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Original Research

Medicaid Managed Care and the Health Care Utilization of Foster Children

INQUIRY: The Journal of Health Care Organization, Provision, and Financing
Volume 54:1–9
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DOI: 10.1177/0046958017698550
journals.sagepub.com/home/inq
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Abstract

A recent trend in state Medicaid programs is the transition of vulnerable populations into Medicaid managed care (MMC) who were initially carved out of such coverage, such as foster children or those with disabilities. The purpose of this article is to evaluate the impact of the transition of foster children from fee-for-service Medicaid coverage to MMC coverage on outpatient health care utilization. There is very little empirical evidence on the impact of managed care on the health care utilization of foster children because of the recent timing of these transitions as well as challenges associated with finding data sets large enough to contain a sufficient number of foster children for such analysis. Using administrative Medicaid data from Kentucky, we use retrospective difference-in-differences analysis to compare the outpatient utilization of foster children transitioned to MMC in one region of the state with foster children in the rest of the state who remained in fee-for-service coverage. We find that the transition to MMC led to a 4 percentage point reduction in the probability of having any monthly outpatient utilization. We also estimate that MMC leads to a reduction in outpatient spending.

Keywords

foster care, Medicaid, managed care, health care utilization, administrative data

Introduction

As of September 2014, more than 415 000 children in the United States were enrolled in the foster care program.[1] It is well established that foster children are a medically vulnerable population due to their histories of abuse and neglect.[2] One recent study found that foster children were more likely to have developmental disorders, certain medical disorders, and behavioral disorders than nonfoster Medicaid children.[3] Practically, all foster children are categorically eligible for Medicaid,[2] and although as a group they make up only 3.7% of the nondisabled children enrolled in Medicaid, they are responsible for 12.3% of expenditures for this group due to their high levels of health needs.[4]

There is often political tension between the benefits of safety net programs like Medicaid and their associated costs.[5] This tension, along with a desire to improve care coordination as well as health outcomes, has led many states to transition their Medicaid populations from traditional fee-for-service (FFS) coverage to Medicaid managed care (MMC) coverage.[6] When managed care organizations (MCOs) contract with state Medicaid agencies, they agree to receive a fixed (capitated) payment based on the number of enrollees and their characteristics. Because this payment does not depend on the amount of services provided, MCOs bear the financial risk associated with the care for these enrollees. They are thus incentivized to reduce overall health care utilization and spending through improvements in the health status of their enrollees.[7,8]

In the late 1990s, there was a large movement within Medicaid toward managed care, and by mid-1998, more than half of Medicaid enrollees were enrolled in a managed care plan.[9] Initially, states needed to obtain waivers from Centers for Medicare and Medicaid Services (CMS) to require beneficiaries to enroll in a MMC plan, but the Balanced Budget Act of 1997 allowed states to make MMC mandatory for most eligibility categories. However, since 1997, foster care has continued to be one eligibility category which requires waivers for mandatory MMC.[10,11] Consequently, in 1998, there were 45 states that had at least 1 MMC plan, of which 16 excluded foster children and 9 allowed them to disenroll from what otherwise would have been a mandatory plan.[9] More recently, several states have sought approval from

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Received 6 October 2016; revised 8 February 2017; accepted 13 February 2017

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CMS to transition their aged and disabled populations into MMC as well.[12]

One reason waivers are required to implement mandatory MMC for vulnerable populations, such as foster children, is the concern that MCOs may reduce spending by limiting access to needed medical care rather than reducing wasteful care.[7] One might expect this to be particularly problematic for foster children because their high levels of health care utilization may be misinterpreted as excessive spending by managed care plans rather than reflecting greater health needs. In addition, foster children perhaps lack parents who can be considered reliable health care advocates on their behalf, so they may be more likely to be targeted for across-the-board reductions in care by managed care plans. On the contrary, a transition to managed care, with its focus on care coordination, might be beneficial for foster children because they might be especially prone to having uncoordinated health care due to the circumstances precipitating their entry into the foster system.[13,14] Thus, the impact of MMC on the health care utilization of foster children is theoretically ambiguous and requires empirical analysis.

