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Minimum Wage and Parental Childcare Time in the United States, 2019–2023

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1 Summary

This paper investigates the efficacy of minimum wage policies as a tool to influence parental time allocation in the United States. It examines whether increases in the state-level effective minimum wage result in parents allocating more time to childcare (key in child development) by reducing financial constraints (such as the “income effect”) or if they lead to a substitution toward market work.

A positive relationship between minimum wages and parental time investment has been documented in previous literature (Morrissey, 2023) (Gearhart, 2023) for the period 2003-2019, while this study focuses on the structurally distinct period of 2019-2023. This period is characterized by the exogenous shocks of the COVID-19 pandemic and a subsequent period of high inflation, providing a unique scenario to test the resilience of labor market policies.

Methodologically, this study builds a state-level panel dataset merged with individual microdata from the American Time Use Survey (ATUS). The sample analyzed consists of 4043 working age parents (between 18 and 65 years of age) with at least one underaged child. Our identification strategy is similar in spirit to the DiD models of Morrissey (2023), but we use a simpler specification with continuous minimum wage and state and year FE due to the shorter 2019–2023 window

The empirical results show a robust null finding. Across eleven distinct model specifications (including stratifications by gender, education, race, family structure and income) no statistically significant effect of the minimum wage on childcare time was detected. In contrast to pre-2019 findings, neither mothers nor low-educated parents changed their time use in response to wage hikes.

This paper argues that this null result is driven by two main factors unique to the post 2019 economy: First, Structural Inelasticity, where time allocation is dictated by non-market health mandates rather than marginal wage incentives; and Inflationary Erosion, where nominal minimum wage increases were neutralized by the cost of living rising, diminishing the income effect. It concludes that during periods of macroeconomic volatility, the minimum wage acts as a rigid instrument for income support but fails to generate the secondary benefits of increased parental time investment found in stable periods.

2 Abstract

Title: Minimum Wage and Parental Childcare Time in the USA, 2019-2023

Abstract: Recent economic literature suggests that increases in the minimum wage can lead to parents spending more time in childcare through easing financial constraints such as the income effect. However, most evidence from past research does not analyse the disruptions of the COVID 19 pandemic. This research examines the impact of state-level minimum wage increases on parental childcare time in the United States during the mentioned period of 2019 to 2023. Through the use of microdata from the American Time Use Survey (ATUS), we analyse a sample of 4043 working age parents and find that, contrary to findings from the 2003 to 2019 period, there is no statistically significant effect on childcare time across aggregate or subgroup specifications, including mothers, fathers and low education parents among others. This null result diverges from pre-2019 literature. We attribute this lack of significance to the unique structural rigidities of the post-pandemic labor market (2019–2023) and the erosion of real wages due to high inflation, which likely neutralized the behavioral incentives typically associated with wage floors.

Título: Salario Mínimo y Tiempo en Cuidado de los Hijos en USA, 2019-2023

Resumen: La literatura económica reciente sugiere que incrementos en el salario mínimo pueden resultar en los padres pasando más tiempo en el cuidado de sus hijos gracias a la reducción en las cargas financieras, como el efecto renta. Sin embargo, los estudios previos no analizan el periodo disruptivo del COVID 19. Esta investigación analiza el efecto de los cambios en el salario mínimo estatales en el tiempo de cuidado de los hijos en Estados Unidos en el periodo 2019 a 2023. A través del uso de datos de la encuesta ATUS, analizamos una muestra de 4043 padres de edad laboral y encontramos que, contrario a los resultados de periodos previos, no hay un efecto significativo estadísticamente en el tiempo de cuidado de los hijos global o en diferentes subgrupos, incluyendo madres, padres o padres con poco nivel educativo, entre otros. Este resultado nulo es diferente a la literatura anterior a 2019. Podemos atribuir esta falta de resultado significantes a la rigidez estructural única del mercado laboral postpandemia (2019-2023) y a la erosión del salario real por la inflación, que seguramente neutralizó los incentivos del comportamiento usualmente asociados con este incremento.

3 Introduction

The federal minimum wage in the United States has been stuck at 7,25\$ per hour since 2009, yet the debate around its efficacy continues to dominate the labor policy discourse. Traditional economic literature focuses almost exclusively on employment effects (debating whether wage floors reduce labor demand) (Neumark, 2018) or reduce turnover without disemployment (Card, Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania, 1994) (Dube, 2010), a growing body of “New Minimum Wage Research” has shifted the focus to the non-market consequences of these policies. More specifically, recent studies have started to examine how minimum wages influence production, parental well-being and allocation of time within the family.

This research contributes to this emerging literature by analyzing the impact of state-level minimum wage increases on parental time allocation, more specifically time spent on childcare during the volatile 2019 to 2023 period.

3.1 *Theoretical Context and Motivation*

Time is not an unlimited source. For most low-income parents, the decision on how to allocate their time between the labor market and the household is determined by the wage rate. According to the standard household production model (Becker, 1993), an increase in the minimum wage generates two opposing theoretical predictions:

- The Substitution Effect: Higher wages increase the opportunity cost of leisure and home production. This should then induce parents to work more and spend less time on childcare, potentially substituting parental care with market-based alternatives (such as daycare).
- The Income Effect: Higher wages increase the total household wealth (assuming there is no job loss). If childcare is a so called “normal good”, then wealthier parents might choose to “buy” more time with their children by reducing work hours.

Recent empirical evidence suggests that for many families, the Income Effect dominates. Both Gearhart (Gearhart, 2023) and Morrissey (Morrissey, 2023) found, after analyzing ATUS data up to 2019, that minimum wage increases led to significant increases in parental time investment, particularly among mothers and low educated parents.

3.2 The Gap. A Structural Break?

However, these studies rely on data that ends before the global structural shock of the COVID 19 pandemic. The period from 2019 to 2023 saw rigidities never seen before in the labor market, including school closures, health mandates and historic levels of inflation. It remains an open question whether the positive relationships between minimum wages and childcare time holds in an economy where “time at home” was often a mandate rather than a choice, while nominal wage gains were quickly drowned out by inflation.

