Insurance coverage and employment after Medicaid expansion with work requirements: quasi-experimental difference-in-differences study

Daniel Y Johnson,[1,2] Stephen A Mein,[1,3] Lucas X Marinacci,[1] Michael Liu,[1,3,4] Rishi K Wadhera[1,3,5]

[1]Section of Health Policy, Richard A and Susan F Smith Center for Outcomes Research, Beth Israel Deaconess Medical Center, Boston, MA, USA

[2]Pritzker School of Medicine, University of Chicago, Chicago, IL, USA

[3]Harvard Medical School, Boston, MA, USA

[4]Department of Medicine, Brigham and Women's Hospital, Boston, MA, USA

[5]Department of Health Policy and Management, Harvard T H Chan School of Public Health, Boston, MA, USA

Correspondence to: R K Wadhera
rwadhera@bidmc.harvard.edu;
(ORCID 0000-0003-1089-3896)

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ABSTRACT

OBJECTIVE

To understand how health insurance coverage and employment changed among working age adults with low incomes in Georgia, the first state to implement Medicaid expansion with work requirements under the Pathways to Coverage program.

DESIGN

Quasi-experimental difference-in-differences study.

SETTING

Georgia, which expanded Medicaid with work requirements on 1 July 2023; Alabama, Florida, Mississippi, South Carolina, and Tennessee, which neighbor Georgia and did not expand Medicaid; and South Dakota, which simultaneously expanded Medicaid without work requirements.

PARTICIPANTS

Adults aged 19-64 years with low incomes defined as ≤100% of the federal poverty level who completed the US Census Bureau's household pulse survey between 2021 and 2024.

MAIN OUTCOME MEASURES

Medicaid coverage, uninsured rate, and employment.

RESULTS

The study population consisted of 3303 adults in Georgia (intervention state) and 14 148 in neighboring states that did not expand Medicaid (controls). After the implementation of Pathways to Coverage, Medicaid coverage did not change in Georgia (35.5% to 32.4%) or in neighboring control states (39.6% to 39.3%), resulting in no differential change in Medicaid coverage between these states (adjusted difference-in-differences −3.0 percentage points, 95% confidence interval −7.6 to 1.6). These patterns were similar for the uninsured rate (−2.3 percentage points, −6.9 to 2.3). Additionally, employment did not increase in Georgia compared with control states (−1.6 percentage points, −8.7 to 5.4). In a secondary analysis that aimed to isolate the effects of work requirements, Medicaid coverage did not change in Georgia (35.5% to 32.4%) but increased in South Dakota (36.6% to 44.6%)—a state that expanded Medicaid without work requirements—resulting in a differential decrease in coverage in Georgia relative to South Dakota (−11.7 percentage points, −19.5 to −3.9). There was no differential change in employment (−0.1 percentage points, −9.8 to 9.6) between these states.

CONCLUSIONS

The implementation of work requirements with Medicaid expansion in Georgia did not increase health insurance coverage or employment during the first 15 months of the program. These findings have important implications as US policy makers recently enacted legislation that will mandate work requirements in Medicaid programs across all US states beginning in 2026.

WHAT IS ALREADY KNOWN ON THIS TOPIC

Medicaid is the largest health insurance program in the United States, covering approximately one in five people

The recently enacted One Big Beautiful Bill Act will implement work requirements in Medicaid programs across all US states beginning in 2026

Medicaid expansion with work requirements was first enacted in Georgia under the Pathways to Coverage program in 2023; however, little is known about how this program affected health insurance coverage and employment

WHAT THIS STUDY ADDS

Medicaid expansion with work requirements in Georgia did not increase health insurance coverage or employment during the first 15 months of implementation compared with neighboring non-expansion states

The addition of work requirements to Medicaid expansion impeded gains in insurance coverage compared with traditional Medicaid expansion

Introduction

Medicaid is a public health insurance administered by US states that covers adults with low incomes, pregnant women, children, and people with disabilities. Under the Affordable Care Act of 2010, many states elected to expand Medicaid eligibility to working age adults with low incomes, leading to over 20 million people gaining health insurance coverage.[1-4] As a result, Medicaid is now the largest health insurance program in the United States, covering approximately one in five people.[5 6]

Over the past decade, US policy makers have intensely debated implementing work requirements in Medicaid, which would make insurance coverage for working age adults conditional on working or participating in eligible activities each month.[7-10] Proponents argue that work requirements foster job preparation, employment, and self-sufficiency, which may eventually allow people to transition off Medicaid to insurance offered through employers.[10-13] However, critics contend that health insurance, health care access and good health itself are prerequisites to maintaining employment, and therefore health insurance should be provided without work requirements.[14-18]

