**Child Care Costs & Burden**

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**Problem Statement:**

Childcare costs in the United States are escalating at an unsustainable rate. What was once a manageable household expense has now become a critical barrier for many families, particularly single parents and low-income earners. Beyond being a family issue, this growing burden has become an economic issue affecting workforce participation, gender equality, and social mobility. This project investigates the impact of rising childcare costs using a data-driven approach, combining statistical analysis, visual storytelling, and interactive dashboards to present actionable insights for policymakers and the public.

**Direction of Story / Plan of Attack / Message**

Our narrative is driven by central call of action: Childcare affordability is a national crisis impacting families, economies, and gender equity. Policymakers, employers, and the public must act.

**Plan:**

1. Visualize the burden clearly across geography, time, and demographics.
2. Highlight the disproportionate effects on vulnerable populations.
3. Support the need for subsidized childcare, workplace flexibility, and systemic reform.

**Target Audience**

* Primary: Policymakers at state and federal levels who influence childcare funding, labor policy, and tax reform.
* Secondary: Employers seeking to support working parents and advocacy groups pushing for childcare reform.
* Tertiary: General public, especially working parents seeking to understand how their state compares.

**Design Decisions**

* Color Palette: Blue gradients were used to indicate burden intensity, reinforcing seriousness and clarity on the infographic and interactive dashboard.
* Layout: The infographic flows top-down from shock value to call to action. The dashboard uses map, bar chart, timeline to triangulate the issue.
* Typography: Bold, all-caps headers create urgency and clarity in messaging.
* Icons & Illustrations: Characters in the infographic were chosen to humanize the issue and make it reachable.
* Gestalts Principles in Action:
  + Similarity: Blue shades unify state blocks on the map and bar elements on infographic and interactive dashboard.
  + Proximity: State map, color key, and bar chart are grouped to reinforce unity.
  + Figure-Ground: Contrasting text on darker bar colors ensures visual separation of content from background.
  + Continuity: In the time trend lines, smooth curves and color-coded legends guide the viewer’s eye along the data’s progression.

**Overview of the Data Used**

The primary dataset was sourced from the National Database of Childcare Prices (NDCP)

and includes state- and county-level data from 2008 to 2022. The dataset covers over

48,000 records with variables such as:

* Weekly childcare costs by age category (infant, toddler, preschool)
* Median household/family income
* Earnings by gender
* Employment rates by gender
* Population and demographic breakdowns

Significant preprocessing was conducted to reshape the data for visualization, including

handling missing values, aggregating weekly costs to annual figures, and calculating

childcare burden as a percentage of income across various demographics.

**Data Sourcing & Credibility**

* The dataset is taken from NDCP website tracking childcare costs and income.
* Data structure suggests credible aggregation, but verification against sources like the Department of Health and Human Services would enhance credibility.

**Data Preparation**

The raw data underwent several transformation steps using Python:

* Data was reshaped from a wide to a long format to facilitate dynamic filters and interactivity in Tableau.
* Missing values for some states were dropped to ensure clarity in visualizations, with the assumption that they were either unavailable or statistically insignificant.
* Income type columns were mapped to more human-readable labels.
* It's important to note that annual costs were not inflation-adjusted, which may slightly distort trends when making cross-year comparisons.

**Assumptions in Cleaning or Presenting Data**

* That all burden rations (e.g., Burden\_MFI, Burden\_FME etc) were calculated uniformly.
* That state-level data reflects current policy environments, although some lag may exist.
* That excluding states with missing values doesn’t drastically skew national averages (though this should be disclosed more explicitly in visualizations).

**Visualization Mediums**

Gestalt principles were applied to guide visualization layout, with attention to proximity, similarity, continuity, and figure-ground relationships. This project employs a multi-medium approach to visualize and communicate the data effectively to diverse audiences:

1. **Infographics:** Designed for broad public awareness and social media, simplifying the story with clear visuals, with top-down storytelling principle, bold headlines, and emotional cues to quickly reach a wide audience. **Canva** was used for creation. A map of the united states

   AI-generated content may be incorrect.

Medium1: Infographic

1. **PowerPoint Presentations:**Ideal for formal presentations to stakeholders, and policymakers, offering a deeper dive into trends, disparities, and implications with structured content and calls to action. **Canva** was also used for these presentations.

Medium2: PowerPoint Presentation

**Child Care Cost Trends (2008-2022)** **A graph with a line going up

AI-generated content may be incorrect.**

**Burden by States**A graph of states with text

AI-generated content may be incorrect.**Burden by Income**A graph showing a number of blue dots

AI-generated content may be incorrect.

**Burden by Gender and Income Type**A graph of a childcare cost burden

AI-generated content may be incorrect.**Burden and Employment Patterns**A graph of a number of people with different colored lines

AI-generated content may be incorrect.

1. **Interactive Tableau Dashboards:**Used for detailed exploration, allowing users to interact with data across geography, time, and demographics. This medium provides depth and supports triangulation of the issue. **Tableau** was used for dashboard creation.