3.3 Objectives and Findings

The objective of this study is to replicate and extend the methodology of Gearhart (Gearhart, 2023) to this new period. Using data from the ATUS, merged with state-level macroeconomic indicators, we can estimate the association between the minimum wage on childcare for the sample of 4043 parents using a strategy similar in spirit to the DiD models of Morrissey (2023), but we use a simpler specification with continuous minimum wage and state and year FE due to the shorter 2019–2023 window. Contrary to pre-2019 findings, we found a robust null result across eleven distinct specifications (by gender, education, race and family structure) with no statistically significant evidence that minimum wage altered childcare time in the 2019 to 2023 period. This lack of statistical significance constitutes the main contribution of this study. Unlike previous research covering the 2003–2019 expansionary period (Gearhart et al., 2023; Morrissey, 2023), our analysis captures a structural break driven by the COVID-19 shock and high inflation. These macroeconomic conditions introduced rigidities that likely dampened the transmission mechanism between nominal wage hikes and parental time allocation, differentiating our results from the established literature. We can hypothesize that this change is driven by the inelasticity of labor supply during the post pandemic recovery and the erosion of real purchasing power, suggesting therefore that the minimum wage is a less effective tool for influencing family dynamics during periods of macroeconomic instability.

4 Literature Revision

4.1 *Conceptual Background*

Minimum wage policy establishes a statutory wage floor that protects low-income workers and reduces wage inequality. In the canonical competitive model, a minimum wage above the market level lowers employment but when labor markets have frictions or some monopolistic characteristics, moderate increases in the minimum wage can raise wages and welfare with limited or even positive effects on employment. This debate has evolved from simple employment counts towards richer analyses of hours, job creation and worker heterogeneity (Neumark, 2018) (Azar, 2019)

Looking at these situations from a household economics perspective, minimum wage changes can also affect nonmarket behaviors, reshaping how individuals allocate time between paid work, leisure and caregiving by increasing disposable income and changing work schedules. Some household production models (Becker, 1993) (Del Boca, 2017) predict that income gains reduce time constraints and allow parents to spend more time in child focused activities while substitution effects through higher opportunity costs could offset this. Whether the income or substitution channel dominates is an empirical question that needs to be addressed using micro-level time use data.

The American Time Use Survey (ATUS) provides precisely this micro perspective by recording at a minute level, daily activity diaries linked to rich demographic and employment data from the Current Population Study (CPS). Over the past decade, ATUS based studies have become the main source for measuring how economic policies (including minimum wage) translate into changes in parental time allocation, stress and well being (Lenhart, 2019) (Hill, 2018)

This research follows that literature by examining how state and federal minimum wage changes between 2019 and 2023 influenced individual and household behavior in the United States. The period covers the COVID-19 shock and subsequent recovery, being an environment of great heterogeneity across states, sectors and demographic groups that provides an ideal setting for a micro level analysis using the ATUS framework.

4.2 Empirical evidence on employment and income

The existing decades of research on the minimum wage and employment relationship show small average employment effects but clear earnings gains for low wage workers. Easily natural experiments such as (Card, 1994) and later meta-analysis (Card, 2015) (Cengiz, 2019) show that most job losses as a result are modest and statistically insignificant. Other studies that emphasize labor-market structure (Dube, 2010) (Azar, 2019) attribute this to monopsonistic competition, where wage floors counteract employer power.

The main relevance of these effects is in setting expectations for household adjustments, as if minimum wages raise earnings without significant employment losses, families may receive tangible improvements in income and time allocation. Some complementary studies connect these income increases to improvements in health and family outcomes. For example, (Komro, 2016) found that higher minimum wages are associated with better infant health and lower infant mortality, while (Bullinger, 2017) document declines in child maltreatment following minimum wage hikes. These studies reinforce the view that minimum wage policy affects welfare through mechanisms beyond the labor market.

4.3 Time Use and Parental Behavior

4.3.1 Key ATUS Based Findings

In the recent past, there has been a surge in studies using ATUS microdata to quantify these household changes, (Lenhart, 2019) was among the first to link minimum wage variation to individual time use. Through the use of 2003-2017 ATUS data and a difference in differences (DiD) framework, he found that higher state minimum wages increased leisure time and, for non-employed individuals with children, added approximately 37 minutes of daily childcare (not distinguishing between developmental and routine activities).

Building directly on this foundation, (Gearhart, 2023) and (Morrissey, 2023) provide the most detailed and methodologically rigorous analyses to date, both linking ATUS time diaries to state-year minimum wage data and implementing DiD models with state, year and month fixed effects and state-specific time trends.

- In his paper, Gearhart (Gearhart, 2023) studies the years from 2003 until 2019 and includes a one-year lag of the effective real minimum wage to capture delayed

behavioral adjustments. They also estimate that a \$1 increase in the minimum wage increases primary childcare by around 11.8 minutes per day and educational time (reading, playing and other related activities) by 9.9 minutes per day in mothers with less than a high school diploma, with no significant effects observed on fathers. The impact was also found to be higher in black mothers with less than high school education with children under 7 years old, suggesting that minimum wage policy could narrow racial and educational gaps in parental investments.

- Morrissey (Morrissey, 2023) extends this analysis through 2018 and focuses on how minimum wage changes alter the likelihood and amount of time parents invest in children's care, education and health. A \$1 minimum wage increase is associated with a 1.3-1.6% rise in the probability that parents spend any time caring for or helping children on weekends (around a 2.6% increase). Effects were concentrated among mothers, unmarried parents and parents of color, particularly in child health related activities. It interprets these changes as evidence that minimum wage increases relax time constraints and reduces stress, enhancing the quality and quantity of parent-child interactions.

Combined, these two papers demonstrate that minimum wage policies can influence micro level behavioral parameters such as minutes of childcare, probabilities of engagement and intensive vs extensive margins or parental investment, even when aggregate employment effects are minimal. Their methodological framework also provides a template for current research.