Related to concerns surrounding the potential for changes in utilization are concerns surrounding changes in continuity of care. Continuity of health care for foster children can be particularly challenging because placement changes may also cause a change in doctors.[15] A study of Medicaid children in Washington found that foster children had less continuous care than nonfoster children and furthermore found that among nonfoster children, those in MMC had more continuous care than those in FFS Medicaid.[16] If this pattern holds true broadly, MMC may improve continuity of care for foster children.

It is useful for states to know how managed care affects the health care utilization of foster children. If managed care does not reduce health care utilization among foster children, then continuing to have an eligibility carve out for this group makes little sense. On the contrary, if care is reduced, it is important for states to know by how much and whether the reduction is stemming from less waste or restricted access to necessary care. However, because it is often challenging for researchers to obtain large data sets with information on both health care utilization and foster status of children, the impact of MMC on the health care utilization of foster children is still an open question in the literature. A noncapitated managed care program for foster children in Illinois that aimed to increase care coordination was associated with increased well-child visits, though it is possible the foster children had more visits because they had higher needs than children in the comparison groups.[17,18] A nationally representative study on children in the child welfare system, though not exclusively in foster care, found no significant relationship between managed care and access to outpatient mental health services.[19] One challenge associated with these studies is the lack of an adequate control group.

This article takes advantage of the unique way in which foster children in Kentucky Medicaid were moved into managed care coverage in 1999 in order to evaluate the short run impact of managed care on their outpatient health care utilization. Foster children in the Louisville region of Kentucky were mandatorily moved into MMC in June 1999, while foster children in the remainder of the state remained in FFS.[20] We compare the health care utilization of foster children in the Louisville region in the first and second half of the year with the health care utilization of foster children in the rest of the state. This difference-in-differences research design allows us to isolate the causal effect of MMC on the health care utilization of foster children.

Data and Methods

Natural Experiment

In October 1995, CMS approved a waiver for Kentucky to move its Medicaid population into managed care plans. Originally, managed care markets were to be developed in 8 regions partitioning the state, but ultimately only 1 managed care plan (Passport) operating in 1 region (Louisville) was able to both successfully establish operations and remain financially viable. The fact that there were a significant number of foster children both inside and outside the Louisville area suggests the possibility of a comparative analysis. Figure 1 illustrates how Medicaid foster children were distributed throughout the Louisville region and all other parts of the state as of January 1999.

Medicaid children within the Louisville region were mandatorily enrolled in Passport, but there was a delayed roll out by eligibility category, which is shown in Figure 2. The majority of children, such as those eligible for Medicaid via enrollment in the Temporary Assistance for Needy Families (TANF) program, transitioned starting in November 1997. Children jointly enrolled in Medicaid and the Supplemental Security Income (SSI) program (ie, children who are blind or disabled) transitioned a few months later. Foster children, however, did not transition into Passport until June 1999, a year and a half after the plan started. Not only was the timing of the transition different among eligibility groups, but so were the capitation rates that the state paid Passport. For the 1999 fiscal year, Kentucky paid Passport $146.20 per TANF child-month, $531.51 per SSI child-month, and $188.52 per foster child-month.[20] The state required Passport to report encounter data in a similar fashion to the claims reported pre-MMC. Because Passport was formed by local providers, they did not appear to find this to be as burdensome a requirement as would a commercial MCO coming in from outside the state.

Because Kentucky chose when, where, and which eligibility categories to move into MMC, there is no endogenous selection into insurance types. In other words, foster families could not choose whether their foster child would be enrolled

