Seasonality and Covid-19 Impacts in the USDA National School Lunch Program (NSLP)

Scout Leonard | EDS 222 | 2021

Photo: https://www.education.pa.gov/Teachers%20-%20Administrators/Food-Nutrition/programs/Pages/National-School-Lunch-Program.aspx

Importance

- **General Importance:**
  - Before the Covid-19 pandemic: ~ 10.7 million U.S. children in “food insecure” homes (USDA)
    - Today: 11.7 million children
  - Childhood hunger shown to affect:
    - Health and wellbeing
    - Academic performance
    - Mental and social-emotional wellbeing
- **Why investigate impacts on NSLP?**
  - USDA and state policy implementation that protects kids’ access to food
  - Data informed decision-making on the ground in school/district programs

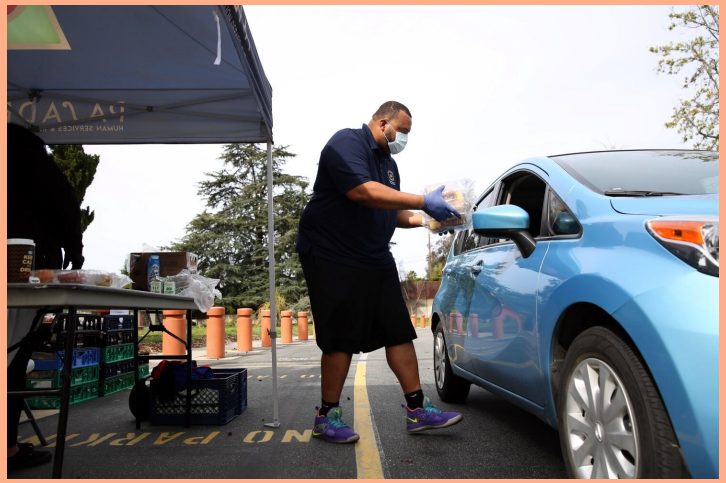
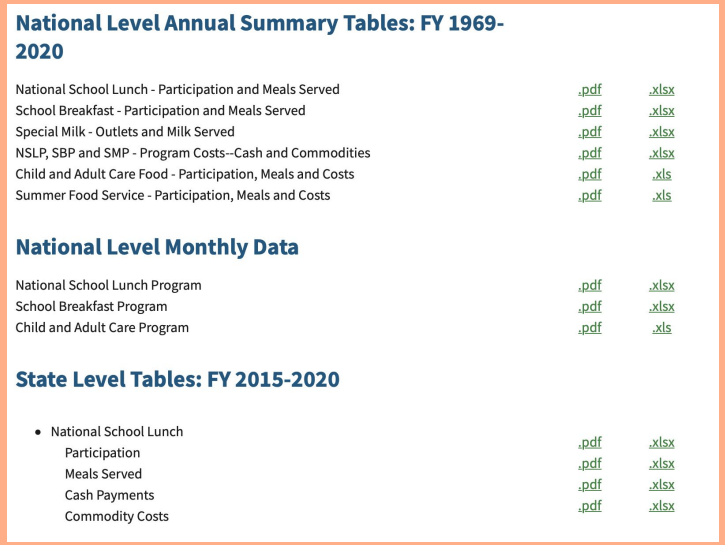


Photo: https://www.latimes.com/california/story/2020-03-31/coronavirus-pasadena-schools-resume-meal-service

Data

- Public data available via USDA
- Monthly national level reports
  - NSLP used in this project
- Coverage: October 2017 - August 2021 (47 months)
- .xlsx and .csv formats
- Self-reported by schools and districts with audits for accuracy



National Level Annual Summary Tables: FY 1969-2020

National School Lunch - Participation and Meals Served	.pdf	.xlsx
School Breakfast - Participation and Meals Served	.pdf	.xlsx
Special Milk - Outlets and Milk Served	.pdf	.xlsx
NSLP, SBP and SMP - Program Costs--Cash and Commodities	.pdf	.xlsx
Child and Adult Care Food - Participation, Meals and Costs	.pdf	.xls
Summer Food Service - Participation, Meals and Costs	.pdf	.xls

