

Sofia Guo, Cody Strohl, Manny Prunty

Econ 140 Term Project Final Paper

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### **An examination of federal funding effects on foster care exit rates**

- I. Introduction:** We are interested in seeing whether increased reimbursement allotments based on states' FMAP (annual Federal Medical Assistance Percentage) increases the rate at which children leave foster care to a permanent home (or an increased exit rate). The FMAP is the rate at which the government will match a state's expenses relating to medical and social services and varies from 50 to 73% in each state.<sup>1</sup>

In late 2008, the federal government passed the American Recovery and Reinvestment Act to increase a state's FMAP by 6.2 percent through December 2010<sup>2</sup>, presumably to help states overcome funding shortages caused by the Great Recession. While most of this federal funding went to foster care maintenance payment costs, or the payments per child to foster care families, the increased funding also applied to reimbursements of 50% of its administrative costs and 75% of its training costs for staff. Our main objective through this paper is to measure if this increased funding had a positive effect on the foster care administrative functioning in the state, especially how much the states were able to increase the rate at which their children exited foster care to permanent homes.

This topic regarding funding and increased agency ability to function has not been studied very thoroughly, although some research has indicated that while increased funding for child welfare services helps increase the quantity of services provided, it does not directly apply to increasing the quality of services and operations due to the complex social factors driving entries into child welfare programs like foster care.<sup>3</sup> Through our paper, we contribute an empirically-based analysis on this topic using a recent and temporary funding increase event to add more to this sparse literature. As the nation struggles with higher income inequality and poverty rates, one might begin to speculate how these economic forces will shape the well-being of American children, who are the future workforce in our economy. If this demographic of at-risk children not only

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<sup>1</sup> U.S. Department of Health and Human Services, ACF, *Payments for Foster Care and Permanency FY 2015 Budget* (2015), 14-15.

<sup>2</sup> U.S. House of Representatives, Committee on Ways and Means, *Child Welfare Legislative History* (2011), 15-16.

<sup>3</sup> Ringel, Jeanne S et al. "Improving Child Welfare Outcomes: Balancing Investments in Prevention and Treatment" *Rand health quarterly* vol. 7, 4 4.

becomes larger but disproportionately affects certain groups, the U.S. may become even more polarized as these children mature and enter adulthood with these negative experiences.

## II. Model Specification:

Our analysis using a “Post” dummy variable specification to measure the effect of the ARRA increasing foster care funding in 2008/2009 can help quantitatively gauge how effective this was at increasing the foster care exit rate.

The methodology used will be an OLS model which has state and year fixed effects and uses a dummy variable “Post” which equals 0 during the years 2008 and 2009 and equals 1 during the years 2010-2012. Our model operates off of the assumption that regional and state child poverty rates, average hourly earnings for child social workers and their average worker caseload are the main factors affecting a department’s ability to effectively conduct their work and move children out of foster care. Thus, we have controlled for these variables in the regression, as we are seeking to ultimately measure the effect of the legislation funding on the exit rate.

Our proposed regression model is as follows:

$$Y_{i,t}(\text{Exit Rate}) = \beta_0 + \beta_1(\text{Post}) + \beta_2(\text{Caseload})_{i,t} + \beta_3(\text{Hourly Wage})_{i,t} + \beta_4(\text{Child Poverty Rate})_{i,t} + \alpha_0 + \alpha_1 + \dots + \alpha_{49} + \gamma_{2008} + \gamma_{2009} + \gamma_{2010} + \gamma_{2011} + \gamma_{2012} + u_i$$

Where  $Y_{i,t}(\text{Exit Rate})$  is the percent of children in a state who exit foster care to a permanent living arrangement for every state from 2008-2012,  $\beta_0$  is the coefficient estimated when all other variables or coefficients are 0,  $\beta_1(\text{Post})$  is a dummy variable of interest equal to 1 when the data is from years 2010-2012 and 0 otherwise,  $\beta_2(\text{Caseload})_{i,t}$  is the control term that measures the number of cases per child welfare worker in each state  $i$  at time  $t$ ,  $\beta_3(\text{Hourly Wage})_{i,t}$  is the term which controls for the average hourly wage of child welfare workers in each state every year,  $\beta_4(\text{Child Poverty Rate})_{i,t}$  is a term which controls for the varied child poverty rates across states, the terms  $\alpha_0 + \alpha_1 + \dots + \alpha_{49}$  are each states’ individual estimated coefficients,  $\gamma_t$  are each year’s estimated fixed effect coefficients, and  $u_i$  is the error term which encompasses all other factors.