On 1 July 2023, Georgia launched Pathways to Coverage, a statewide program that expanded Medicaid eligibility to adults aged 19-64 years with low incomes (up to 100% of the federal poverty level).[19 20] Unlike previous Medicaid expansions in other states, Georgia simultaneously introduced work

requirements for newly eligible enrollees, mandating at least 80 hours per month of qualifying activities such as employment, community service, or higher education.[19] In doing so, Georgia became the first state to pair Medicaid expansion with work requirements, with the goals of reducing uninsurances and promoting employment.[20 21] However, the impact of this approach on health insurance coverage and employment among adults with low incomes in Georgia remains unknown. Understanding the impact of Georgia's Pathways to Coverage program is critically important as Congress recently mandated that all US states implement Medicaid work requirements beginning in 2026.[8 9 22]

Therefore, this study aimed to answer two questions. Firstly, how did Medicaid expansion with work requirements in Georgia affect health insurance coverage and employment compared with states that did not expand Medicaid? And secondly, how did pairing work requirements with expansion affect outcomes in Georgia compared with Medicaid expansion without work requirements?

Methods

Data source and study population

We used the US Census Bureau's household pulse survey, a nationally representative survey designed to provide up-to-date information on social and economic matters in the US.[23-28] The survey determines information on a wide range of topics, including household demographics, health insurance, employment, education, childcare, and food insecurity.[29] Data are collected using an online survey in 13 day cycles that occur approximately monthly.[30] The survey response rate was 5-7% during the study period, consistent with the US Census Bureau's anticipated response rate.[30 31] Household pulse survey weights and weighting procedures were used to account for non-response and non-coverage. Successive difference replication weights provided by the survey were used to estimate standard errors. After weighting procedures, the survey shows comparable representativeness as the American community survey, the largest household survey in the US.[32]

The study population included adults aged 19-64 years with low incomes, defined as ≤100% of the federal poverty level, as this is the population eligible for Medicaid in Georgia through Pathways to Coverage. Study participants completed the household pulse survey between 29 December 2021 and 16 September 2024 and registered an answer for the health insurance and employment questions within the survey. We defined the pre-period (before the start of Pathways to Coverage) from 29 December 2021 to 13 March 2023 and the post-period (after the start of Pathways to Coverage) from 26 July 2023 to 16 September 2024. We excluded data between 29 March 2023 and 10 July 2023 because Medicaid "unwinding" began after the pandemic era Medicaid continuous enrollment provision—which required states to maintain continuous enrollment for Medicaid recipients in exchange for additional federal funding—ended on 31 March 2023, and this change was implemented at different times across states.[33-36]

Exposure

We defined the study exposure as residing in Georgia, which implemented Pathways to Coverage on 1 July 2023. Our main analysis compared Georgia with a group of five neighboring control states that did not expand Medicaid (non-expansion states: Alabama, Florida, Mississippi, South Carolina, and Tennessee). This analysis allowed us to evaluate how outcomes in Georgia changed after the implementation of Medicaid expansion with work requirements under Pathways to Coverage compared with a counterfactual scenario in which the program had not been implemented.

For our secondary analysis that aimed to specifically evaluate the impact of work requirements, we compared Georgia with South Dakota. South Dakota was chosen as a control state because it underwent traditional Medicaid expansion at the same time that Georgia implemented Pathways to Coverage (1 July 2023), but did so without work requirements. Therefore, South Dakota could serve as an adequate counterfactual to assess the impact of work requirements in Georgia. Additionally, Medicaid eligibility before expansion was similar in both states. Georgia and South Dakota offered coverage to pregnant women, adults with certain medical conditions (people with disabilities, those who are legally blind), and people with low incomes who were parents of children, defined using similar income thresholds.[37 38] Although South Dakota expanded Medicaid eligibility to adults with incomes up to 138% of the federal poverty level, we limited the study population to adults with incomes up to 100% of the federal poverty level to enable direct comparison with Georgia's Pathways program and isolate the effect of work requirements.

Outcomes

Outcomes included self-reported Medicaid coverage, uninsured rates, and employment. Medicaid coverage was defined as current health insurance coverage through "Medicaid, Medical Assistance, or any kind of government assistance plan for those with low incomes or a disability."[39] People were classified as uninsured if they answered "no" to having private health insurance or public health insurance coverage, and those reporting only having Indian Health Service coverage, consistent with the US Centers for Disease Control and Prevention definition.[40] Employment was defined as working for pay or profit within the previous seven days.[39] Supplementary table 1 provides detailed outcome definitions.