Time use decisions have been extensively studied in the literature considering household bargaining and leisure. (Campaña J. J.-N., 2023) (Gimenez-Nadal J. a., 2022)

4.3.2 Demographic and Distributional Heterogeneity

Other additional studies confirm these mechanisms such as (Hill, 2018) which synthesizes earlier work and concludes that higher minimum wages improve family stability and child wellbeing by increasing income and lowering economic stress. (Lenhart, 2017) also showed similar effects in the U.K, linking minimum wage rises to better self-reported health via reduced financial strain. (Bullinger, 2017) found that minimum wage increases in the U.S reduced adolescent fertility while (Leigh, 2016) emphasized potential public health benefits. Together, these results suggest that household responses, rather than firm level employment changes, are an essential dimension of minimum wage studies.

4.4 Heterogeneity and Demographic Patterns

The evidence shows a significant heterogeneity in minimum wage impacts. Women, racial minorities and less educated workers are overrepresented among minimum wage earners and therefore experience the largest direct effects. Both (Gearhart, 2023) and (Morrissey, 2023) confirm this as they show the effect is especially strong for mothers (especially Black and low educated mothers) and negligible for fathers, showing greater sensitivity in both total childcare and enriching activities.

Child age also changes the response. Time reallocations are more evident in parents whose youngest child is school aged (between 6 and 15 years old) for general care but among those with younger children (under 7 years old) for enriching activities. These patterns show that minimum wage policy interacts with the life cycle of parenting, affecting how families allocate newly available resources and time.

Finally, marital status also plays a role in these effects. Married low educated mothers respond more strongly than single mothers, being consistent with household specialization effects as higher minimum wages raising one partner's earnings can lead to the other allocating more time to child related tasks.

These documented heterogeneities guide the empirical design of this research, which will estimate separate effects by gender, education, race, marital status and child age, following closely the stratifications in the ATUS literature.

4.5 Policy and Geographic Variation

The United States shows a rich variation for identifying minimum wage effects. The federal minimum wage has remained at \$7.25 per hour since 2009 but by 2023 thirty states and the District of Columbia had higher statutory rates, while five states (Alabama, Louisiana, Mississippi, South Carolina, and Tennessee) had no state minimum, defaulting to the federal level. The U.S. Department of Labor and the National Conference of State Legislatures keep the authoritative records of these changes. Many municipalities such as Seattle, San Francisco or Washington D.C have implemented even higher local wage floors generating the state variation that both (Morrissey, 2023) and (Gearhart, 2023) exploit. For this research, these policies enable the construction of state by year treatment variables, distinguishing states without their own minimum wage from those with higher state or local floors. Such heterogeneity is essential for identifying its impact on micro-behavioral parameters in the post 2019 context.

4.6 Dynamic and Lagged Effects

For the current research, the timing of behavioral responses to minimum wage changes is critical. (Gearhart, 2023) incorporates a 12-month lag in the minimum wage variable to capture delayed adjustments, finding larger effects than contemporaneous models. Furthermore, (Morrissey, 2023) compared contemporaneous and lagged specifications and reports using similar directions, implying relatively quick adaptation in time use once wage rises. These differences highlight the need to test both contemporaneous and lagged responses in the present analysis, especially as policy implementations and COVID era labor market shocks may have altered adjustment speeds.

4.7 Synthesis and Implications for this Research

The literature that uses ATUS data converges on several key conclusions relevant to this study:

- Minimum wage increases have small aggregate employment effects but meaningful household impacts, with families experiencing income gains that translate into changes in time allocation and wellbeing.
- Behavioral responses are highly heterogeneous with the largest improvements in parental time use found in low educated, black and married mothers.
- Both contemporaneous and lagged effects matter as adjustments may occur immediately or within a year of policy change.
- Time-use outcomes provide a complementary welfare metric. Measuring minutes of childcare or educational engagement offers a direct gauge of living standard improvements beyond income

Building on these insights, this research will apply an ATUS based micro economic framework similar to those in (Gearhart, 2023) and (Morrissey, 2023), focusing on the 2019-2023 time period and expanding the analysis to include post pandemic dynamics and additional heterogeneity across states with and without their own minimum wage laws.

5 Data and Methodology

This section details the construction of the dataset, the econometric strategy and the properties of the sample used to estimate the impact of minimum wage policies on parental time allocation. The analysis relies on merging individual level microdata from time-use diaries with state level macroeconomic indicators to create a repeated cross-sectional dataset covering the period 2019 to 2023.

5.1 Data Sources and Construction of State-Level Panel

The empirical analysis requires linking individual behavior to the specific policy environment of their state of residence at the time of the interview. To achieve this, we constructed a state level panel dataset capturing the variation in labor market policies and economic conditions across all 50 US states and the District of Columbia

5.1.1 The Effective Minimum Wage

The primary independent variable of interest in this research is the Effective Minimum Wage (MW_{st}). In the United States, the federal minimum wage sets a floor (fixed at 7,25\$ since 2009), but states have the authority to legislate higher ones. Following the identification strategy of past papers (Gearhart, 2023) (Morrissey, 2023), we define the effective minimum wage as the maximum of the federal or state statutory minimum wage in state s during year t .

$$MW_{st} = \max(MW_{st}^{Federal}, MW_{st}^{State})$$

The data for state level minimum wage rates was obtained from the University of Kentucky Center for Poverty Research (UKCPR) National Welfare Database (University of Kentucky Center for Poverty Research, 2024), which aggregates historical changes in state labor laws. For years in which a state carried out a mid-year wage increase, the variable represents the timeweighted average for that year to accurately reflect the prevailing wage floor faced by workers.