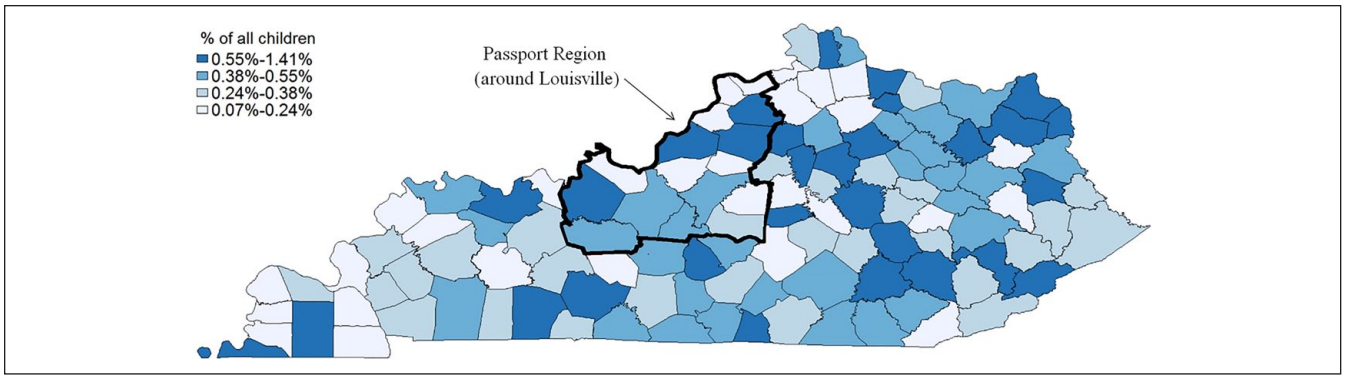

Figure 1. Map of Kentucky regions and county share of Medicaid foster children in January 1999.
Note. We calculated the foster shares presented here using 2 data sources: (1) Medicaid foster enrollment data from January 1999 provided by the Kentucky Cabinet for Health and Family Services and (2) county child count data come from US Census April 2000 resident population estimates.

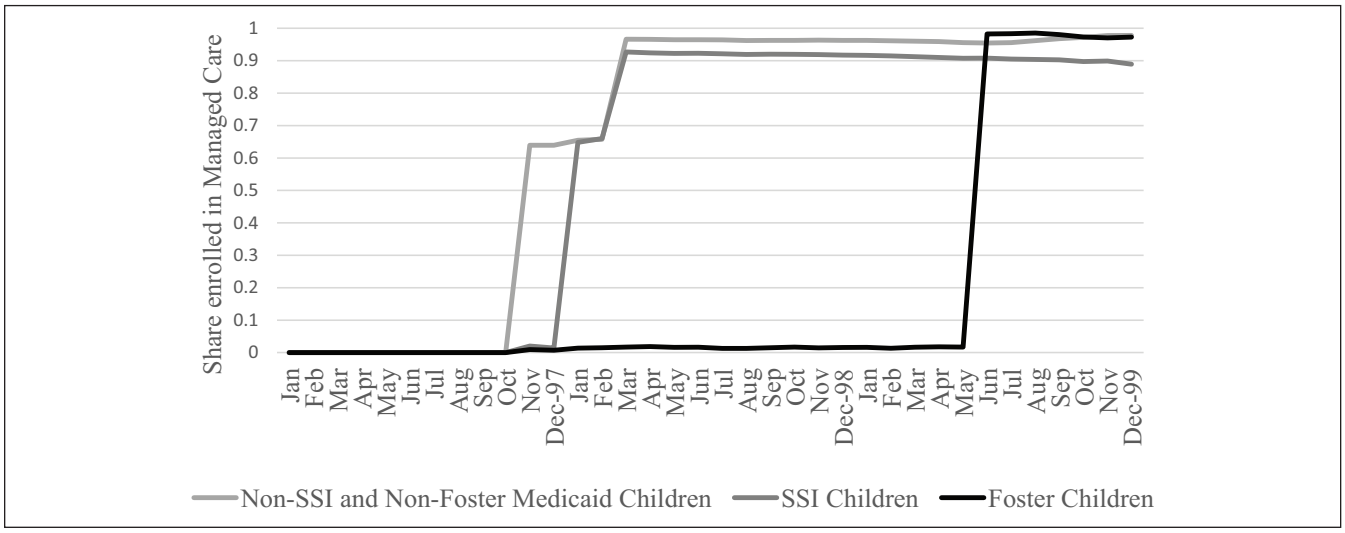

Figure 2. Timing of Medicaid managed care transitions for children in the Louisville region of Kentucky.
Source. Deidentified, linked Medicaid claims and enrollment data provided by the Kentucky Cabinet for Health and Family Services.
Note. The pretransition time period is January 1999 to May 1999, while the posttransition time period is June 1999 to December 1999. SSI = Supplemental Security Income.

