Evaluating the Effect of Medicaid Expansion on Black/White Breast Cancer Mortality Disparities: A Difference-in-Difference Analysis

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ABSTRACT

Objective: This analysis used a Difference-in-Difference (DID) Fixed Effects regression model to evaluate the impact of Medicaid Expansion on the disparity between black and white breast cancer mortality rates. **Results:** There was no evidence that Medicaid Expansion lowered the disparity. Conversely, the B/W mortality ratio increased in states expanding Medicaid for all Medicaid-eligible age groups (p = .01 to .15). **Implications:** Investigators should utilize proven quasi-experimental methods to analyze the effect of policy variation on health disparities. Policy-makers must consider institutional factors which may limit minority groups from benefiting from macro-changes in health policy.

BACKGROUND

Medicaid Expansion was designed to increase access to health care. Evidence is mixed, but theory and empirical evidence suggest that lower cost of care (access to insurance) will lead to increased health care utilization, and possibly improved outcomes for poor/sick populations. While quasi-experimental analyses are common in the field, few studies have used such methods to estimate the effect of health insurance access on health disparity ratios. At the heart of Medicaid Expansion was the goal of improving equity, in both access to insurance and health care services utilization. This research is motivated by the stark disparity in breast cancer mortality rates between black and white women. DID analysis will estimate the Average Treatment Effect (ATE) of Medicaid Expansion on the B/W breast cancer disparity ratio.
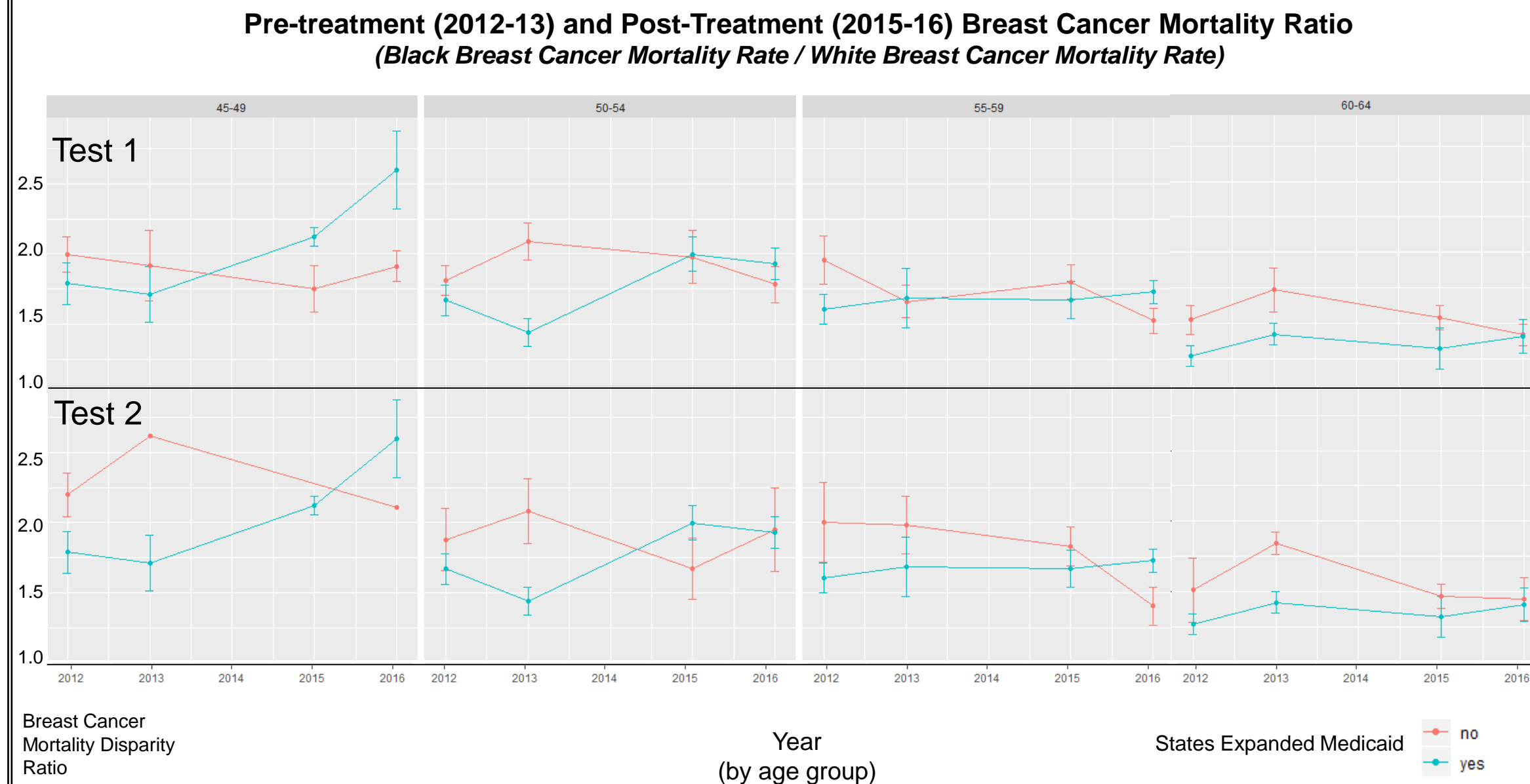
OBJECTIVE

