster care (the coefficient is insignificant in Table 2, M1), given the variables we have already controlled for in the model. In model M2, we test whether foster care payments have a significantly different effect on the number of foster kids in low income states (i.e. states with income per capita below the median): we do not find evidence of significant differential effects of foster care payments in poor states as compared to rich states. The number of SNAP recipients captures a combination of the number of low income people and the generosity of SNAP: a higher number of low income people and a more generous state SNAP system would increase the number of SNAP beneficiaries. We find that a higher number of SNAP beneficiaries predicts a significantly lower number of children in foster care (M3). One possible interpretation of this result is that a more generous state level SNAP system may reduce child neglect and abuse, thereby reducing the number of children in foster care.

4.2. The case of North Carolina

In this section, we investigate the impact of the increase in foster care payments in North Carolina in 2008 using a difference-in-differences model. The regression results are shown in Model 1 of Table 3. According to the regression coefficient of foster homes after 2008, the effect of the payment increase on placements in foster homes is positive and statistically significant. The coefficient on foster family homes after 2008 shows that foster care placements increased 44.4 % relative to placements in other settings after 2008. This result is consistent with the increase in the difference between placement in foster homes and in other settings from 2008 to 2016 (the gap between foster families and other settings expanded after 2008 in Fig. 1). In other words, the payment increase within North Carolina seems effective to induce more foster home placements and recruit additional foster care parents.

Moreover, we compared the situation in North Carolina vs other states, and the results turn out to be similar. The specifications in Model 2 of Table 3 show that placements in foster homes increased by 15 % in North Carolina following the increased payment to foster care parents. In Model 3, we ran the same specifications as in Model 2, but added policy variables including minimum wage, housing costs, female and

Table A1
Regression Analysis: Payments and Children (All States).

	M0 Avg. payment	M1 Avg. payment	M2 Log (kids)	M3 Log (kids)	M4 Log(kids)
Log Avg. FC Monthly Payment			0.0626*** (0.0165)	0.0942*** (0.0214)	-0.0269 (0.0256)
Log minimum wage		141.4 (157.5)		0.212*** (0.0747)	0.138** (0.0701)
Female employment rate		-1,179 (2,296)		1.297* (0.694)	1.627*** (0.576)
Housing price		-0.139 (0.525)		-0.000517*** (0.000198)	-0.000484*** (0.000173)
Male employment rate		2,577 (1,705)		-0.674 (0.528)	-0.0545 (0.466)
Female %		-2,124 (1,799)		-1.931*** (0.698)	-0.228 (0.632)
White %		496.2 (348.4)		-0.334* (0.188)	-0.346** (0.175)
Mental Retardation %		10.70 (729.0)		1.398*** (0.445)	1.481*** (0.415)
Visually/Hearing Impaired %		413.4 (260.8)		-0.586*** (0.180)	-0.109 (0.166)
Physically Disabled %		-564.6 (1,333)		-1.436** (0.634)	-0.907 (0.581)
Emotionally Disturbed %		-328.4 (341.1)		-0.0295 (0.134)	-0.389*** (0.145)
Child Ever Adopted %		-710.0* (410.9)		0.305 (0.236)	0.725*** (0.237)
<12 Years Old %		-376.2 (508.8)		0.119* (0.0713)	0.0766 (0.0682)
Avg Removals		766.4* (428.9)		-0.127 (0.163)	-0.938*** (0.140)
Avg Placement setting		-2.340 (43.02)		-0.00471 (0.0258)	-0.0552* (0.0294)
Voluntary Removal %		-1,030*** (331.2)		0.117 (0.204)	0.238 (0.188)
Reason-Physical Abuse %		-1,236** (561.2)		-0.404* (0.213)	-0.336* (0.194)
Reason-Sexual Abuse %		2,952*** (1,031)		-1.011 (0.681)	-0.0565 (0.684)
Reason-Neglect %		226.6 (244.6)		0.0563 (0.105)	0.0957 (0.173)
Reason-Alcohol Abuse Parent %		-114.3 (458.4)		0.195 (0.242)	-0.312 (0.277)
Reason-Drug Abuse Parent %		566.9* (294.2)		1.029*** (0.163)	0.969*** (0.197)
Reason-Alcohol Abuse Child %		-1,107 (1,020)		-3.914*** (0.968)	-0.539 (1.297)
Reason-Drug Abuse Child %		-1,039 (733.2)		0.0626 (0.500)	-1.122* (0.634)
Reason-Child Disability %		-224.1 (239.0)		-0.163 (0.120)	0.206 (0.150)
Reason-Child Behavior Problem %		1,069** (511.3)		0.0135 (0.257)	0.559 (0.373)
Reason-Parent Death %		-5,780* (3,239)		6.577*** (1.096)	3.499** (1.481)
Reason-Parent Incarceration %		58.58 (614.5)		-0.386 (0.322)	-0.215 (0.383)
Reason-Caretaker Inability Cope %		-343.3*** (130.7)		-0.101 (0.0906)	-0.114 (0.154)
Reason-Abandonment %		-1,085 (757.0)		-0.958** (0.431)	-0.749 (0.511)
Reason-Relinquishment %		4,634** (1,956)		-1.201** (0.557)	-1.097 (0.751)
Reason-Inadequate Housing %		-1,145*** (417.7)		-0.120 (0.285)	-0.800*** (0.225)
Multiple Reasons %		460.7* (241.5)		-0.360*** (0.119)	0.144 (0.158)
Out of State Placement %		815.9* (446.1)		-0.329* (0.178)	0.148 (0.227)
Case Plan Goal-Reunion %		618.4*** (235.0)		-0.241** (0.103)	0.154 (0.106)
Avg days stay in FC, all episodes		-0.473 (1.335)		-0.000502 (0.000576)	0.000229 (0.000595)
Avg days-Previous FC stay		-0.0261 (0.229)		-1.56e-05 (0.000130)	-0.000264** (0.000126)
Avg days-Current Placement Setting		0.439		5.14e-05	0.000314**

