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Mothers' Employment Attributes and Use of Preventive Child Health Services

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Abstract

This study examines whether paid sick leave and hours worked per week are associated with receipt of recommended well-child visits, preventive dental care, influenza vaccines, obesity screening, and vision screening among U.S. children aged 0 to 17 years whose mothers were employed using data from the Medical Expenditure Panel Survey. Residual inclusion instrumental variables methods were used to address unobserved confounding related to maternal employment and child health care use. Instruments were the industry-specific mean of paid leave and hours worked. Fewer than half of children received the recommended number of well-child visits and dental care; only 14% of children received an influenza vaccine in the past year. Paid sick leave was associated with increased adherence to recommended well-child visits (marginal probability, 0.12; 95% confidence interval [CI] = 0.23, 0.01), preventive dental care (marginal probability, 0.28; 95% CI = 0.34, 0.33), and receipt of the influenza vaccine (marginal probability, 0.09; 95% CI = 0.13, 0.05).

Keywords

pediatric preventive care; child health; maternal employment policies

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Introduction

Despite clear guidance from the American Academy of Pediatrics (AAP), the U.S. Preventive Services Task Force (USPSTF), the American Academy of Pediatric Dentistry (AAPD), and the Advisory Committee on Immunization Practices (ACIP), many children in the United States do not receive recommended preventive health and dental services (Edelstein & Chinn, 2009; Schor, 2004; Selden, 2006). Recent studies demonstrate that

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Authors' Note
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The study sponsors had no role in study design; collection, analysis, and interpretation of data; writing the report, or decision to submit the report for publication.

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fewer than half of all children received a well-child visit (Selden, 2006) or dental exam (Edelstein & Chinn, 2009) in the previous 12 months.

The underutilization of pediatric preventive care represents a missed opportunity for child health. Well-child visits are the clinical service mechanism for delivering preventive care and immunizations, the most cost effective, lifesaving preventive intervention available (U.S. Congress, Office of Technology Assessment, 1988; USPSTF, 2014; Wagner, Herdman, & Alberts, 1989; Wilkinson et al., 2012). Well-child visits promote screening and the early identification of a range of conditions. Preventive dental care identifies and reduces the incidence of dental caries (Beil, Rozier, Preisser, Stearns, & Lee, 2014; Marinho, 2009), the most common health problem among children (U.S. Department of Health and Human Services, 2000). Adherence to pediatric preventive care recommendations may reduce subsequent need for avoidable, expensive health care, including hospitalization (Hakim & Bye, 2001; Hakim & Ronsaville, 2002), emergency care (Hakim & Bye, 2001; Hakim & Ronsaville, 2002; Lee, Bouwens, Savage, & Vann, 2013; Savage, Lee, Kotch, & Vann, 2004), and restorative dental care (Savage et al., 2004).

Labor force participation among married women with children under 18 has steadily increased over the past two decades, reaching 71.2% in 2008 (Bureau of Labor Statistics, 2009). This increase has motivated considerable research about the association between maternal employment and family health outcomes. Extant research about this relationship is limited, but some studies suggest that maternal employment and specific employment attributes, such as average hours worked per week and paid time off, are associated with use of pediatric clinical care (Berger, Hill, & Waldfogel, 2005; Colle & Grossman, 1978; Hamman, 2011; Vistnes & Hamilton, 1995). Children under 15 months of age whose mothers worked full-time received 0.18 fewer preventive visits per year than children whose mothers did not work; furthermore, each additional hour of working time slightly reduced the number of visits (Hamman, 2011). There is also some indication that maternal paid sick leave entitlements may increase use of pediatric outpatient visits (Vistnes & Hamilton, 1995).