5.1.2 Macroeconomic Controls

To isolate the specific effect of the minimum wage from other broader economic shocks (a critical distinction during the volatile 2019 to 2023 period), we incorporate two key state level controls:

- Unemployment Rate: The annual average unemployment rate for each state, taken from the University of Kentucky Center for Poverty Research (UKCPR) National Welfare Database (University of Kentucky Center for Poverty Research, 2024). This variable controls for local labor market slack, which theory suggests reduces the opportunity cost of time (and potentially increasing childcare time independent of wages).
- Real GDP Growth: The annual percentage change in Real Gross Domestic Product (chained dollars), sourced from the Bureau of Economic Analysis (U.S. Bureau of Economic Analysis, 2024), controlling for the aggregate demand shocks and the general health of the state economy.

5.2 Microdata: The American Time Use Survey (ATUS)

Individual level data are taken from the American Time Use Survey (ATUS), administered by the U.S Census Bureau (AQUI REFERENCIA ATUS). This data is the standard for time use research in the United States, providing a detailed 24-hour time diary for a representative sample of U.S residents, which report their activities minute by minute for a single designated day.

5.2.1 Dependent Variable: Parental Childcare Time

The primary outcome variable is Total Childcare Time, which is measured in minutes per day. It aggregates all minutes where the respondent reported their primary activity as caring for or helping household children (ATUS activity codes 0301xx). This includes physical care (such as bathing or feeding), educational activities (such as reading or helping with homework) and recreational care (such as playing).¹

¹ Due to data limitations in the provided extract, we analyze total childcare time rather than separating it into “primary” and “developmental” care. Even if this limits the analysis, the total time remains the most comprehensive measure of parental investment.

5.2.2 *Sample Selection*

To make sure the analysis focuses on the population relevant to the research question, we applied strict inclusion criteria consistent with the reference literature:

- Parents only: We restrict the sample to individuals living in a household with at least one own child under the age of 18 ($\text{numch} > 0$). Childless individuals are excluded as they do not face the specific tradeoff between market work and childbearing.
- Working age (between 18 and 65): We exclude minors and retirees to focus on individuals actively engaged in the labor market, for whom the minimum wage is a relevant economic parameter.
- Period 2019 to 2023: We restrict the timeline to the 2019 to 2023 window to specifically examine the post 2019 economic landscape, characterized by the COVID 19 pandemic and subsequent inflationary period.

After applying the filters, the final sample consists of 4043 parent day observations.

5.3 *Descriptive Statistics*

Table 1 below presents the summary statistics for the final weighted sample. This descriptive data shows significant heterogeneity in both the outcome and treatment variables.

Table 1. Summary Statistics, using observations 1 - 4043²

Variable	Mean	Median	S.D.	Min	Max
childcare	56.7	30.0	76.0	0.000	620.
MinimumWage	9.75	9.30	2.55	7.25	17.0
UnemploymentRate	4.83	4.10	1.96	1.90	13.5
GDPGrowth	2.49	2.40	3.22	-10.3	10.1
age	40.2	40.0	8.15	21.0	60.0
numch	1.80	2.00	0.845	1.00	5.00
workhours	42.4	40.0	10.3	1.00	100.
male	0.510	1.00	0.500	0.000	1.00

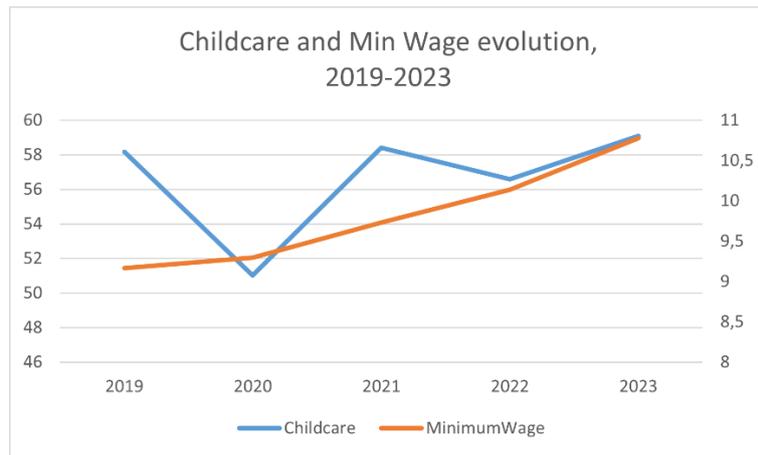
² Data weighted using ATUS person level weights. Sample restricted to parents aged between 18 and 65 and with at least one child under 18.

Two key observations emerge from these statistics:

- **High Variance in Childcare:** The standard deviation of childcare time (76 minutes) exceeds the mean (56,7 minutes). This shows the nature of time use data: on any given diary day many employed parents may report zero direct childcare minutes, while others report several hours. Notably, the time series shows a distinct structural break in 2020, where childcare time decreased to around 51 minutes, likely reflecting the immediate impact of pandemic related school closures. Even then, this effect dissipates by 2021, with the series returning to its pre pandemic baseline despite the continued increase in minimum wage.
- **Variation in Policy:** The effective minimum wage averages at 9,75\$ but ranges from the federal floor of 7,25\$ to a high of 17\$. This variation (both across states and overtime) is key for the econometric identification of the model.

To visually analyze the relationship between labor market policy and parental time allocation, Figure 1 below plots the evolution of the average effective minimum wage alongside average daily childcare time over the sampled period. The trend line (secondary axis) shows a monotonic increase in the effective minimum wage, driven by statutory hikes and inflation adjustments across various states. On the other hand, the childcare series (primary axis) shows volatility without a corresponding upward trend. Notably, the data shows a structural break in 2020, reflecting the mechanical impact of the school closures and lockdown due to the pandemic. However, as the wage floor continues to increase until 2023, childcare time goes back to pre-pandemic levels, instead of following the wage trajectory. This visual divergence shows preliminary evidence that aggregate childcare has been unresponsive to recent increases in the minimum wage.