in managed care or FFS coverage. This implies the state essentially conducted an experiment where it assigned foster children in the Louisville area into the MMC treatment (ie, Passport) and all other foster children into the FFS control. As shown in Figure 2, the transition to Passport was particularly sharp for foster children as compared with the transition for other eligibility categories. The percent of foster children enrolled in Passport in the Louisville region went from 1.7% in May 1999 to 98.2% in the following month.

Data

Using linked administrative data from the Kentucky Cabinet for Health and Family Services for the calendar year 1999, we evaluate the differential impact of the managed care transition of foster children. Our work with these data is covered under University of Kentucky Institutional Review Board Protocol number 05-0795-X4G. To construct our sample, we started with 9469 unique children who were enrolled in the Kentucky Medicaid program and were in foster care for at least 1 month during 1999. We then restricted the sample to those continuously enrolled in foster care for all 12 months of 1999, leaving us with 4325 unique children. After dropping children with missing values for key variables of interest, our final sample consists of 4315 unique children continuously enrolled in Kentucky foster care and Medicaid for all of 1999. Having the universe of Kentucky Medicaid administrative data for this time period allows us to focus on the very specific subset of enrollees of interest for this analysis (ie, continuously enrolled foster children), while still having sufficient sample size to estimate the effect of MMC.

Table 1. Descriptive Statistics.

	Foster children moved to MC Medicaid (treatment)	Foster children remaining in FFS Medicaid (control)	Difference (control group − treatment group)
No. of children	1448	2867	1419
No. of child-months	17376	34404	17028
Demographics			
% nonwhite	47.03%	22.60%	−24.43%***
% female	48.55%	50.26%	1.71%***
Average age on January 1, 1999	9.87	9.70	−0.17***
Average number of siblings	0.11	0.097	−0.013***
Utilization (percentage with any monthly Medicaid utilization)			
Outpatient—pre	6.38%	8.59%	2.21%**
Outpatient—post	2.67%	8.54%	5.87%***
Expenditures | Expenditures > 0 (amount of monthly Medicaid spending)			
Outpatient ($)—pre	$274.54	$282.04	$7.50
Outpatient ($)—post	$102.01	$273.32	$171.31***

Source. Deidentified, linked Medicaid claims and enrollment data provided by the Kentucky Cabinet for Health and Family Services.
Note. The pretransition time period is January 1999 to May 1999, while the posttransition time period is June 1999 to December 1999. The stars represent the results of tests for difference in means or proportions between the treatment and control groups. MC = managed care; FFS = fee-for-service.
*Statistically significant difference at 5% level. **Statistically significant difference at 1% level. ***Statistically significant difference at .1% level.

Our outcome variables focus on outpatient services along both the extensive and intensive margins. Following previous analysis of Kentucky Medicaid,[7] we define outpatient services to be services delivered in clinics or hospitals in which there is no overnight stay (such as an emergency room visit). These visits do not include primary care provider visits. Along the extensive margin, we consider the probability that a child will have an outpatient visit within a given month. Along the intensive margin, we examine monthly outpatient spending, conditional on having any outpatient utilization within that month.

Data Analysis

We use a difference-in-differences regression framework to determine the causal effect of the Passport MMC plan on health utilization for foster children. This method compares how outpatient utilization changed for foster children in the Louisville region after their switch to the Passport MMC plan relative to foster children throughout the rest of the state who remained in FFS Medicaid. By having a control group of foster children who are exposed to the same state trends, but not the MMC transition, we obtain an unbiased estimate of how much of the change in outpatient utilization resulted from the MMC transition. The identifying assumption is that outpatient utilization trends for these 2 groups are initially similar and would have continued to be similar in absence of the MMC transition.