Conceptual Model

Consistent with the Andersen-Newman model of health care utilization (Andersen, 1995), predisposing (e.g., older maternal age, child race/ethnicity, and younger child age), enabling (e.g., family income, marital status, maternal education), and need (e.g., health status) characteristics are shown to predict adherence to recommended pediatric preventive care (Alio & Salihu, 2005; Andersen, 1995; Bardenheier et al., 2004; Bardenheier, Kong, Shefer, Zhou, & Shih, 2007; Freed, Clark, Pathman, & Schectman, 1999; Hamman, 2011; Rolett, Parker, Heck, & Makuc, 2001; Ronsaville & Hakim, 2000; Selden, 2006; Van Berckelaer, Mitra, & Pati, 2011; Yu et al., 2002). Maternal employment may also enable use of pediatric preventive health services. Paid leave and average hours worked per week bestow monetary and time flexibility that may offset the time and financial costs associated with preventive health care visits (Friedman, 2001; Hamman, 2011). For example, working women who do not receive paid time off may have a disincentive to forgo income in favor of a pediatric preventive care visit (Colle & Grossman, 1978; Hamman, 2011). In a health system with limited options for extended hours or school-based care, preventive health care needs become another competing priority for parents who must choose how to allocate limited resources, including time and wages (Colle & Grossman, 1978; Vistnes & Hamilton, 1995). Thus, families for whom forgone income represents greater opportunity costs, such as young, less educated, female-headed, and lower-income families, may receive the greatest benefit from employment attributes, particularly flexible paid leave, that promote time and monetary flexibility. The favorable effect of paid leave for workers, particularly workers from disadvantage families, has been acknowledged, and national efforts are currently underway to promote expansion of universal paid leave benefits.

New Contribution

Advocacy for universal paid sick leave continues to gain momentum throughout the United States and had resulted in the passing of legislation in numerous states and localities. Most provisions mandate that paid sick leave must cover employee and family health needs (National Partnership for Women & Families, 2015). Despite growing recognition about the importance of organizational policies for working families, little is known about the impact of these policies on pediatric health service use, especially preventive care. The vast majority of research examines the influence of maternity leave or parental employment on child health outcomes. There are very few studies that deal explicitly with the association between potentially modifiable characteristics of parental employment, such as workplace organizational policies, and well-child visits. Furthermore, to our knowledge there are no existing studies that address the relationship between employment attributes and other pediatric preventive care services, such as vaccines and dental care.

Unobserved confounding may pose a significant challenge for this study as maternal characteristics, such as human capital, not captured in the available data may be associated with selection into jobs with different attributes related to paid leave or hours worked and use of pediatric preventive care. For instance, maternal human capital is a determinant of labor supply and occupation choice and is influenced by educational attainment, which is associated with health literacy skills and knowledge of pediatric preventive care (Sanders, Shaw, Guez, Baur, & Rudd, 2009). Additionally, average hours worked per week may be influenced by family circumstances, such as child health. This study applied econometric techniques to study this challenging issue so that the results may inform current policy discussions about paid leave and family health. Specifically, we applied an instrumental variable (IV) estimation strategy to address unobserved confounding. The IVs were industry-specific mean of paid sick leave and hours worked.

We examined the effects of paid sick leave and average hours worked per week on adherence to well-child visit, dental care, influenza vaccine, and obesity and vision screening recommendations among U.S. children aged 0 to 17 years. Strengthening the evidence about how employment-related attributes influence child health is critical to advocate for stronger workplace benefits that ensure the protection of workers and their families.

Method

Data Source

This study analyzed data from the Medical Expenditures Panel Survey (MEPS) Household Component (years 2008–2010; Panels 13 and 14) and the National Health Interview Survey (NHIS) Linked Files (years 2007–2008). Both data sets are nationally representative of the noninstitutionalized U.S. population. MEPS is a panel survey that follows participants for 2 years; it contains information about most of the health care use outcomes relevant to this analysis, maternal employment attributes, and individual characteristics. MEPS data were linked to the NHIS dataset for a measure of annual, point-in-time receipt of the influenza vaccine.

Sample

The study sample (n = 3,755) comprises all children aged 0 to 17 years in the MEPS Household Component dataset (HC) who resided with their mother and whose mothers were employed at the same job during all 5 panel survey rounds. There were a total of 10,288 children in full MEPS Panels 13 and 14 HC databases. Children whose mothers were self-employed were excluded (n = 506) to avoid bias related to individual-level selection of employment attributes. The influenza vaccine analysis sample (n = 2,605) includes all children from the MEPS HC sample who were linked to the NHIS sample and whose mothers remained employed at the same job between the NHIS data collection year and the third round of the MEPS panel. For example, children in the MEPS Panel 14 (2009–2010) sample were included if they were linked to the NHIS 2008 sample and their mothers were employed at the same job when surveyed for both MEPS and NHIS.