A map of the united states with a graph

AI-generated content may be incorrect. A map of the united states with a graph

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Burden by State on Household Income Type

Burden by State on Household Income Type

Medium3: Interactive Tableau Dashboard

Burden by State on Median Male Income Type

A screenshot of a graph

AI-generated content may be incorrect.

Burden Over Time

**Results and Findings Explained**

The analysis spans three perspectives:

1. Geographical – a U.S. map showing childcare cost burden by state.
2. Temporal – a time-series plot displaying rising trends in annual childcare costs.
3. Demographic – insights on how cost burdens differ by income type and gender.

**Findings**

* **Childcare costs have increased significantly** over past 15 years ( > 47%), with the annual expense now exceeding $6,000 per child.
* **The burden is uneven across states –** California, Washington, Ohio, District of Columbia top the list of families spending over 20% of their annual income.
* **Income Disparities –** Households earningbetween $20,000–$40,000 can spend over 25% of income on childcare.
* **Single women are disproportionately affected,** spending over 22% of their earnings on childcare compared to 14.9% for single men.
* **Outlier –** The 2012 spikein cost appears as an outlier and warrants further investigation.
* **State Burden -** California, Washington, Ohio, and the District of Columbia are among the top states where families spend over 20% of income on childcare
* **Female Employment rate –** Despite rising costs, female employment rates have remained steady implying resilience but also systemic pressure.

**Assumptions**

* Missing values for some states were assumed to be either unavailable or statistically insignificant, and were excluded
* “Income Type” categories were assumed to reflect consistent calculations across states.
* For simplicity and clarity, some visuals focused only on Top 5 states or aggregate values rather than including the full dataset.

**Ethical Considerations**

**Data Filtering Transparency**: Some states with missing or null values were excluded from visualizations. This was not always labeled directly, and future versions should clarify it.

**Privacy:** All data used was aggregated at the state level with no individual identifiers, ensuring privacy.

**Bias Avoidance:** The visual hierarchy emphasizes high-burden states without stigmatizing any region unfairly.

**Legal or Regulatory Guidelines**

* **No PII (Personally Identifiable Information) was used.**
* **If the project were to scale, it may need to comply with:**
  + **FERPA** (For data related to children)
  + **State level open data laws**
  + **Data Use Agreements** for licensed datasets.

**Ethical Data Acquisition**

* Based on the provided files, the data appears ethically sourced and publicly usable.
* No web scraping, hacking or an unauthorized data usage was involved.

**Mitigating Ethical Risks**

* Label exclusions clearly in all charts.
* Include a source note and last update date and the needed visuals.
* Provide downloadable data where possible to encourage transparency and secondary analysis.

**Risk Factors**

* **Visual bias:** By showing only Top 5 states or specific income groups, viewers mat overlook that the problem is national.
* **Outlier misinterpretation:** The 2012 cost spike might be misread as a trend if not contextualized.
* **Filter misuse** in Tableau could lead to cherry-picking or misleading interpretations.

**Items That Still Need Clarification**

* **Why did costs spike around 2012?** The cause of the outlier remains unclear and may be related to data collection issues, policy, or economic shifts.
* **Are regional childcare subsidy programs accounted for in the burden figures?**
* **Is the data adjusted for inflation?** The trendline needs this context to make cross year comparisons fair.

**Call to Action:**

1. **Policy Reform:**

Expand subsidies and tax credits.

Introduce federal caps on maximum childcare expenditure by income level.

1. **Employer Engagement:**

Promote workplace flexibility and on-site childcare.

1. **Public Awareness**:

Use infographics and social media to mobilize public discourse.

Display the Infographic on boards, public forums for maximum visibility

1. **Systemic Change**:

Align childcare policy with labor market needs to retain female talent and reduce gender wage gaps.

**Conclusion**

The "Child Care Conundrum" is a complex and pressing issue with far-reaching implications for families, the economy, and gender equity. The consistent rise in childcare costs, coupled with its disproportionate burden on lower-income families and women, demands immediate and coordinated action.

The narrative is driven by a central call to action: policymakers, employers, and the public must act. To address this crisis, we must:

* **Visualize the Burden Clearly**: Continue to present the childcare burden clearly across geography, time, and demographics to raise awareness and inform decision-making.
* **Highlight Disproportionate Effects**: Emphasize the unique and severe effects on vulnerable populations, ensuring that policy solutions are equitable and targeted.
* **Support Systemic Reform**: Advocate for policies that promote subsidized childcare, encourage workplace flexibility, and foster broader systemic reforms to create a more supportive environment for working parents.

The primary target audience for this message includes policymakers at state and federal levels, while secondary audiences include employers and advocacy groups. The public, especially working parents, can also benefit from understanding how their state compares. By taking these concerted actions, we can work towards alleviating the childcare burden, promoting gender equality, enhancing workforce participation, and fostering a more equitable and productive society.

References

NDCP. (n.d.). *National Database of Childcare Prices*. DOL. https://www.dol.gov/agencies/wb/topics/featured-childcare

Tools used:

<https://public.tableau.com/app/discover>

<https://www.canva.com/>