Because foster children transitioned to MMC based on whether their county of residence was in the Passport region, we based our treatment variable on the foster child's county of residence in January 1999, prior to the policy implementation. This is sometimes referred to as an "intent-to-treat" approach. There was almost no migration in or out of the Louisville region during 1999 among our sample (only 0.83% switched regions), so our choice to use initial month to assign treatment status is inconsequential.

Our regressions include child fixed effects to measure the intrachild variation in outpatient utilization. The inclusion of child fixed effects controls for time-invariant child characteristics, like race or gender, whether they are observed or not. For this reason, the standard time-invariant controls used in the literature are excluded here because of multicollinearity. Perhaps more importantly, the inclusion of child fixed effects also allows us to control for child chronic health conditions, which might influence health care utilization. We also include time fixed effects in the form of month dummies to capture seasonal variation in health care utilization. Finally, we compute heteroscedasticity-robust standard errors clustered at the county level in all of our regression models.

We separately measure how the MMC transition affected outpatient care along the intensive and extensive margin. The extensive margin regressions measure the probability of a child having an outpatient visit during that month and are estimated as linear probability models. For the intensive margin regressions, the outcome is the log of outpatient expenditures conditional on some positive outpatient utilization in that month, and the regressions are estimated using ordinary least squares.

Results

In this section, we first report our unadjusted descriptive results given in Table 1. We then turn to a presentation of our multivariate difference-in-differences regression results given in Tables 2 and 3.

Table 2. Regression Results.

Dependent variable	Probability of having an outpatient visit	Log expenditure conditional on outpatient visit
MMC enrollment (SE)	−0.04*** (0.004)	−1.26*** (0.178)
% change	−50.96%	−71.64%
Pretransition average monthly utilization/spending	7.85%	$279.99
Observations	51 780	3678

Source. Deidentified, linked Medicaid claims and enrollment data provided by the Kentucky Cabinet for Health and Family Services.
Note. The pretransition time period is January 1999 to May 1999, while the posttransition time period is June 1999 to December 1999. The stars represent the results of tests for difference in means or proportions between the treatment and control groups. Regressions include month fixed effects and child fixed effects. MMC = Medicaid managed care.
*Statistically significant difference at 5% level. **Statistically significant difference at 1% level. ***Statistically significant difference at .1% level.

Table 3. Robustness Tests.

Dependent variable	Probability of having an outpatient visit (placebo treatment group)	Log expenditure conditional on outpatient visit (placebo treatment group)	Probability of having an outpatient visit (noncontinuous foster enrollment)	Log expenditure conditional on outpatient visit (noncontinuous foster enrollment)
MMC enrollment (SE)	−0.01 (0.005)	0.08 (0.116)	−0.03*** (0.004)	−1.30*** (0.122)
% change	−12.42%	8.33%	−38.22%	−72.75%
Pretransition average monthly utilization/spending	8.05%	$282.04	7.85%	$279.99
Observations	34 404	2945	77 874	6032

Source. Deidentified, linked Medicaid claims and enrollment data provided by the Kentucky Cabinet for Health and Family Services.
Note. The pretransition time period is January 1999 to May 1999, while the posttransition time period is June 1999 to December 1999. The stars represent the results of tests for difference in means or proportions between the treatment and control groups. Regressions include month fixed effects and child fixed effects. MMC = Medicaid managed care.
*Statistically significant difference at 5% level. **Statistically significant difference at 1% level. ***Statistically significant difference at .1% level.

Descriptive Results

Table 1 reports descriptive statistics for our sample, splitting the sample by their MMC status based on their initial county of residence. Recall that foster children living in the Louisville region of Kentucky were transitioned from FFS to MMC coverage in June of 1999 (ie, the treatment group), while foster children living in the rest of the state remained in FFS Medicaid coverage (ie, the control group). In terms of demographics, we see in the top part that the biggest difference is that the treatment group has a larger share of nonwhite enrollees (47% vs 23%).