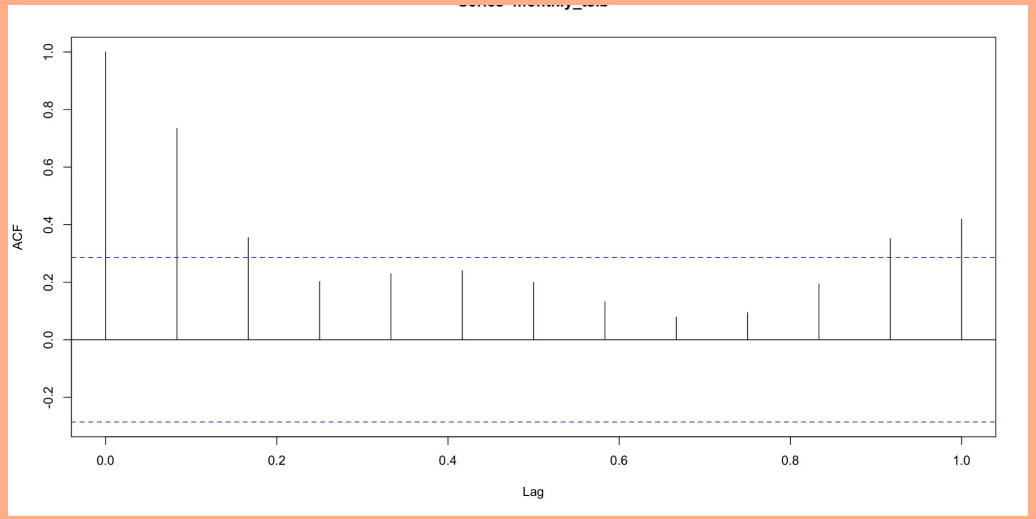
National Level Monthly Data

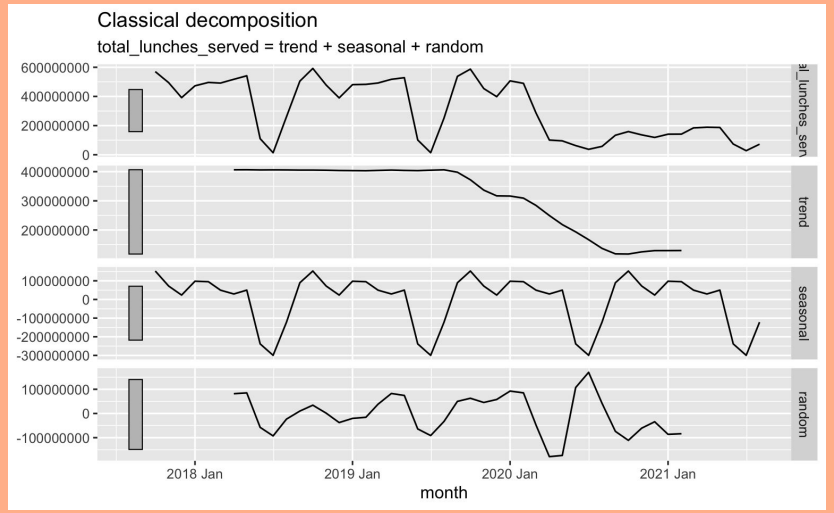
National School Lunch Program	.pdf	.xlsx
School Breakfast Program	.pdf	.xlsx
Child and Adult Care Program	.pdf	.xls

State Level Tables: FY 2015-2020

• National School Lunch		
Participation	.pdf	.xlsx
Meals Served	.pdf	.xlsx
Cash Payments	.pdf	.xlsx
Commodity Costs	.pdf	.xlsx

Analysis and Results: Seasonality

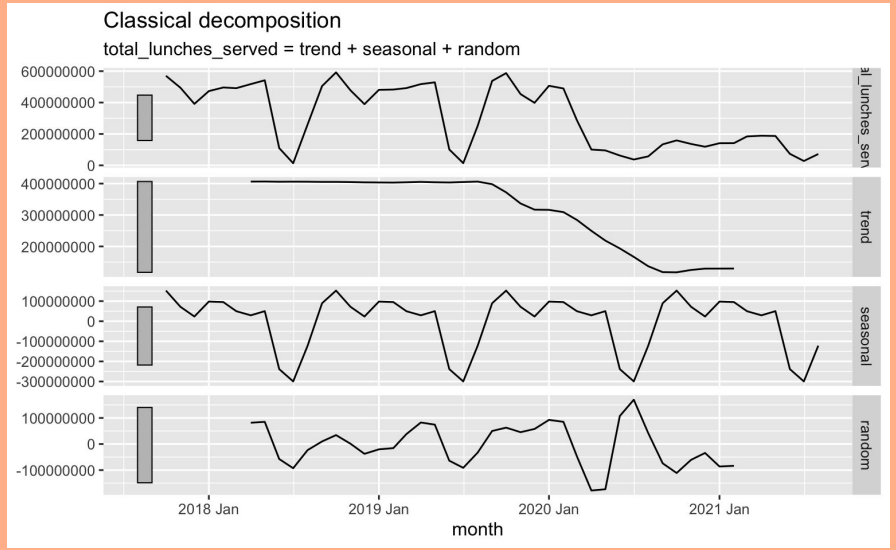




- Participation this month is only correlated with the next two months and previous two months
- This trend is the same for students eligible for free school meals.

- Seasonality has a stronger effect on NSLP participation compared to the long-term trend
- Summers are overpowering in this decomposition viz

Analysis and Results: Covid-19



TTest_Component	Results
P Value	0.00000000014
T Score	-8.60000000000
Confidence Interval Lower	-367060915.12000000477
Confidence Interval Upper	-227289304.41999998689

- Classical decomposition from previous slide shows long term downward trend during Covid-19 pandemic
- Hypothesis test comparing mean participation before and during Covid-19 shows statistically significant difference

Conclusions

- Covid-19 impact on NSLP: statistically significant difference in meals served.
- Seasonality in NSLP: inconclusive outside of summer meals. More data could help!

- Understanding gaps in NSLP's reach helps policy-makers and on-the ground stakeholders implement data-based policy and programmatic change to feed more students!

Photo: https://www.ousd.org/nutrition

Sources cited in the corresponding report, available on my project Github Repository.