The authors chose to limit the analytical sample to children of employed mothers to examine the specific organizational mechanisms underlying parental employment and child health service use. The sample inclusion criteria limits generalizability, but also establishes a sample in which mothers exert limited choice over employment attributes, such as paid leave. For example, women who changed jobs during the panel survey may have sought more generous benefits and thus contaminated the effect that we seek to understand.

Variables

Outcome Variables.—Five preventive services that have been endorsed by the AAP, USPSTF, Centers for Disease Control and Prevention (CDC; Advisory Committee on Immunization Practices), and the AAPD as effective interventions that improve child health outcomes (AAP, 2008; Fiore et al., 2009; Hagan, Shaw, & Duncan, 2008; USPSTF, 2014) were examined; receipt of service was coded as a binary variable based on whether the child met the recommendation (1 = yes; 0 = otherwise). Primary outcomes were adherence to clinical service guidelines regarding receipt of timely well-child visits, dental preventive care, and the influenza vaccine. Primary outcomes were assumed to be services generally offered in outpatient medical/dental clinics at the time of data collection, thus requiring a caretaker to accompany the child during regular working hours; we hypothesized that time and monetary flexibility afforded by paid leave and fewer hours worked per week would increase the use of such services. Influenza vaccine was categorized as an outpatient service rather than a community-based service as at the time of data collection in 2007–2008 the recommendations were relatively recent and there were fewer community-based immunization clinics.

Secondary outcomes were adherence to obesity and vision screening service recommendations. The secondary outcome analyses were considered to be exploratory in nature as no prior studies have examined the effect of maternal employment on preventive care provided in community settings, such as schools. Screening outcomes serve as a falsification exercise as we expected that paid leave and fewer hours worked per week would have a smaller effect on these outcomes if children receive these services at school, but both screening services might also occur during a well-child visit.

Outcome variables were defined as:

1. Adherence to AAP recommended age-appropriate well-child visits for children aged 0 to 17 years. This variable was derived by totaling the number of preventive outpatient visits a child received during the panel survey. This figure was compared to the number of AAP recommended visits a child of that age (defined in months) should have received.
2. Receipt of preventive dental care defined as fluoride treatment, sealants, or teeth cleaning in the past 12 months (assessed during year 2) for children aged 1 to 17 years.
3. Receipt of the influenza vaccine in the past 12 months for children aged 6 months to 17 years. The MEPS survey sample uses the NHIS sample from the previous year. Accordingly, the MEPS Panel 13 (2008–2009) used the NHIS sample from 2007 and MEPS Panel 14 (2009–2010) used the NHIS sample from 2008. Therefore, data about the influenza vaccine outcome only exist for children in the MEPS Panel 13 survey who were born by December 31, 2007, or in MEPS Panel 14 who were born by December 31, 2008.
4. Adherence to USPSTF recommendations for the receipt of vision screening in the past 12 months (reported in Panel 4) for children aged 3 to 6 years.
5. Adherence to USPSTF recommendations for receipt of body mass index (BMI) screening based on parent report that the “doctor” recorded the child’s weight and height in the past 12 months (reported in Panel 4) for children aged 6 to 17 years.

Predictor Variables.—The primary predictor variables were derived from MEPS and measured in Year 1. Receipt of maternal paid sick leave, measured during Round 1, was coded as yes = 1 and no = 0. Average number of hours worked per week by each mother in Year 1 was categorized into low part-time (<20 hours/week), high part-time (≥20 to 34 hours/week), and full-time (≥35 hours/week). The U.S. Census Bureau and the American Community Survey define part-time work as 1 to 34 hours per week (Davis, 2012).

Instrumental Variables.—Instrumental variables are associated with the predictor of interest and not the outcome variable and serve to randomize subjects across levels of the IV, thereby accounting for unobserved confounding. IVs must meet two requirements to justify their use: (1) the instrument is strongly related to the primary predictor and (2) is not related to the outcome, so as to not confound the relationship between any variable in the model and the outcome.