The middle part compares outpatient utilization along the extensive margin in the pretransition (January-May 1999) time period and the posttransition (June-December 1999) time period. We see that in the pretransition-period, the likelihood of a foster child having any monthly outpatient utilization is 6% in the treatment group, as compared with 9% for the control group. The likelihood of having any monthly outpatient utilization within the treatment group after they are transitioned to MMC decreases significantly from 6% to 3% (P value < .01), while it stays about the same for the control group (8.59% vs 8.54%, P value = .85).

The bottom part compares monthly Medicaid outpatient expenditures, conditional on having positive monthly outpatient Medicaid spending. Here we see very similar levels of outpatient average spending prior to the transition for foster children in the treatment group and the control group. After the transition there is a large reduction in average outpatient spending among foster children in the treatment group (P value < .01). There is no statistically or economically significant change in average outpatient spending within the control group (P value = .68). Therefore, for outpatient services, Table 1 provides suggestive evidence of larger reductions in utilization along both the intensive and extensive margin for foster children transitioned to MMC, as compare with the control group of foster children remaining in traditional FFS Medicaid.

Regression Results

Table 2 presents the results of our baseline difference-in-differences multivariate regression analysis. We find that MMC enrollment is predicted to lead to a 4 percentage point (51%) decline in the probability of receiving any monthly outpatient services. Thus, managed care leads to a reduction in outpatient service utilization along the extensive margin (ie, did a child have any visit?) for foster children. We also examined changes along the intensive margin (ie, how much?) for months with nonzero levels of outpatient spending. Our results suggest that managed care also led to reductions in