The sign for our main variable “Post” is expected to be positive, following the logic that increased federal funding for administrative and staff training costs should increase the rate at which agencies can move children out of foster care. The expected signs for state child poverty rates, worker hourly wages and caseloads should be negative, positive, and negative, respectively; this is due to the expectation that higher child poverty rates should increase the amount of children entering foster care and thus decrease the agency ability to process them; higher wages should increase the

productivity of workers, and higher caseloads should decrease the rate at which workers can move children out of foster care.

### III. Data:

We use panel data collected from four unique sources:

1. Percent of children exiting foster care:

Adoption and Foster Care Analysis and Reporting System (AFCARS) under the U.S. Children's Bureau (2017). *AFCARS State Data Tables 2008-2017* [AFCARS State Data Tables 2008 Through 2018.xlsx]. Retrieved from <https://www.acf.hhs.gov/cb/resource/trends-in-foster-care-and-adoption>

2. Worker caseload:

U.S. Children's Bureau. (2008-2012). Table 2-7: Child Protective Services Workforce (2008-2012). In *Child Maltreatment* (pp. 21). Retrieved from <https://www.acf.hhs.gov/cb/research-data-technology/statistics-research/child-maltreatment>

3. Hourly wage:

U.S. Bureau of Labor Statistics (BLS) under the U.S. Department of Labor (2017). *Occupational Employment Statistics 2008-2012* [State.xls]. Retrieved from <https://www.bls.gov/oes/tables.htm>

4. Child poverty rate:

U.S. Census Bureau (2016). *Small Area Income and Poverty Estimates (SAIPE) Program 2008-2012* [US and States Data.xlsx]. Retrieved from <https://www.census.gov/programs-surveys/saipe/data/datasets.html>

The data set variables are listed above in the “model specification” portion. This sample is of the panel data form from 2008-2012 at the annual frequency level. We chose these years so that there were two that were prior to the ARRA funding taking effect (2008-2009) and three post-effect (2010-2012) so that our model would measure the difference between pre-legislation and post-legislation. 2009 is included in the “pre” years because the effects of legislation often take at least a year to show in data.

#### IV. Results:

Table 1: Regression Results

	<i>Dependent variable:</i>	
	log(Exit.Rate)	
	<i>OLS</i>	<i>coefficient test</i>
	(1)	(2)
Post	−0.005 (0.056)	−0.005 (0.058)
log(Caseload)	0.043** (0.022)	0.043** (0.017)
Hourly.Wage	0.020* (0.012)	0.020 (0.014)
Poverty.Percent.Under.Age.18	−0.013 (0.012)	−0.013 (0.012)
Constant	−0.760** (0.379)	−0.760* (0.414)
Observations	192	
R <sup>2</sup>	0.900	
Adjusted R <sup>2</sup>	0.860	
Residual Std. Error	0.103 (df = 137)	
F Statistic	22.711*** (df = 54; 137)	
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01	

\*Table omits results for state and time fixed effects.

\*‘Post’ variable = 0 for 2008-2009, 1 for 2010-2012

Looking at the statistically insignificant coefficient on “Post”, our regression found that for years after the introduction of the legislation FMAP there is no significant increase or decrease in the amount of time that a child spends in foster care compared to years prior to the introduction of the legislation. This means our main null hypothesis, that the legislation has no effect on the exit rate of children in foster care, was not rejected, even after using robust standard errors. Our intuition was that with increased reimbursements from the FMAP legislation, states should have more resources at their disposal and should be able to effectively move children out of foster care, however our data does not support this view. While this doesn’t necessarily disprove the idea that increasing funding for foster care programs, it does provide evidence that legislation

designed to offer federal reimbursement and aid to state programs may not lower the amount of time children spent in foster care. Overall, the model presents an excellent fit with an  $R^2$  of 0.90 or approximately 90% of the variation in the exit rate explained by the variation in the independent variables.