Figure 1. Evolution of Childcare and Minimum Wage, 2019–2023



5.4 Econometric Strategy

To estimate the impact that the minimum wage has on childcare time, we employ an identification strategy withing a Weighted Least Squares regression framework. This model uses the variation in minimum wage laws across states and over time, controlling unobserved heterogeneity using fixed effects.

The econometric specification is defined as:

$$Y_{ist} = \beta_0 + \beta_1 MW_{st} + \beta_2 X_{ist} + \beta_3 Z_{st} + \gamma_s + \delta_t + \epsilon_{ist}$$

Where:

- Y_{ist} : The number of minutes spent on childcare by individual i in state s at time t
- MW_{st} : The effective minimum wage in state s and year t . The coefficient of interest is β_1 which measures the change in daily childcare minutes associated with a \$1 increase in the minimum wage.
- X_{ist} : A vector of individual demographic controls, including age, gender, race, education level, marital status, and number of children. These controls account for personal characteristics that influence time allocation preferences.
- Z_{st} : Time-varying state macroeconomic controls (Unemployment Rate and GDP Growth) to account for local economic shocks.
- γ_s (State Fixed Effects): A set of dummy variables for each state. These control for time-invariant state characteristics (e.g., cultural attitudes toward parenting in Utah vs. New York) that might be correlated with both minimum wage levels and childcare time.

- δ_t (Year Fixed Effects): A set of dummy variables for each year (2019–2023). These control for national shocks that affect all states simultaneously, such as the COVID-19 pandemic lockdowns or federal stimulus payments.
- ϵ_{ist} : The error term.

All of the regressions are weighted using the ATUS person-level weights (weight) to make sure the results are representative of the U.S. population. Standard errors are also clustered at the state level to consider serial correlation in the error term within jurisdictions over time.

6 Results

This Results section presents empirical estimates of the impact of the effective minimum wage on parental childcare time. We do this analysis in three steps: first we report the aggregate estimates for the full sample of parents, second we examine the heterogeneity by gender and education level, consistent with the theoretical framework of Gearhart (Gearhart, 2023) and lastly we conduct several sensitivity analyses on vulnerable subpopulations.

6.1 Aggregate Estimates

In Table 2’s Column 1 below we present the baseline estimates for the full sample of parents aged between 18 and 65 years of age. The model controls for individual demographic characteristics, state-level macroeconomic conditions and includes state and year fixed effects to account for unobserved heterogeneity.

Table 2. Estimated Results for Samples

Variable	(1) All Parents	(2) Mothers	(3) Fathers	(4) Low Edu	(5) High Edu
Effective Min. Wage	-1.192	1.019	-3.514	-2.219	-0.783
(Standard Error)	(1.832)	(2.767)	(2.431)	(2.539)	(2.616)
P-Value	0.515	0.713	0.149	0.382	0.765
Controls	Yes	Yes	Yes	Yes	Yes
State/Year FE	Yes	Yes	Yes	Yes	Yes
Observations	4,043	1,982	2,061	1,711	2,332

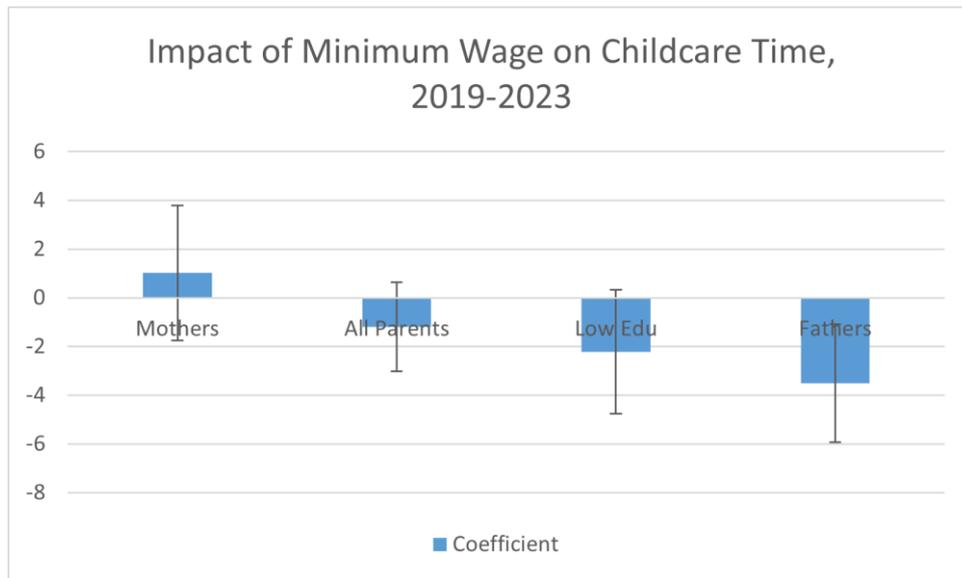
The estimated coefficient for the minimum wage is negative (-1.192) but also statistically not significant (p-value = 0.515). This implies that for every 1\$ increase in the hourly minimum wage, the average parent reduced their daily childcare time by 1.2 minutes approximately, but we cannot reject the null hypothesis that the true effect is zero. This null result contrasts with earlier results in past literature that covers the 2003 to 2019 period, which often documented significant positive effects (Morrissey, 2023). The absence of statistical significance in the aggregate sample suggests that during the 2019 to 2023 period, the opposing income and substitution effects canceled each other out. In

addition to this, the inclusion of the Unemployment Rate and Real GDP Growth as controls (both also statistically insignificant in this specification) suggests that the time allocation during this period was likely driven by non-market factors (mainly related to the pandemic) rather than the traditional labor market signals.

6.2 *Heterogeneity by gender*

Labor supply elasticities and childcare responsibilities are known to vary significantly by gender. In order to address this, we separate the sample into mothers and fathers in Columns 2 and 3 of Table 2 above.