(continued on next page)

Table A1 (continued)

	M0 Avg. payment	M1 Avg. payment	M2 Log (kids)	M3 Log (kids)	M4 Log(kids)
Avg days since latest removal date		(0.748) 0.739 (1.459)		(0.000182) 0.000580 (0.000593)	(0.000151) -0.000487 (0.000601)
State f.e.	✓	✓	✓	✓	✓
Year f.e.	✓	✓	✓	✓	✓
State*Year f.e.	-	-	-	-	✓
Constant	218.6 (161.6)	-1,467 (1,362)	7.048*** (0.153)	7.470*** (0.655)	36.58* (21.34)
Observations	910	652	910	652	652
R-squared	0.623	0.685	0.963	0.985	0.992

Robust standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: AFCARS.

male employment rate, as well as a rich set of control variables about the children in care. The effect of North Carolina's policy stays positive and significant at the 1 % level, and the placements in foster homes increased by 20 % after the increased payments. This suggests that North Carolina's increased foster care payment statistically accounts for the increase in foster home placements relative to placements in other settings and relative to what happened in other states.

5. Discussion and limitations

5.1. Discussion

In our panel regression for all states, we found that a 10 % increase in state foster care payments was associated with a 0.9 % increase in the number of children in foster care in that state. Since payments to foster parents are unlikely to influence biological parents, the results are most consistent with payments encouraging more families to take in a foster child rather than increasing the number of children in need of placement. To put this magnitude in context, we can ask how much of an increase in foster care payments would be needed to significantly increase foster care placements. Focusing on the national level, Fig. 2 shows that, in 2016, foster home placements were around 450,000, which is around 50,000 shy of the level they had reached in 2006, one of the highest years on record. To increase foster care placements by 50,000, one would need to more than double foster care payments.⁵ Therefore, while increasing foster care payments would be helpful, it may not be enough to fully address capacity issues at the national level.