To estimate the impact of Medicaid Expansion on the disparity between Black/White breast cancer mortality.

MATERIALS AND METHODS

State-level breast cancer mortality data was obtained from the Center for Disease Control. The outcome of interest was calculated by dividing the age-specific crude mortality rate for African Americans by the age-specific crude mortality rate for non-Hispanic Whites. Each states' Medicaid Expansion status was provided by a Kaiser Family Foundation white-paper. Two tests were conducted: (1) comparing all expanding states with all non-expanding states; (2) comparing all expanding states with non-expanding states *that voted to expand* (but did not by 2016). A Fixed-Effects and Random Effects regression model were constructed for each specific age group. A Hausmann test was constructed to determine which model was most appropriate. The DID used 2014 as a "wash out" period, and compared 2012-2013 (pre-treatment) to 2015-2016 (post treatment). As a sensitivity analysis, a second DID model compared 2012 to 2016. A graph comparing expanding and non-expanding states from 2010 to 2016 was used to test the necessary common trend assumption. DID coefficients and respective p-value were reported for each age group. Non-Medicaid eligible age-groups were included as a pseudo-control.

RESULTS

Age Group	Medicaid Eligible				Not Eligible	
	45-49	50-54	55-59	60-64	65-69	70-74
ATE (1)	**0.838****	**0.469***	**0.135**	**0.165**	**(0.07)**	**0.015**
p-value	*0.0016*	*0.0381*	*0.4512*	*0.3296*	*0.6987*	*0.8964*
ATE (2)	**1.001**	**0.601***	**0.428**	**0.257**	**0.97**	**0.184**
p-value	*0.1138*	*0.0173*	*0.0991*	*0.1568*	*0.8532*	*0.2421*

Pre-treatment (2012-13) and Post-Treatment (2015-16) Breast Cancer Mortality Ratio
(Black Breast Cancer Mortality Rate / White Breast Cancer Mortality Rate)

Test 1 — 45-49, 50-54, 55-59, 60-64

Test 2

Breast Cancer Mortality Disparity Ratio

Year (by age group)

States Expanded Medicaid — no — yes

SUMMARY

The B/W mortality ratio increased in states expanding Medicaid for all Medicaid-eligible age groups, with no effect for non-Medicaid age groups. Significant effects were found in younger age-groups. There were no differences between model specifications, but the Hausmann Test indicates a Fixed Effects Model is most appropriate so those results were reported. Graphically, all states held a common trend in B:W disparity ratios pre-2014. Many questions remain to be explored regarding the possible mechanisms for the change in disparity ratio, most notably questions about enrollment, quality of care, and health service capacity available to African Americans in expanding states. These results suggest that states cannot rely on Medicaid Expansion alone to alleviate disparities in cancer and chronic conditions.

FUTURE DIRECTIONS

As SEER data becomes available in the coming years, research should investigate the effect of Medicaid Expansion on breast cancer disparities in mortality, incidence, and screening for specific age groups, as well as stage and type of breast cancer diagnosis and family history. Robust analysis of specific states or health care systems could compare outcomes of potential recipients of Medicaid before and after expansion. Investigators should continue to utilize health system variation to identify macro-mechanisms influencing health disparities. Future research on cancer disparities must consider factors limiting a group's ability to benefit from changes in health policy.

ACKNOWLEDGEMENTS

DATA CITATIONS

United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Underlying Cause of Death 1999-2016 on CDC WONDER
State Health Facts. "Status of State Action on the Medicaid Expansion Decision, July 2018." Kaiser Family Foundation, https://www.kff.org/health-reform/state-indicator/state-activity-around-expanding-medicaid-under-the-affordable-care-act/