The IVs were the industry-specific mean of paid sick and vacation leave and the industry-specific proportion of individuals working low part-time, high part-time, and full-time. The IVs were constructed using the full MEPS Panels 13 and 14 samples. The IVs are hypothesized to be unrelated to pediatric preventive care and unobserved confounders because they are aggregated at the industry-level, which, unlike occupation, groups workers from diverse backgrounds. MEPS' industry variable includes categories for "education, health, and social services," "leisure and hospitality," and "professional and business services," among others. Each industry category clusters workers with a diverse set of occupational skills, education, and knowledge and preferences related to health care. Furthermore, we assume that individual-level selection into an industry because of employment attributes may be less likely, thereby minimizing the endogenous back-channel between employment and health seeking behavior in this analysis.

Confounding Variables.—The confounding variables were selected from a review of the literature and the conceptual model. These include average child health status (continuous), child age (categorized 0–5, 6–10, 11–14, 15–17 years), mother's race/ethnicity (White non-Hispanic/Other, Black non-Hispanic, Hispanic, Asian), mother's age (categorized as under 30, 30–34, 35–39, 40–44, 45+ years), mother's education (categorized as less than high school, high school graduate, more than high school), mother's marital status (married/not married), number of children in the household (continuous), family income (continuous variable categorized into quartiles to account for non-normal distribution), and average father employment status (always, sometimes, never employed). The role of "father" was defined using family linking variables in the MEPS data set. Categorical variables were included as indicators. Polices to provide paid vacation leave are more common than those providing paid sick leave among U.S. workers (Van Giezen, 2013); paid vacation was included as a confounder in the analysis. Paid sick and vacation leave were included as confounders in the hours worked models. Industry-specific mean rates of adherence to each outcome were constructed and included as covariates in the analytical models.

Statistical Analysis

Respondent characteristics are described using standard descriptive statistics. Logistic regression and a two-stage residual inclusion IV analysis were used to assess the relationship between maternal employment attributes and use of preventive pediatric services. Outcome variables were modeled separately. IV analysis assumptions were tested by (1) regressing each maternal employment attribute on the associated instrument and other covariates (strength of instrument) and (2) assessing the balance of each endogenous covariate across quartiles of each IV (validity of instrument). There is no formal test of instrument validity; however, if the covariates are balanced across levels of the IV, we might also expect unobserved confounders to achieve a similar balance.

The logistic regression and IV models were specified using the same covariate vector. A modified Wu–Hausman test was used to examine the endogeneity of maternal workplace attributes in each pediatric preventive care outcome model. A robustness check using the IV models was run on children aged 0 to 15 years; we expected to see a stronger effect of paid leave and lower average hours worked on adherence to office-based pediatric preventive care service recommendations (well-child visits, dental care, and influenza vaccine) among this younger sample. An additional robustness check (additional to the age 0–15 model) was performed by running the analytical models on a consistent sample of children aged 6 to 17 years to ensure that differences in sample composition were not responsible for the differences in estimates between models; we chose to use the 6 to 17 years sample for this robustness check because it was the most restrictive outcome sample. MEPS collects information about vision screening among children aged 3 to 6 years and therefore this outcome was not included in the robustness check. Outcomes are presented as the estimated percentage point differences in probabilities of receiving preventive care for children whose mothers have various levels of employment benefits. We identify these estimates as marginal probabilities, and they were derived using the method of recycled predictions. Normal-based confidence intervals are presented; standard errors and 95% confidence intervals were estimated using 1,000 bootstrap replications. Statistical significance was assessed at $\alpha = .05$.

Models passed goodness of fit tests, including the Hosmer–Lemeshow, Pearson correlation, and Pregibon Link tests. All analyses used STATA IC 13 (College Station, TX). Appropriate survey weights and subpopulation groupings were applied to account for the complex sampling design.

No significant differences were found between the groups using sensitivity analyses to compare socioeconomic and demographic characteristics and employment factors among participants with and without missing data. Furthermore, less than 10% of the sample had any missing data; therefore, results of the complete case analysis are presented.

This study was deemed to be exempt from institutional review by the University of Washington Institutional Review Board. Please contact the authors for access to any research materials.

Results

Table 1 describes participant sociodemographic characteristics, mean employment attributes, mean outcomes, and sample size for each outcome. Fewer than 50% of children met preventive service recommendations for well-child and dental care preventive visits; only14% of children received an influenza vaccine. However, more than 75% of children received the USPSTF-recommended screening services.