Other than the null hypothesis being true, there are several possible effects not observed in our data that caused the legislation to provide a null result. The most immediately obvious might be the lack of data describing the magnitude of funding each state received. It is possible that funds given at a lower magnitude will likely be smaller in effect size and could have been lost to noise. If the data could be collected or exists, focusing on states receiving high-magnitude FMAP funding might produce more concise and significant results. Another reason for a null result might be have been caused by the selection of our dependent variable; reimbursements may have provided value to state foster care services in ways that was not captured by the exit rate of children in foster care. Instead of dedicating resources to moving children as quickly as possible out of foster care, funds may have been used to improve state-sponsored foster care in other ways not observed in our data. In general, our data may have suffered from significant amounts of noise or downward bias, as the legislation was introduced around the 2008 financial crisis which might have created strain on state funding. However, this particular explanation is less supported due to the use of several economic controls such as  $\log(\text{wages})$  and the poverty rate.

The results otherwise provided several interesting findings. The coefficient on hourly wages is significant and positive as expected without robust standard errors, however with a large magnitude of 2% estimated increase on the exit rate for every additional wage dollar increase. Interestingly, caseload was found to have a positive effect on the exit rate, with an estimate of .043 indicating that an additional 1% increase in caseload would increase the exit rate by 0.04%. This effect is contradictory<sup>4</sup> to our expectations and documented effects that reduced caseloads increase the foster care exit rate, but it is very small and although statistically significant, probably does not greatly affect the exit rate. Whether it is possible, practical, or efficient to use funds in this manner requires further research. While the estimated coefficient on the child poverty rate was insignificant, it was consistent with our hypothesis of having a negative sign relating to the exit rate. however this could have been due to other economic controls used in the model that already captured its effect.

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<sup>4</sup> California Child Advocates for Change, Child Welfare Policy Brief, *Are There Too Many Children in Foster Care?* (2016), 3.

Several changes can be made to our model to further qualify it. The exit rate of child foster care can be an incredibly complex issue due to the fact that the effectiveness of state foster care programs is not solely due to economic factors but social factors as well. Many social factors that were not taken into account with our limited data set could have introduced a large amount of noise or omitted variable bias into our model, causing FMAP to appear as if it did not have a significant effect on the exit rates of foster care children across the country. This suggests that in future versions of this model consideration should be made towards the inclusion of variables that capture social factors that could affect foster care in various states. Additionally, although there is not necessarily data on the magnitude of FMAP funding, other data for similar forms of legislation might be more available, and utilizing the magnitude of the effect size of funding would also be an improvement to the current model which does not account for magnitude of reimbursements received.

## **V. Summary and Conclusions:**

Using panel data of 52 U.S. states' foster care exit rates from 2008 to 2012 and controlling for state and time variations, child poverty, child worker caseload, and average hourly wage for child welfare workers, we find that the increase in federal foster care funding from the 2008 ARRA legislation does not increase the rate at which children exit foster care for the following 4 years after. This finding is not too surprising given the previous literature that finds increased funding to social welfare programs do not necessarily increase the quality or efficiency of services provided.<sup>5</sup> However, we find that for every percent increase in worker caseload, there is a surprising 0.04% increase in the foster care exit rate; this estimate is contrary to our expectations of a negative effect that caseload should have on the exit rate and warrants further study. Furthermore, we find that every dollar increase in workers' wages increases the exit rate by 2% (without robust standard errors), which is an expected effects but surprisingly large. Our findings suggest that there is much more research to be done in terms of how additional funding can better increase the quality of care that foster children are receiving through a more efficient workforce. In addition, it supports future policies that will increase the wages of child welfare workers given the significantly large positive effect that higher wages have on foster care exit rates.

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<sup>5</sup> Ringel, *Rand health quarterly* vol. 7,4 4.

## VI. References:

Adoption and Foster Care Analysis and Reporting System (AFCARS) under the U.S. Children's Bureau (2017). *AFCARS State Data Tables 2008-2017* [AFCARS State Data Tables 2008 Through 2018.xlsx]. Retrieved from

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U.S. House of Representatives, Committee on Ways and Means, *Child Welfare Legislative History* (2011), 15-16.