Additionally, we used North Carolina as an example to show that an increase in payment to foster families results in more placements in family foster settings. North Carolina increased its payment to foster families after 2008. Compared to other states and accounting for other important factors, North Carolina had 20 % more children placed in foster homes after the increased payments. Our findings that higher foster care board payments lead to a higher number of children in foster care are consistent with prior literature (Campbell & Downs, 1987; Doyle & Elizabeth Peters, 2007; Doyle, 2007; Duncan & Argys, 2007) and update this body of literature with more recent data.

We found a negative association between housing costs within a state and the number of children placed in foster care in that state; controlling for other relevant factors, an increase in housing costs in a state was associated with a decrease in the number of children in family foster care in that state. This result suggests that higher housing costs may have an impact on prospective foster parents, making it more difficult to house an additional child.

We also found that an increase in the state minimum wage was

⁵ Increasing placements by 50,000 off of a baseline of 450,000 is an 11 % increase. Assuming linear effects, one would need to more than double foster care payments to get an 11 % increase: indeed, a 100 % increase in foster payments would lead to a 9 % increase in placements.

associated with a greater number of children in foster care, consistent with higher incomes allowing more families to foster a child. This result is in line with the notion that foster families seek to foster mostly out of altruism: a higher income can make families more willing to foster even when they could make more money by working additional hours at the higher minimum wage. While male employment rates did not have a significant association with the number of children in foster care, female employment rates increased the number of children in foster care. This result is again consistent with higher incomes for women allowing them to foster children, even as they have less time to do so.

Our results suggest that affordability may be a key constraint: high housing costs, low wages and low female employment all predict a lower number of children in foster care. While the associations we estimate may not be causal, they are at odds with the idea that foster care is a job like any other. Indeed, if fostering kids were just a job, then less time (higher female employment) and higher wages in other jobs (higher minimum wage) would be associated with fewer, and not more, children in foster care. Our results are therefore consistent with prior literature suggesting that altruism⁶ plays an important role in the decision to foster a child (Colton et al., 2008; Kirton et al., 2007). Our study adds the result that financial constraints can thwart people's ability to act on their altruistic inclinations.

Overall, our findings suggest that states can increase foster care capacity by increasing foster care board rates, as North Carolina did in 2008. All states taken together, our results imply that a 10 % increase in foster care payments is associated with a 0.9 % increase in the number of children in foster care. Importantly, foster care payments (board rates) cannot influence biological parents, so the effect of board rates must be understood in relationship to the behavior of foster parents. Therefore, increases in board rates plausibly increase foster care capacity by influencing foster care parents, with no confounding influence on biological parents. Further, our findings suggest that states may also increase foster care capacity by increasing the minimum wage and providing more affordable housing. These policies may also decrease maltreatment and neglect, which would have additional benefits. If a policy can both decrease maltreatment and provide more foster care families, it clearly increases the well-being of children who are at risk for entering foster care.

5.2. Limitations

A limitation of this study is potential omitted variables that may be correlated with economic conditions we are interested in, i.e., the minimum wage, housing costs and employment rates. We add a large number of detailed controls about foster children, and control for multiple dimensions of economic conditions. However, we cannot rule out

⁶ The altruistic attitude may in part be influenced by the framing of foster care board rates as covering the costs of fostering a child rather than as a salary for the work of fostering children.

Table A2
Regression Results for North Carolina.