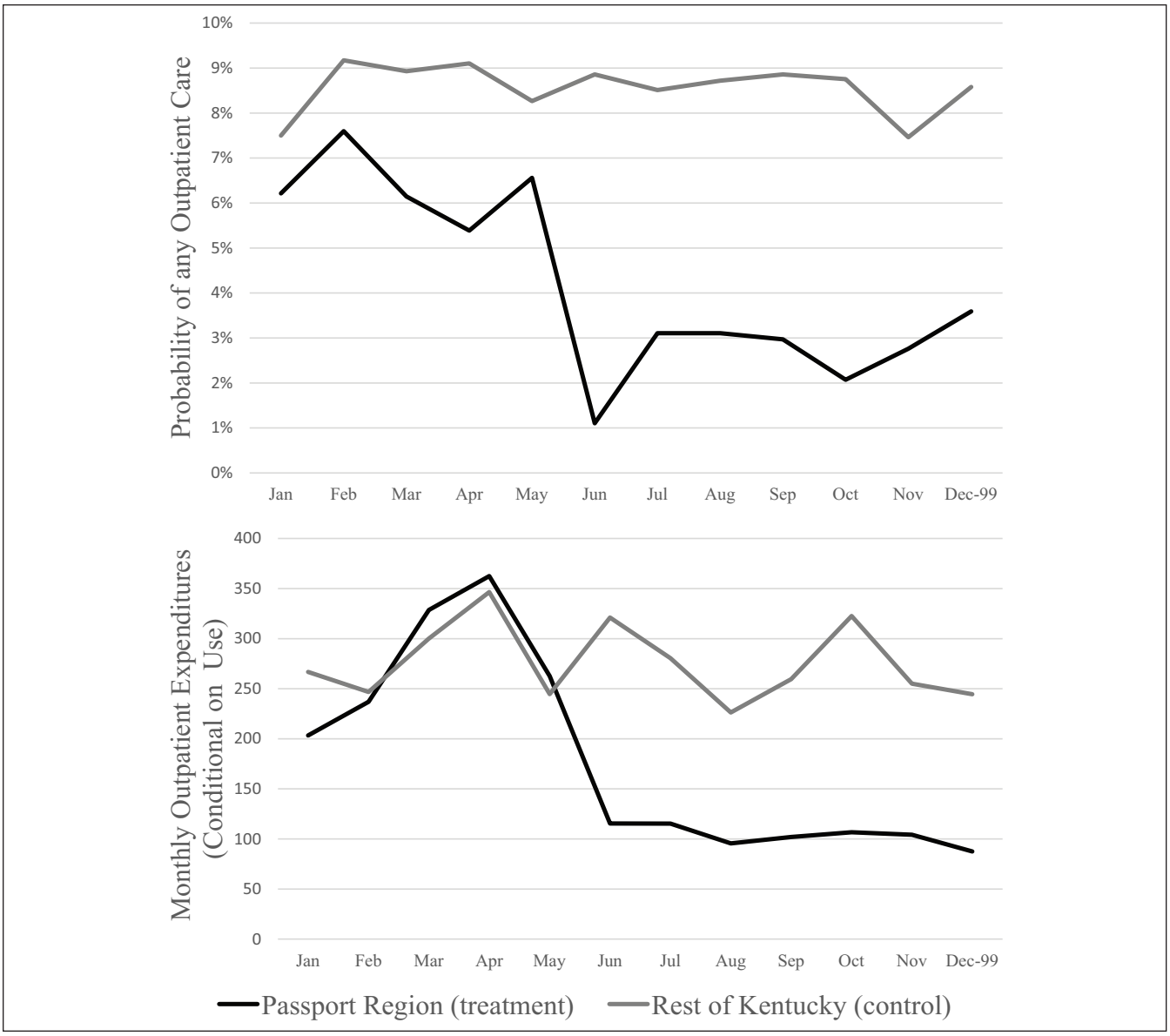

Figure 3. Kentucky foster care utilization trends in 1999.
Source. Deidentified, linked Medicaid claims and enrollment data provided by the Kentucky Cabinet for Health and Family Services.
Note. The pretransition time period is January 1999 to May 1999, while the posttransition time period is June 1999 to December 1999.

monthly outpatient spending along the intensive margin. Therefore, we see evidence that managed care led to reductions in the probability of foster children having an outpatient visit and in outpatient expenditures conditional on using such care. This finding of reductions along both margins is similar to findings for nonfoster children transitioning into MMC in Kentucky.[7]

As mentioned, the identifying assumption underlying our difference-in-differences analysis is that the outpatient utilization trends for foster children inside (treatment) and outside (control) of the Louisville region are similar prior to the MMC transition. Figure 3 separately plots trends for outpatient utilization for both the extensive and intensive margin. The graph on the top focuses on the extensive margin (the probability of any monthly outpatient utilization), and the graph on the bottom focuses on the intensive margin (outpatient expenditures conditional on having positive expenditures). Both graphs exhibit relatively similar trends in the pretransition-period for the treatment and control groups. To be more specific, regressing the outpatient care variables on pretransition-period linear time trends separately for treatment versus control regions indicates that the pre-period trends between the regions are not statistically different at the 5% level. This implies we can interpret our results causally. Despite similar pretransition trends, reductions in outpatient utilization occur for the treatment group in the

posttransition period but are not observed for the control group. In fact, the outpatient utilization of the control group of foster children living outside the Louisville region remains essentially constant throughout the year. This is consistent with the reduction in outpatient utilization among foster children we observe being caused by their transition to MMC.

To add further support for our finding that the reduction in outpatient care among foster children in the Louisville region is driven by the implementation of MMC, we perform multiple robustness checks. First, we conduct a placebo test where we used Lexington, an urban region similar to Louisville but which did not transition foster children into MMC, as a placebo treatment group. Treating Lexington as if it implemented MMC for foster children in June 1999, we estimate a difference-in-differences model comparing it with the rest of the state, dropping the Louisville region entirely. Reassuringly, as reported in Table 3, we find no statistically significant differences in outpatient utilization between the placebo treatment group and the control group. This suggests that there was not some general trend reducing outpatient utilization in all urban areas among foster children during this time. Second, we replicate our baseline difference-in-differences specification using a broader sample of foster children in which continuous enrollment during calendar year 1999 was not required. The results, also reported in Table 3, are similar to our baseline specification with our continuously enrolled sample. This suggests that our results are not being driven by selection into continuous enrollment. Finally, we replicated our baseline difference-in-differences specification using only foster children in the urban Lexington region (rather than all regions besides Louisville) as the control group. The results, which are available upon request, were again similar to those reported in Table 2.