Results from the modified Wu–Hausman test of endogeneity are displayed in Table 2. While this test is beneficial for indicating the presence of endogeneity, the IV is an inefficient estimator making this test somewhat unpowered; therefore, null results should not be interpreted as the absence of endogeneity. The Wu–Hausman test suggests that we cannot reject exogeneity in all models; therefore, we conclude that IV estimation is the preferred approach to model the relationship between maternal workplace attributes and adherence to pediatric preventive care recommendations.

The results from the first stage equations demonstrate that each IV is strongly related to the primary predictor variables at $p < .001$ and satisfied the first assumption (paid sick leave $X_1^2 = 131.12$; full-time $X_1^2 = 42.46$; high part-time $X_1^2 = 38.08$). Balance of the endogenous covariates across levels of each maternal employment attribute and levels of the associated IV was compared to understand whether the IVs address unobserved confounding. This assumption is not testable, but must be assumed to justify the use of each IV. All endogenous covariates achieved a greater balance across levels of the paid sick leave IV. Further, most covariates achieved a greater balance across levels of the average hours worked per week IV.

Tables 3 and 4 display the marginal probabilities and associated confidence intervals constructed using bootstrapped standard errors of the logistic regression and the residual inclusion IV analyses. The IV models suggest that maternal employment attributes may be related to the use of some preventive health services. Maternal paid sick leave entitlements are associated with increased receipt of recommended well-child visits, preventive dental care, and the influenza vaccine among children with employed mothers, when controlling for confounding socioeconomic, demographic, and employment factors. Among children whose mothers receive paid sick leave, the probabilities of receiving care are 9 to 28 percentage points higher than among children whose mother do not have paid sick leave. More hours worked per week (20+ hours per week) is negatively related to receipt of some pediatric preventive care, including preventive dental care, receipt of the influenza vaccine, and vision and obesity screening. However, average hours worked per week does not exhibit a dose–response effect. The logistic regression models suggest that paid sick leave is related to improved adherence with well-child visit and influenza vaccine recommendations and that average hours worked per week may be related to a reduction in adherence to well-child visit and obesity screening recommendations. No other significant associations were found.

The consistent sample falsification tests show the effect of maternal employment attributes on receipt of well-child visits, preventive dental care, the influenza vaccine, and obesity screening among children aged 6 to 17 years of age; results are displayed in Table 5 and are similar to results from the full model.

The robustness of our findings is tested by running the analytical models on a sample of younger children (0–15 years); results from each outcome,except vision screening, are briefly discussed below and additional details will be provided by the authors on request.

Discussion

Universal paid sick leave policies have direct relevance for health service use among families. Yet, despite the increased support for such legislation throughout the United States, there is scant evidence about the impact of these policies on use of recommended pediatric preventive services. This study examined the effect of paid sick leave and average hours worked per week on the use of preventive pediatric health services among children aged 0 to 17 years whose mothers were continuously employed during a 2-year period. Maternal paid sick leave and working fewer hours per week may be enabling factors influencing preventive child health service use.

Paid sick leave improves family economic security, reduces health care costs, and promotes healthy communities (Lovell, 2003). Yet, 30% of working mothers with children aged 0 to 17 years did not have paid sick days. Our findings (from IV models) provide evidence that paid sick leave was related to an increased probability of receiving recommended outpatient preventive services, including well-child visits, dental care, and the influenza vaccine. These services have been shown to improve child health and reduce avoidable, expensive health care utilization (Hakim & Ronsaville, 2002; Hakim & Bye, 2001). Despite these benefits, a low proportion of children in our sample received most services. Our study suggests that maternal paid sick leave might provide time flexibility for parents and enable working families to seek pediatric preventive health services.

Children of women who worked more than 19 hours per week were less likely to receive some outpatient services, including preventive dental care and the influenza vaccine, when controlling for paid leave. Well-child visits may be a higher priority for parents who, when faced with time constraints, may choose to forego preventive services for which they are less aware. For example, at the time of data collection (2007–2010), clinical guidelines for dental services and the influenza vaccine were new, possibly contributing to limited parental awareness about their importance. The associations between maternal employment attributes and receipt of the influenza vaccine were consistent with the associations found for the other office-based service, which support our hypothesis that at the time of data collection the influenza vaccine was primarily administered in outpatient settings.