- Mothers (Columns 2): The estimated coefficient in this case is positive (1.019) but is again statistically not significant (p-value=0.713). While it is true that the positive sign we obtain aligns with the “Income Effect” hypothesis (higher wages allow mothers to “buy” more leisure or childcare time), the magnitude is small and not significant. This shows that for the average mother in our sample, minimum wage increases did not lead to a detectable increase in time spent with children.
- Fathers (Columns 3): The coefficient in this case is negative (-3.514) but is again not significant (p-value=0.149) but close to marginal significance. The negative sign provides evidence of a substitution effect, where fathers might increase market work (and therefore reduce home time) as a response to higher wages, but the high standard error also suggests substantial variation in the aforementioned response.

Figure 2. Coefficients and Errors for subgroups³

6.3 Heterogeneity by Education

Usually, minimum wage policies are targeted at low-wage workers. Therefore, an analysis of the full population (including high earners) may dilute the estimated effect. To address this, we separated parents by their educational level, using education as a proxy for skill level and likely minimum wage exposure.

- Low Education (Column 4): We restrict the sample to only parents with a High School diploma or less ($\text{edu} \leq 2$). This is the population most likely to earn near the minimum wage. Surprisingly, the estimate effect (-2.219) remains statistically insignificant ($p\text{-value} = 0.382$). The negative sign mirrors the result for fathers, suggesting a potential (but not significant) increase in work hours, but even among this vulnerable group, the policy did not significantly alter childcare patterns.
- High Education (Column 5): As a falsification test, we also examined parents with a college degree ($\text{edu} = 3$). As we expected, the coefficient is close to zero, but still negative (-0.783), while also being not significant ($p\text{-value} = 0.765$), confirming that high skill parents are not affected by the policy.

6.4 Sensitivity Analysis: Vulnerable Populations

³ Bars represent the estimated coefficient (β) of the effective minimum wage on daily minutes of childcare. Error bars indicate 95% confidence intervals clustered at the state level. All estimates are statistically insignificant ($p > 0.05$).

To ensure the robustness of our null findings, we extended the analysis to specific subpopulations that are usually more sensitive to labor market rigidities. These results are shown in Table 3 below.

Table 3. Sensitivity Analysis Results

Sub-Group	Coefficient	Std. Error	P-Value
Single Parents	-0.242	3.489	0.945
Non-White Parents	-2.699	2.081	0.195
Low Income Families	-5.546	4.900	0.258
Mechanism: Paid Work	0.835	3.862	0.829

6.4.1 Family Structure

Past research suggests that single parents are more responsive to wage changes than partnered parents due to the lack of a second income earner. However, our estimates show a very small effect for Single Parents (-0.242) being non-significant (p-value = 0.945). Similarly, Partnered Parents show a negative coefficient (-1.820) but still non-significant (p-value = 0.394). This uniformity across family structures reinforces the conclusion that the null result is not driven by household composition.

6.4.2 Race

We also examined the differential impact by race to account for systematic disparities in labor market attachment:

- Non-White Parents: The coefficient was negative (-2.699) and non-significant (p-value = 0.195).
- White Parents: The coefficient is positive (2.969) but also non-significant (p-value = 0.463). While the difference in signs (negative for minorities and positive for whites) is intriguing and could suggest potential divergent strategies (with minority parents possibly substituting toward work and white parents toward home time), neither estimate reaches statistical significance.

6.4.3 Low Income Families

Finally, we test the group defined by economic needs rather than demographic characteristics: families with low annual income ($faminc \leq 10$). This yields the largest point estimate in our entire analysis (-5.546), suggesting that for every dollar increase in the minimum wage, low-income parents reduce childcare by over 5 minutes per day. However, due to the smaller sample size and high variance within this group, the standard error is large (4.90) and the p-value being 0.258 means that it is once again non-significant.

6.5 Mechanism Analysis: Paid Work Time

The theoretical link between minimum wage and childcare assumes that there is a trade-off with market work. If the minimum wage does not change the amount of time that parents spend working, then it most likely will not change the amount they spend on childcare either. To test this mechanism, we re-estimated the baseline model using Paid Work Time as the dependent variable (Table 3, bottom row). The result for this model is critical for interpreting the overall results of this research. It confirms that in our sample, the minimum wage did not trigger an effect in employment (“Employment Effect”, being a reduction in hours) or a substantial increase in labor supply. As there is no first-stage response in market work hours, the stability of childcare time is the mathematically expected result.

7 Results Analysis

The main finding of this study is a robust “null result”: across the eleven different models we analyzed (differentiating by gender, education, race, family structure and income), we find no statistically significant evidence that state-level minimum wage increases altered parental time allocation during the 2019 to 2023 period.

This finding presents a divergence from the established literature. Both Gearhart (Gearhart, 2023) and Morrissey (Morrissey, 2023) documented significant behavioral responses to minimum wage hikes in the pre-2019 period (especially among mothers and low educated parents. However, our analysis suggests that this policy lost its efficacy as a determinant of time use in the post 2019 economy. This section interprets these findings through three main structural mechanisms: the rigidity imposed by the COVID 19 pandemic, the erosion of real wages due to inflation and the inelasticity of labor supply during this specific business cycle.

7.1 *The "COVID Rigidity" Hypothesis*

The most realistic explanation for the divergence between our results and prior ones can be found in the unique conditions of the studied period. Standard time allocation theory (Becker, 1993) assumes that individuals freely optimize their time between market work, home production (childcare) and leisure based on marginal price signals such as wages.

However, during the COVID 19 pandemic, this process was disrupted by exogenous health mandates. For most of our sample period, time allocation was dictated by non-market factors such as school closures, lockdowns and remote work. This resulted in:

- Constraint over Choice: For many parents, the time they spent at home increased not because the opportunity cost of work changed but because physical presence in the workplace was restricted.
- Signal Noise: In the studied period’s environment, a marginal economic incentive of a 1\$ increase in minimum wage likely functioned as a weak signal due to the overwhelming situation. The “elasticity of substitution” between work and childcare most likely approached zero during the lockdown periods, meaning that the minimum wage was ineffective as a tool to shift time use.