Discussion

This study is one of the first to empirically investigate how the transition from FFS Medicaid to MMC affects the health care utilization of foster children. Although many studies have examined the effects of MMC in general, quantitative research focusing on foster children and MMC is almost nonexistent due to inherently smaller sample sizes and fewer MMC mandates for such children. As of 2013, only 17 states had a comprehensive Medicaid MCO which mandatorily enrolled foster children.[21] This is likely due in part to that fact that MMC mandates for foster children require approval from CMS, a policy that likely stems from concerns that MMC may reduce access to necessary care for this vulnerable population. However, there is little evidence to indicate how serious those concerns are. The "natural experiment" that occurred with respect to MMC and foster children in Kentucky, which we exploit in this article, is useful for obtaining causal estimates of the effect of MMC on foster children's health care utilization.

Because foster children have higher levels of chronic health conditions, it is important that MMC plans are paid higher capitation rates for this eligibility category in order to cover their necessarily higher costs.[22,23] If the capitation rates are not higher, plans would have increased pressure to reduce health care utilization for foster children in order to remain profitable. As mentioned, Kentucky provided a 28.9% higher capitation rate for foster children than for TANF children. Perhaps due in part to this difference in financing, the reductions in outpatient utilization we find for foster children (51%) are similar to or lower than the estimate produced when examining all Medicaid children (61%).[7] Taken together, our results suggest that while MMC did reduce outpatient utilization among foster children, these reductions were smaller than those experienced by other Medicaid children. This is consistent with, though may not necessarily imply, Passport maintains reasonable access to care for foster children while producing resource savings.

Previous work examining the association between the transition from FFS to MMC and time to first-visit for new entrants into foster care found that the transition is associated with an improvement in the timeliness of initial well-child visits.[8] The results from our article provide a fuller picture, using a methodology that accounts for confounding trends with a difference-in-differences framework. Our work examines children who are already in the foster care system for a nontrivial amount of time (January to June, 1999), and finds reduced frequency of outpatient visits after MMC. Taken together, one could interpret the findings as suggesting that managed care better coordinates care, resulting in timely initial visits for children, and such visits reduce the need for subsequent outpatient utilization. Additional research is needed to rule out competing interpretations.

We qualify our findings in light of some limitations of our study. The primary limitation is that we are not able to differentiate between reductions in wasteful and necessary outpatient care. If MMC solely reduced unnecessary care, the findings would be unambiguously positive. Of course, differentiating between wasteful and necessary care can be a major challenge without objective measures of health needs. This warrants additional studies that are able to extend both our work and previous work[8,24] to consider the impact of MMC on health outcomes. Second, to have complete information on outpatient utilization, we used foster children who were continuously enrolled for 12 months. These foster children are not fully representative of foster children in general because there is a good deal of turnover within this population. Our approach does not seem to be overly restrictive, as 68% of foster children in Kentucky in January 1999 had continuously been in foster care for at least a year. In addition, our study measures short-run utilization effects that occur within the first 7 months after the transition. Longer term studies would help determine whether the short-run reductions in utilization we observe persist. Furthermore, as this article focuses on outpatient care, we are unable to shed light

on shifts between different types of health care utilization. We cannot determine whether the reduction in outpatient care we observe arose because all health care utilization fell or because foster children substituted other types of care for outpatient care. Further research is needed to investigate this sort of substitution.

Finally, while the age of our data may limit the external validity of the results, the unique natural experiment in Kentucky we exploit in which we are able to not only measure foster child utilization before and after the policy change but to do so with reference to a control group of foster children provides the benefit of a high level of internal validity. The causal evidence we find therefore provides an important contribution to the literature, despite the cost of using older data. This is especially true given that there is practically no previous empirical research examining the impact of MMC on the health care utilization of foster children. As more states transition their foster care populations into mandatory MMC, researchers should monitor how this vulnerable population is affected in order to better assess the costs and benefits of MMC.

Acknowledgments

The authors thank 3 anonymous referees for their valuable comments. Any errors are those of the authors.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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