	M5 Log (kids)	M6 Log (kids)	M7 Log (kids)
Foster family home after the payment increase	0.444*** (0.0535)	0.150*** (0.0375)	0.201*** (0.0597)
Foster family home	0.501*** (0.0434)	0.750*** (0.154)	0.505*** (0.0700)
Log minimum wage			-0.0502 (0.0853)
Female employment rate			-0.638 (0.946)
Housing price			-0.0007** (0.0003)
Male employment rate			-0.938 (0.722)
Female %			-2.417** (1.037)
White %			0.130 (0.192)
Mental retardation %			0.490 (0.392)
Visually/hearing impaired %			-0.587** (0.233)
Physically disabled %			-1.955** (0.917)
Emotionally disturbed %			0.0533 (0.129)
Child ever adopted %			0.0322 (0.342)
<12 years-old %			0.0868 (0.0848)
Avg removals			-1.280*** (0.201)
Avg placement setting			-0.0383 (0.0288)
Voluntary removal %			-0.0543 (0.267)
Reason-Physical abuse %			-0.625** (0.266)
Reason-Sexual abuse %			-3.802*** (0.972)
Reason-Neglect %			0.704*** (0.187)
Reason-Alcohol abuse parent %			0.312 (0.294)
Reason-Drug abuse parent %			0.738*** (0.217)
Reason-Alcohol abuse child %			-3.778*** (0.815)
Reason-Drug abuse child %			1.947*** (0.547)
Reason-Child disability %			-0.294* (0.154)
Reason-Child behavior problem %			0.488*** (0.150)
Reason-Parent death %			6.344*** (1.382)
Reason-Parent incarceration %			-0.237 (0.500)
Reason-Caretaker inability cope %			-0.0397 (0.113)
Reason-Abandonment %			-1.984*** (0.589)
Reason-Relinquishment %			0.848* (0.435)
Reason-Inadequate housing %			-0.184 (0.315)
Multiple reasons %			-0.0703 (0.115)
Out of state placement %			0.0896 (0.230)
Case plan goal-Reunification %			0.986*** (0.211)
Avg days stay in foster care, All episodes			-0.000265

Table A2 (continued)

	M5 Log (kids)	M6 Log (kids)	M7 Log (kids)
			(0.000952)
Avg days stay in foster care, Previous stay			0.000188 (0.000177)
Avg days stay in foster care, Current placement setting			0.000234 (0.000187)
Avg days stay in foster care, Since latest removal date			0.000502 (0.000953)
State fixed effects f.e.	-	✓	✓
Year f.e.	✓	✓	✓
Year*foster home f.e.	-	✓	✓
Constant	8.710*** (0.0266)	7.854*** (0.116)	10.76*** (1.107)
Observations	42	2,022	1,353
R-squared	0.971	0.899	0.940

Robust standard errors in parentheses.

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

Source: AFCARS.

that there are other changes at the state level that are correlated with economic conditions, and that have an influence on the number of children in foster care. For example, a state that increases its minimum wage may have a more progressive legislature; such a progressive legislature may also implement additional policies that benefit low-income people and that might influence the number of children in foster care.

There is a similar omitted variable bias concern for our results regarding the impact of board rate increases on the number of children in foster care. Increases in board rates may be correlated with other concurrent policy actions taken to increase the supply of foster care families. Since we do not measure all these other policy actions (though we did control for SNAP reciprocity in Table 2), it is possible that they are partly responsible for the positive association between board rates and the number of children in foster care.

Another limitation of our study is that we cannot disentangle the quantitative effects of economic conditions on biological parents versus foster parents. To the extent that the expected effects go in opposite directions, we can determine which sets of parents are *relatively* more influenced by a given variable. For example, higher employment should decrease maltreatment (effect on biological parents leading to *fewer* children in foster care), and also provide more income for a family to better afford fostering a child (effect on prospective foster parents leading to *more* children in foster care). Since female employment rates are associated with a higher number of children in foster care, we conclude that the effect on prospective foster parents is likely to dominate. Importantly, our results on the influence of foster care payments are not affected by this limitation, since foster care payments cannot influence biological parents.