7.2 *Comparative Analysis: The Disappearance of Heterogeneity*

A key contribution of this study is the documentation of how widely cited demographic patterns in time use evaporated during this period:

- Gender: Gearhart (Gearhart, 2023) found that minimum wage increases resulted in mothers increasing educational childcare time, with fathers being largely unresponsive. In contrast, our analysis (Table 2) found that the coefficients for both (1.019 mothers and -3.5 fathers) are statistically indistinguishable from zero. This suggests that the gendered division of labor (while still present as mothers do more care), did not respond to wage shocks during this period. This means that the pandemic may have forced a convergence in “rigidity” where neither parent could flexibly adjust their labor supply in response to marginal wage gains.
- Educational: The result obtained of no significant effect even among Low-Education parents may as well be the most surprising. This group, identified by Morrissey (Morrissey, 2023) as the most sensitive to wage floors, appears to have become unresponsive too. Even then, this may be attributed to the nature of low-wage employment during the pandemic where most workers faced the choice of either continuing work or quitting, instead of marginally adjusting hours to spend time with children.

7.3 *The "Inflationary Erosion" Mechanism*

The economic context of 2020 to 2023 differs greatly from the 2003 to 2019 period analyzed by previous authors due to the return of high inflation.

The “Income Effect” (key theoretical aspect through which minimum wages increase childcare time), relies on the assumption that a higher nominal wage translates into higher purchasing power, allowing parents to “purchase” leisure or reduce work hours without sacrificing consumption. The data tracks the nominal effective minimum wage (which rose in many states), but the real value of these wages was aggressively eroded by inflation rates peaking over 8% during 2022. The result of this phenomenon is that a parent receiving a 1\$ raise in 2022 might have experienced a decrease in real purchasing power. Under these conditions, the theoretical prediction flips as rather than working less to spend time with children, parents might feel “poorer” and therefore maintain or increase working hours to sustain consumption levels. Our null results are consistent with

this “money illusion”, where nominal policy gains were neutralized by macroeconomic price instability.

7.4 Mechanism Failure: Labor Supply Inelasticity

Finally, the analysis we carried out about the Paid Work Time in Table 3 provides a mechanical explanation for the null result in childcare. We found that the minimum wage had no statistically significant effect on hours worked with a coefficient of 0.835 but a p-value of 0.829. This is critical as past literature suggests that childcare changes are a downstream consequence of labor supply adjustments (so if parents work less, they care more). Since we observe no “First Stage” effect (changes in work hours), a “Second Stage” effect (changes in childcare) is also mechanically impossible unless parents substituted leisure for childcare, which is not common. This implies that low-wage labor supply was highly inelastic during this period. Whether due to the necessity of retaining employment during a crisis or labor shortages that led to workers demanding flexible hours without reducing total work, the traditional trade-off between work and family did not work as usual through the minimum wage.

7.5 The Supply-Side Constraint: Rising Cost of Care

A mechanism that is critical but often overlooked is how the minimum wage affects the market for childcare. Childcare is a labor-intensive industry where workers are often paid near the minimum wage. Therefore, when minimum wage rises, childcare centers face higher labor costs, which they then pass on to parents through higher tuition fees. Standard theory suggests that as formal childcare becomes more expensive, parents should substitute away from it and provide more home care. The reality, however, implies through our null result that this substitution did not happen. The reason for this is that the period analyzed from 2019 to 2023 faced a severe shortage of childcare slots. This meant that even if prices rose, parents could not choose to pull children out of daycare to save money if they risked losing their spot in a scarce market. This inelasticity in the formal childcare market likely locked parents into existing arrangements, rendering their time use insensitive to small wage fluctuations.

7.6 *Quantitative Contrast with Prior Estimates*

In order to contextualize the magnitude of our null findings, we need to compare our point estimates directly with those of reference literature.

The prior benchmark was Gearhart (Gearhart, 2023) who reported that a 1\$ increase in the minimum wage increase maternal educational childcare by approximately 2.5 minutes per day (significant at 1%). In contrast, our estimate for mothers is 1.02 minutes with a standard error of 2.77. Not only is our effect size less than half of pre 2019 benchmark, but the precision has also degraded. This quantitative degradation suggests that the structural relationship between wages and time use has weakened by approximately 60% in the post pandemic era. This is not only a statistical fact but also represents a substantial decoupling of policy levers from household behavior.

7.7 *Limitations*

While it is true that our findings are robust, they must be interpreted within the limitations of the data available for this specific timeframe:

- **Aggregate Measure:** Different from Gearhart (Gearhart, 2023) who distinguished between “Primary” and “Educational” childcare, our dataset aggregates all childcare activities into a single variable. It is possible therefore that parents did reallocate time (for example by switching from passive supervision to active teaching) but that the total minutes remained constant, which our model would not have detected.
- **Short Panel:** As our analysis covers a 5-year time window dominated by volatility, even with the use of year Fixed Effects absorbing national shocks, the remaining state-level variation might still be insufficient to detect small behavioral changes compared to the 17-year panel used in previous studies.

Finally, while theoretical predictions suggest that the effects of the minimum wage should be most concentrated among specific intersected subgroups (such as low-income single mothers), the sample size constraints of the 2019 to 2023 period prevented a reliable analysis of these double filtered populations. Further stratification would have severely reduced statistical power and increased the risk of Type II errors. Future research utilizing longer panels should prioritize these intersectional analyses.

8 Conclusions

This paper has analyzed the relationship between state-level minimum wage policies and parental time allocation in the United State during the highly volatile period of 2019 to 2023. By creating a state-level panel dataset merged with individual microdata from the American Time Use Survey (ATUS) and using our model with fixed effects, we have provided the first comprehensive analysis of how wage floors influenced parenting behaviors during and after the COVID 19 pandemic.

8.1 *Synthesis of Empirical Findings*

The overall conclusion of our study is that the minimum wage stopped being an effective determinant of parental time during the 2019 to 2023 period. Across the eleven different specifications we analyzed, we found no statistically significant evidence that increases in the effective minimum wage led to changes in the amount of time parents allocated to childcare.