Taken together, our study results indicate that women who work more may have less time to take their children to preventive care appointments–highlighting the importance of time flexibility, more so than monetary flexibility, for working families to receive preventive care (Hamman, 2011; Vistnes & Hamilton, 1995). Yet, many mothers, particularly from low-income families, work in hourly wage jobs with low levels of flexibility. As a result, low-income children with less educated mothers are at highest risk for not receiving recommended pediatric preventive care (Alio & Salihu, 2005; Ronsaville & Hakim, 2000). These findings underscore the importance of well-designed organizational policies to support working mothers to meet the health needs of their children. Specifically, universal and flexible paid leave benefits that allow employees to use leave for family medical issues may have the potential to address disparities in the receipt of pediatric preventive care. Policies in the health care and education sectors, including extended clinic hours and enhanced school-based preventive service programs with strong communications links between school and home, might also address low levels of pediatric preventive service use.

School-based screening services may explain why a much higher proportion of children in this sample had received screening services compared with office-based services. School-based programs are commonplace in the United States and ensure that children receive recommended preventive services without requiring parents to take time away from work. As of 2010, 40% of states require and 18% of states recommend school-based obesity screenings (Linchey & Madsen, 2011; Nihiser et al., 2007). More than 80% of all states have some requirement for school vision screening (Prevent Blindness America, 2007). Also, consistent with our a priori hypothesis, school-based services may explain the lack of significant associations found between paid sick leave and receipt of recommended screening in the IV models. The mechanisms underlying hours worked per week and use of school-based preventive services appear to be more complex. Working more is associated with a lower probability of receipt of obesity and vision screening services for children. This negative association may be due to the possibility that women who work more may have less knowledge about the school-based services their children receive. While scant research examines parental knowledge of child participation in school-based screening services, limited evidence suggests that parents may not receive automatic notification of screening or screening results from schools (Madsen & Linchey, 2012; Stanford & Taveras, 2014). Regardless, school-based services may be another intervention to address low levels of pediatric preventive care use.

The results from the robustness check run on a children aged 6 to 17 years across preventive service outcomes are similar to the results from the primary models, suggesting that differences in sample composition do not drive differences in estimates across models. The magnitudes of the coefficients from the well-child visit falsification models were greater than the coefficients from the primary models, but the inferences were similar. The primary difference between the two sets of models is that paid sick leave no longer predicted receipt of the influenza vaccine among children aged 6 to 17 years. This is not surprising given that at the time of data collection in 2007–2008 the CDC influenza vaccine recommendations targeted children aged 6 months to 8 years.

As expected, results from the robustness check on children aged 0 to 15 years suggest that the effect of maternal paid sick leave and fewer hours worked on receipt of well-child visits and preventive dental care may be slightly stronger among younger children, although the effect sizes remained within the 95% confidence intervals from the full sample analysis. The effect of paid sick leave on obesity screening remained not significant though the effect size decreased substantially, which might indicate that older children are more likely to receive such services at school. The coefficients for receipt of the influenza vaccine among children aged 0 to 15 years were qualitatively different than the coefficients from the full analytical sample and were no longer statistically significant. The absolute difference in the magnitude of the effect for younger children relative to the full sample suggests stronger effects of paid sick leave and working fewer hours on receipt of the influenza vaccine; however, standard errors were too high to draw statistical inferences from these results.

The logistic regression models produced estimates consistent with the results of the IV models, particularly for the primary outcomes. Given our concerns about the potential bias produced by a naïve logistic regression approach to examine the relationship between maternal workplace attributes and use of recommended pediatric preventive care, we focus on the results produced by the IV models.

Strengths include the use of a nationally representative U.S.-based sample and the use of analytic techniques to account for unobserved confounding, which have not been extensively applied in related studies. Several important limitations must also be considered. First, the exclusion criteria may have induced some sample bias. Women who changed jobs during the survey were excluded making the results less representative because the sample only includes children whose mothers were motivated to remain at their particular job for at least 2 years. The analytic approach improves causal interpretations, but has limitations that may challenge the interpretation of these findings. An IV analysis assumes a homogenous treatment effect across individual characteristics and may not yield accurate estimates for individuals with different covariate values (Heckman, Urzua, & Vytlacil, 2006). Furthermore, it is impossible to fully test all IV assumptions (Cameron & Trivedi, 2010); and while our IVs met the tested assumptions and we theorize that the IVs are exogenous, we are unable to prove whether selection into industry based on family-friendly attributes is correlated with maternal knowledge and attitudes about pediatric preventive care. However, the analysis controls for some correlates of employment and health seeking behavior, including maternal education, family income, and child health status. Also, the sample is limited to women who remained at their jobs to exclude women who might have selected into an industry due to a demand for health services during the 2-year survey.