We have used the case of North Carolina to shed more light on ways in which policy decisions can increase board rates and the number of children in foster care. The difference-in-differences model we use assumes that non-family foster care placements are a control group, a counterfactual for how family foster care placements would have evolved in the absence of the increase in board rates. This assumes that non-family foster care placements are not influenced by the increase in board rates. However, it is possible that family foster care placements are given preference over non-family foster care placements. In this case, when higher board rates make more foster care families available, children who would have been placed in non-family foster care are placed in family foster care. To the extent that this phenomenon is at play, it exacerbates the gap between family foster care and non-family foster care placements after North Carolina's board rate increase, and therefore exaggerates the positive effect of the board rate increase on the

number of children in family foster care. Thus, while the magnitude of the impact of board rates may be overstated, the results are still consistent with higher board rates increasing the supply of foster care families.

6. Conclusion

Many states have recently faced a decline in foster home supply. Our study uses AFCARS administrative data from 1996 to 2016 and suggests that this decline could be addressed by improving the affordability of fostering a child. First, we show that higher payment rates to foster parents are associated with a higher number of children placed in foster care: A 10 % increase in payments is associated with a 0.9 % increase in the number of children placed in family foster care. After North Carolina increased its foster care payments in 2008, the number of children in family foster care increased by 20 %, relative to children placed in other settings and relative to what happened in other states. Second, we show that other economic factors at the state level also predict the number of children in foster care. Lower house prices, a higher minimum wage, and higher female employment all predicted a higher number of children in foster care. Higher housing costs are thus likely to curtail prospective foster parents' ability to foster a child as they cannot afford the extra room. On the other hand, higher labor market income likely enables people to foster a child. It does not seem like foster parents are looking to foster care mostly as a way to make more money. If this were the case, they would quit the job when minimum wages are higher or when their regular employment puts them under higher time pressure. Instead, our results are consistent with foster parents acting out of altruism under financial constraints. Therefore, higher foster care rates and better economic conditions have the potential to increase foster home capacity. Future research should more systematically explore the effect of minimum wages and affordable housing policies on parents and children who are at risk for entering foster care.

CRedit authorship contribution statement

Ioana Marinescu: Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Project administration. **Fei Tan:** Formal analysis, Writing – original draft. **Johanna K.P. Greeson:** Conceptualization, Funding acquisition, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

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Appendix A

See [Tables A1 and A2](#).