- **Aggregate Rigidity.** In the full sample, the estimated elasticity of childcare time with respect was statistically indistinguishable from zero (p -value = 0.515).
- **Absence of Heterogeneity:** In contrast to pre 2019 literature which documented different behavior changes by gender and skill level, our analysis reveals a convergence of unresponsiveness. Neither mothers nor fathers, nor low-educated parents (previously the most affected by this policy) altered their time allocation in response to wage increases.
- **Robustness:** The null result holding firm across vulnerable subpopulations (including single parents, racial minorities and low-income families) reinforces the finding being structural rather than a statistical artifact of sample selection.

8.2 *Theoretical Interpretation*

These findings challenge the universality of the standard labor and leisure trade-off model during periods of macroeconomic distress. We attribute the decoupling of wages and time use to three converging forces unique to the post 2019 economy:

- **Structural Inelasticity:** The COVID 19 pandemic resulted in non-market constraints (school closures or health mandates) overpowering marginal economic incentives, leading to “time at home” becoming a function of public health policy rather than wage optimization.

- Inflationary Erosion: Due to the high inflation in 2021 to 2023, the nominal increases in the minimum wage often failed to translate into real purchasing power gains. Therefore, the “Income Effect” was neutralized by this rising cost of living.
- Broken Transmission Mechanism: Our analysis of paid work time confirmed that the minimum wage did not trigger a reduction in labor supply. Without this initial “employment effect” of parents working less, the consequent effect on childcare time was also impossible to materialize.

8.3 Policy Implications

The results of our study carry relevant implications for labor and family policy in the United States:

- Minimum Wage is for Income, Not Time: Policymakers should view the minimum wage strictly as an instrument for income support and not as a tool of social engineering or family time allocation. This evidence shows that raising the wage floor (while potentially beneficial for consumption) does not necessarily lead to any positive effects in increased parental investment in children during economic crises.
- Need for Direct Interventions: If the policy goal is to increase the time parents spend with children (which is key for intergenerational mobility), indirect price signals such as wages are insufficient. Direct quantity measures such as Paid Family Leave mandates or subsidizing childcare that reduce the opportunity cost of work are likely required to shift time allocation in such a rigid labor market.
- The “Do No Harm” Principle: Contrary to previous points, our findings debunk the critique that higher minimum wages hurt families by forcing low-income parents to work more hours to compensate disemployment effects. We find that no such effect existed during the 2019 to 2023 period, appearing to have been time-neutral, boosting nominal earnings without drowning out parental care.

8.4 Limitations and Future Directions

While robust, our analysis was limited by the aggregation of childcare into a single variable. We cannot rule out that while total time remained constant, parents shifted the composition of that time (from passive supervision to active educational engagement for example).

Future research should revisit this relationship as the structural distortions of the pandemic era dissipate. A critical element for future research to analyze will be to disaggregate “Primary Care” from “Enrichment Care” to determine if the minimum wage protects the quality of parenting even when the quantity of time remains unchanged. Furthermore, extending the panel beyond 2023 will determine whether the “null result” documented here marks a permanent structural break in the labor market or a temporary scar of the pandemic.

9 Appendix

Appendix A: Variables Definition

Table A1. Variables Definition

Variable	Definition	Source
Dependent Variables		
childcare	Total minutes per day spent caring for and helping household children (ATUS Code 0301xx). Includes physical care, reading, playing, and medical care.	ATUS
paid work	Total minutes per day spent on paid employment or work-related activities (ATUS Code 05xxxx).	ATUS
Policy Variables		
MinimumWage	The higher of the federal or state statutory minimum wage in the respondent's state of residence during the interview year (\$/hour).	UKCPR
UnemploymentRate	Annual average unemployment rate by state (%).	UKCPR
GDPGrowth	Annual percentage change in Real GDP by state.	BEA
Control Variables		
age	Age of the respondent in years (Restricted to 18–65).	ATUS
male	Dummy variable taking the value 1 if male, 0 if female.	ATUS
race	Dummy variable taking the value 1 if White, 0 if Non-White/Other.	ATUS
edu	Categorical variable: (1) Less than High School, (2) High School, (3) College/University.	ATUS
numch	Number of own children under 18 living in the household.	ATUS
incouple	Dummy variable taking the value 1 if living with a partner/spouse, 0 otherwise.	ATUS
faminc	Categorical variable for annual family income (1–16).	ATUS

Appendix B: Summary of Minimum Wage Coefficients Across All Subsamples*Table B1. Summary of Minimum Wage Coefficients Across All Subsamples*

Subsample	$\beta(\text{MinWage})$	p-value	Interpretation
All parents	-1.192	0.515	No effect
Mothers	+1.019	0.713	No effect
Fathers	-3.514	0.149	No effect
Low education	-2.219	0.382	No effect
College	-0.783	0.765	No effect
Single parents	-0.242	0.945	No effect
In couple	-1.820	0.394	No effect
White	-2.699	0.195	No effect
Non-white	+2.969	0.463	No effect
Low income	-5.546	0.258	No effect

Appendix C. Sample Construction

This appendix documents the steps followed to construct the analytical sample used in the empirical analysis. The sample is derived from the ATUS microdata merged with the UKCPR minimum wage database and additional macroeconomic controls.

Steps:

- 1- Original merged dataset (ATUS respondents 2003-2023) → 46,348
- 2- Restrict to adults aged between 18 and 65 → 46,348
- 3- Keep respondents living with at least one child → 25,052
- 4- Restrict to years 2019 to 2023 → 4,043

Final sample Parents aged 18–65 with ≥ 1 child, 2019–2023 4,043

- All regression models in the main text use this analytical sample unless stated otherwise.
- Subgroup analyses (e.g., mothers, fathers, low-income parents) apply additional filters to this base sample.
- The one-day diary structure of ATUS implies that childcare minutes refer to a single diary day per respondent.

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