The use of a national survey has inherent limitations, and we lacked information about important variables. We had no data about whether children received obesity screening, vision screening, and the influenza vaccine in an outpatient or community setting and this may minimize any observed effect between maternal employment attributes and these outcomes. Indeed, the USPSTF defines “BMI” as an obesity screening measure and acknowledges that it is often assessed at routine preventive care visits (USPSTF, 2014). But, in our sample, there was a discrepancy between the proportion of children who received a well-child check (41%) and those who received an obesity screening (77%). The correlation between any well-child visit and any obesity screening was $\rho = 0.15$, further suggesting that perhaps the services were not provided at the same time for some children. Also, while we cannot discern whether women who had paid sick leave were authorized to use it for family care, the MEPS survey asks whether paid sick leave can be used to attend a medical appointment. In our sample, 160 women out of 3,755 (approximately 5%) had paid sick leave and were unable to use it for health-related appointments. It is possible that this level of flexibility correlates with use of paid sick leave for family medical issues. We did not control for whether a woman received a salary or hourly wage; this might have addressed some variability associated with the availability and use of paid sick leave. Future research, ideally prospective studies of natural experiments, is needed to corroborate our results and address the stated limitations.

There is limited evidence about the implications of workplace attributes on family health to guide national and local policy initiatives. This study contributes to the evidence base and suggests that parental employment policies may be related to pediatric preventive health service use through enhanced time flexibility. In particular, universal paid sick leave may be one avenue to address low rates of recommended pediatric preventive care use. These findings justify the need for stronger organizational policies that protect and promote working families’ health and well-being.

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Table 1.

Participant Characteristics (Full Sample *n* = 3,755; Well-Child Subsample).

Sociodemographic characteristics	% or mean
% Child age	
0 to 5 years	32
6 to 10 years	26
11 to 14 years	23
15 to 17 years	19
% Mother race/ethnicity	
Hispanic	18
Black non-Hispanic	14
Asian non-Hispanic	3
Other (including White)	65
% Children with both parents in household	
Mean family income at each quartile	
First quartile	$12,539
Second quartile	$28,492
Third quartile	$53,810
Fourth quartile	$124,114
Mean family size	
% Mother education	
Less than high school	7
High school	43
More than high school	50
% Mother age	
<30 years	14
30 to 34 years	20
35–39 years	26
40–44 years	20
>40 years	20
% Mother marital status	
Married	74
Unmarried	26
% Father employment status	
Always employed	69
Sometimes employed	4
Never employed/not contributing to family income	27
Employment attributes	%
% Sick leave	
Sick leave	70
No sick lave	30
% Vacation leave	

Sociodemographic characteristics	**% or mean**	
Vacation leave	71	
No vacation leave	29	
% Hours worked per week		
Low part-time (1–19 hours/week)	7	
High part-time (20–34 hours/week)	19	
Full-time (35+ hours/week)	74	
Family health outcomes	%	N
% Received recommended well-child visit (ages 0–17)	41	3,755
% Received preventive dental care (teeth cleaning, sealants, or fluoride) in past 12 months (ages 1–17)	47	3,637
% Received body mass index screening in the past 12 months (ages 6–17)	77	2852
% Received vision screening in the past 12 months (ages 3–6)	76	776
% Received flu shot in the past 12 months (ages 6 months to 17 years)	14	2,605

Note. % indicates the proportion of children in the sample who met the condition specified; *N* indicates the full sample size.

Table 2.

Tests of Endogeneity of Maternal Workplace Attributes on Family Health.