References

- Ahn, H., DePanfilis, D., Frick, K., & Barth, R. P. (2018). Estimating minimum adequate foster care costs for children in the united states. *Children and Youth Services Review*, 84, 55–67. <https://doi.org/10.1016/j.chidyouth.2017.10.045>
- Campbell, C., & Downs, S. W. (1987). The impact of economic incentives on foster parents. *Social Service Review*, 61(4), 599–609.
- Colton, M., Roberts, S., & Williams, M. (2008). The recruitment and retention of family foster-carers: An international and cross-cultural analysis. *The British Journal of Social Work*, 38(5), 865–884. <https://doi.org/10.1093/bjsw/bcl375>
- Cooley, Morgan E., Farineau, Heather M., & Mullis, Ann K. (2015). Child behaviors as a moderator: Examining the relationship between foster parent supports, satisfaction, and intent to continue fostering. *Child Abuse & Neglect*, 45, 46–56. <https://doi.org/10.1016/j.chiabu.2015.05.007>
- Cooley, M. E., Womack, B., Rush, J., & Slinnskey, K. (2020). Adverse childhood experiences among foster parents: Prevalence and association with resilience, coping, satisfaction as a foster parent, and intent to continue fostering. *Children and Youth Services Review*, 109, Article 104679. <https://doi.org/10.1016/j.chidyouth.2019.104679>
- Daniel, E. (2011). Gentle iron will: Foster parents' perspectives. *Children and Youth Services Review*, 33(6), 910–917. <https://doi.org/10.1016/j.chidyouth.2010.12.009>
- Doyle, J. J. (2007). Can't buy me love? Subsidizing the care of related children. *Journal of Public Economics*, 91(1–2), 281–304. <https://doi.org/10.1016/j.jpubeco.2006.08.005>
- Doyle, J. J., & Elizabeth Peters, H. (2007). The market for foster care: An empirical study of the impact of foster care subsidies. *Review of Economics of the Household*, 5(4), 329. <https://doi.org/10.1007/s11150-007-9018-x>
- Duncan, B., & Argys, L. (2007). Economic incentives and foster care placement. *Southern Economic Journal*, 74(1), 114–142. <https://doi.org/10.2307/20111956>
- Fowler, P. J., Brown, D. S., Schoeny, M., & Chung, S. (2018). Homelessness in the child welfare system: A randomized controlled trial to assess the impact of housing subsidies on foster care placements and costs. *Child Abuse & Neglect*, 83, 52–61. <https://doi.org/10.1016/j.chiabu.2018.07.014>
- Freundlich, Madelyn (2014). Family Foster Care. In Gerald Mallon, & Peg McCart Hess (Eds.), *Child Welfare for the Twenty-first Century*. Columbia University Press.
- Geiger, J. M., Hayes, M. J., & Lietz, C. A. (2013). Should I stay or should I go? A mixed methods study examining the factors influencing foster parents' decisions to continue or discontinue providing foster care. *Children and Youth Services Review*, 35(9), 1356–1365. <https://doi.org/10.1016/j.chidyouth.2013.05.003>
- Kelly, John, Heimpel, Daniel, Loudenback, Jeremy, Renick, Christie, Phagan-Hansel, Kim, Green, Elizabeth, ... Zarate, Marisol (2017). *The Foster Care Housing Crisis. The Chronicle of Social Change*.
- Kirton, D., Beecham, J., & Ogilvie, K. (2007). Gaining satisfaction? An exploration of foster-carers' attitudes to payment. *The British Journal of Social Work*, 37(7), 1205–1224. <https://doi.org/10.1093/bjsw/bcl061>
- Mihalo, J. R., Strickler, A., Triplett, D. R., & Trunzo, A. C. (2016). Treatment foster parent satisfaction: Survey validation and predictors of satisfaction, retention, and intent to refer. *Children and Youth Services Review*, 62, 105–110. <https://doi.org/10.1016/j.chidyouth.2016.02.001>
- Mihalo, J. R., Strickler, A., Triplett, D. R., & Trunzo, A. C. (2016). Treatment foster parent satisfaction: survey validation and predictors of satisfaction, retention, and intent to refer. *Children and Youth Services Review*, 62, 105–110. <https://doi.org/10.1016/j.chidyouth.2016.02.001>
- O'Hare, W. P. (2008). Data on children in foster care from the Census Bureau. Working Paper. Annie E. Casey Foundation. <https://folio.iupui.edu/handle/10244/244>
- Rubin, D. M., Downes, K. J., O'Reilly, A. L. R., Mekonnen, R., Luan, X., & Localio, R. (2008). Impact of kinship care on behavioral well-being for children in out-of-home care. *Archives of Pediatrics & Adolescent Medicine*, 162(6), 550–556. <https://doi.org/10.1001/archpedi.162.6.550>
- Smith, B. D., Li, Q., Wang, K., & Smith, A. M. (2021). A national study of child maltreatment reporting at the county level: Interactions among race/ethnicity, rurality and poverty. *Children and Youth Services Review*, 122, Article 105925. <https://doi.org/10.1016/j.chidyouth.2021.105925>
- Villodas, M. T., Litrownik, A. J., Newton, R. R., & Davis, I. P. (2016). Long-term placement trajectories of children who were maltreated and entered the child welfare system at an early age: Consequences for physical and behavioral well-being. *Journal of Pediatric Psychology*, 41(1), 46–54. <https://doi.org/10.1093/jpepsy/jsv031>

Further reading

- Argys, L., & Duncan, B. (2013). Economic incentives and foster child adoption. *Demography*, 50(3), 933–954. doi: 10.1007/s13524-012-0166-0.
- Buckles, K. S. (2013). Adoption subsidies and placement outcomes for children in foster care. *The Journal of Human Resources*, 48(3), 596–627.