Use of recommended pediatric preventive care	Paid sick leave	Hours worked
Well-child visits	$F(1, 4{,}991) = 0.57$	$F(2, 5{,}539) = 2.52^{*}$
Preventive dental care	$F(1, 4{,}727) = 20.90^{**}$	$F(2, 70{,}410) = 0.001^{**}$
Obesity screening	$F(1, 3{,}146) = 9.13^{**}$	$F(2, 3{,}484) = 0.01$
Vision screening	$F(1, 866) = 0.04$	$F(2, 938) = 0.08$
Influenza vaccine	$F(1, 2{,}561) = 2.11$	$F(2, 2{,}578) = 0.13$

** Indicates statistical significance at α = <.01.

* Indicates statistical significance at α = .10.

Table 3.

Marginal Probabilities (95% CI) From the Second Stage IV Residual Inclusion Model and From the Naïve Logistic Regression Model; Outpatient Services.

	Well-child visits		Dental preventive care		Influenza vaccine	
	Age 0–17 years (*n* = 3,755)		Age 1–17 years (*n* = 3,637)		Age 6 months to 17 years (*n* = 2,605)	
	Logistic model	**IV model**	**Logistic model**	**IV model**	**Logistic model**	**IV model**
Paid sick leave	0.07* (0.13, 0.02)	0.12* (0.23, 0.01)	0.01 (0.04, −0.01)	0.28* (0.34, 0.22)	0.05* (0.09, 0.02)	0.09* (0.13, 0.05)
Work intensity						
Low part-time (1–19 hours/week)	Ref	Ref	Ref	Ref	Ref	Ref
High part-time (20–34 hours/week)	−0.025 (0.04, −0.09)	0.03 (0.50, −0.44)	−0.004 (0.15, −0.16)	−0.39* (−0.04, −0.74)	0.01 (0.07, −0.04)	−0.20* (−0.04, −0.36)
Full-time (35+ hours/week)	−0.065* (−0.04, −0.09)	−.003 (0.33, −0.33)	−.05 (0.05, −0.15)	−0.29* (−0.04, −0.54)	0.004 (0.02, −0.02)	−0.10* (−0.06, −0.14)

Note. CI = confidence interval; IV = instrumental variable.

* Indicates statistical significance at $\alpha = .05$.

Table 4.

Marginal Probabilities (95% CI) From the Second Stage IV Residual Inclusion Model and From the Naïve Logistic Regression Model; Screening Services.

	Obesity screening		Vision screening	
	Age 6–17 years (*n* = 2,852)		Age 3–6 years (*n* = 776)	
	Logistic model	IV model	Logistic model	IV model
Paid sick leave	0.01 (0.16, −0.13)	−0.07 (0.20, −0.34)	0.002 (0.06, −0.05)	−0.13 (0.01, −0.26)
Work intensity				
Low part-time (1–19 hours/week)	Ref	Ref	Ref	Ref
High part-time (20–34 hours/week)	0.008 (0.11, −0.09)	−0.63* (−0.36, −0.90)	0.04 (0.14, −0.06)	−0.64* (−0.01, −1.30)
Full-time (35+ hours/ week)	−0.02* (−0.01, −0.03)	−0.38 (0.01, −0.77)	−0.02 (0.06, −0.10)	−0.39 (0.14, −0.92)

Note. CI = confidence interval; IV = instrumental variable.

*Indicates statistical significance at $\alpha = .05$.

Table 5.

Robustness Check; Marginal Probabilities (95% CI) Models Composed of Consistent Sample of Children Aged 6 to 17 Years.

	Well-child visits (n = 2,852)	**Preventive dental care (n = 2,852)**	**Influenza vaccine (n = 2,446)**	**Obesity screening (n = 2,852)**
Paid sick leave	0.26* (0.41, 0.11)	0.34* (0.61, 0.07)	0.21 (0.54, −0.12)	0.13 (−0.07, 0.33)
Hours worked per week				
Low part-time (1–19 hours/week)	Ref	Ref	Ref	Ref
High part-time (20–34 hours/week)	−0.07 (0.60, −0.73)	−0.40 (0.15, −0.95)	−0.17 (0.12, −0.46)	−0.63* (−0.39, −0.86)
Full-time (35+ hours/week)	0.34 (0.93, −0.25)	−0.24 (0.17, −0.65)	−0.15 (0.44, −0.74)	−0.38* (−0.05, −0.71)

Note. CI = confidence interval; IV = instrumental variable. Falsification tests were not run on the vision screening outcome because the vision screening sample pertained to children aged 3 to 6 years.

* Indicates statistical significance at $\alpha = .05$.