Statistical analysis

Descriptive statistics were used to summarize and compare the sociodemographic characteristics of study participants residing in Georgia and the control states using unweighted frequencies, survey weighted percentages, and Rao-Scott χ^2 tests.

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We used a difference-in-differences design to examine changes in outcomes among adults with low incomes in Georgia compared with those residing in neighboring non-expansion control states. We fit multivariable linear regression models that included a binary indictor variable for exposure (Georgia *v* control states), a binary indicator variable for period (pre-period *v* post-period), and an interaction term between these variables (the difference-in-differences estimate). These models adjusted for age, sex, race and ethnicity, and included time and state fixed effects. For our secondary analysis, we repeated the approach above but compared Georgia with South Dakota. These models also adjusted for age, sex, race and ethnicity, and included time fixed effects. The parallel trends assumption was assessed through visual inspection and an interaction analysis between time and exposure in the pre-period.

We conducted sensitivity analyses to assess the validity and robustness of the study results. Firstly, we conducted a falsification test by evaluating changes in the percentage of older adults aged ≥65 years with Medicaid coverage following Pathways to Coverage in Georgia compared with control states. Adults aged ≥65 years were not eligible for Medicaid expansion in any of the states but were susceptible to other policy changes such as Medicaid unwinding during the study period, allowing us to evaluate whether our findings were influenced by other exogenous factors beyond expansion policies that varied between Georgia and the control states.[41] Secondly, to assess the robustness of the study results given potential differences between the non-expansion states, we conducted a leave-one-out sensitivity analysis in which we sequentially excluded each state from the control group. Thirdly, we repeated our primary analysis comparing outcomes in Georgia versus Medicaid non-expansion states using the current population survey annual social and economic supplement (CPS ASEC), a national survey that has a higher response rate but smaller sample size and shorter follow up period (10 months *v* 15 months) compared with the household pulse survey (the supplementary methods give details).[42]

Analyses were conducted using R version 4.4.2 and STATA version 18.0, and a two sided P value <0.05 defined statistical significance. The institutional review board at Beth Israel Deaconess Medical Center deemed this study exempt because it used publicly available, deidentified data. This study followed the STROBE (strengthening the reporting of observational studies in epidemiology) reporting guideline.

Patient and public involvement

Patients and the public were not involved in the design, conduct, or reporting of this study because no funding was available to do so. However, our interactions with patients in the clinical setting motivated our study question.

Results

The unweighted study population included 3303 working age adults with low incomes in Georgia and 14 148 in non-expansion states. Table 1 shows the characteristics of our study population. There were differences in the distribution of racial and ethnic groups between Georgia and non-expansion states, but other sociodemographic characteristics were similar.

Table 1 | Characteristics of working age adults with low incomes in Georgia and Medicaid non-expansion states

Characteristics	Georgia (n=3303)	Medicaid non-expansion states* (n=14 148)	P value†
Age group (years)			
19-24	181 (9.2)	721 (9.0)	0.12
25-34	552 (24.4)	2178 (21.9)	
35-44	771 (25.2)	3125 (24.4)	
45-54	766 (19.2)	3379 (19.8)	
55-64	1033 (22.0)	4745 (24.9)	
Sex			
Female	2412 (63.1)	10 495 (61.8)	0.41
Male	891 (36.9)	3653 (38.2)	
Race and ethnicity‡			
Non-Hispanic Asian	88 (2.3)	203 (1.5)	<0.001
Non-Hispanic black	1313 (43.9)	3904 (27.5)	
Hispanic	317 (13.3)	1774 (21.1)	
Non-Hispanic white	1431 (36.2)	7696 (46.0)	
Other§	154 (4.2)	571 (3.9)	
Disability¶			
Has a disability	911 (26.1)	4088 (27.4)	0.26
Does not have a disability	2370 (73.9)	9966 (72.6)	

Study sample included adults aged 19-64 years with household incomes ≤100% of federal poverty level. Data are presented as numbers (percentages). All numbers are unweighted and all percentages are survey weighted.
*Medicaid non-expansion states included Alabama, Florida, Mississippi, South Carolina, and Tennessee.
†Comparisons were conducted using Rao-Scott χ^2 test.
‡Race and ethnicity were self-reported by participants through household pulse survey questionnaire.
§Other races and ethnicities included any other race alone or multiple races.
¶Disability was defined as responding "a lot of difficulty" or "cannot do at all" to any of the following: "Do you have difficulty seeing, even when wearing glasses?," "Do you have difficulty hearing, even when using a hearing aid?," "Do you have difficulty remembering or concentrating?," or "Do you have difficulty walking or climbing stairs?"[43]

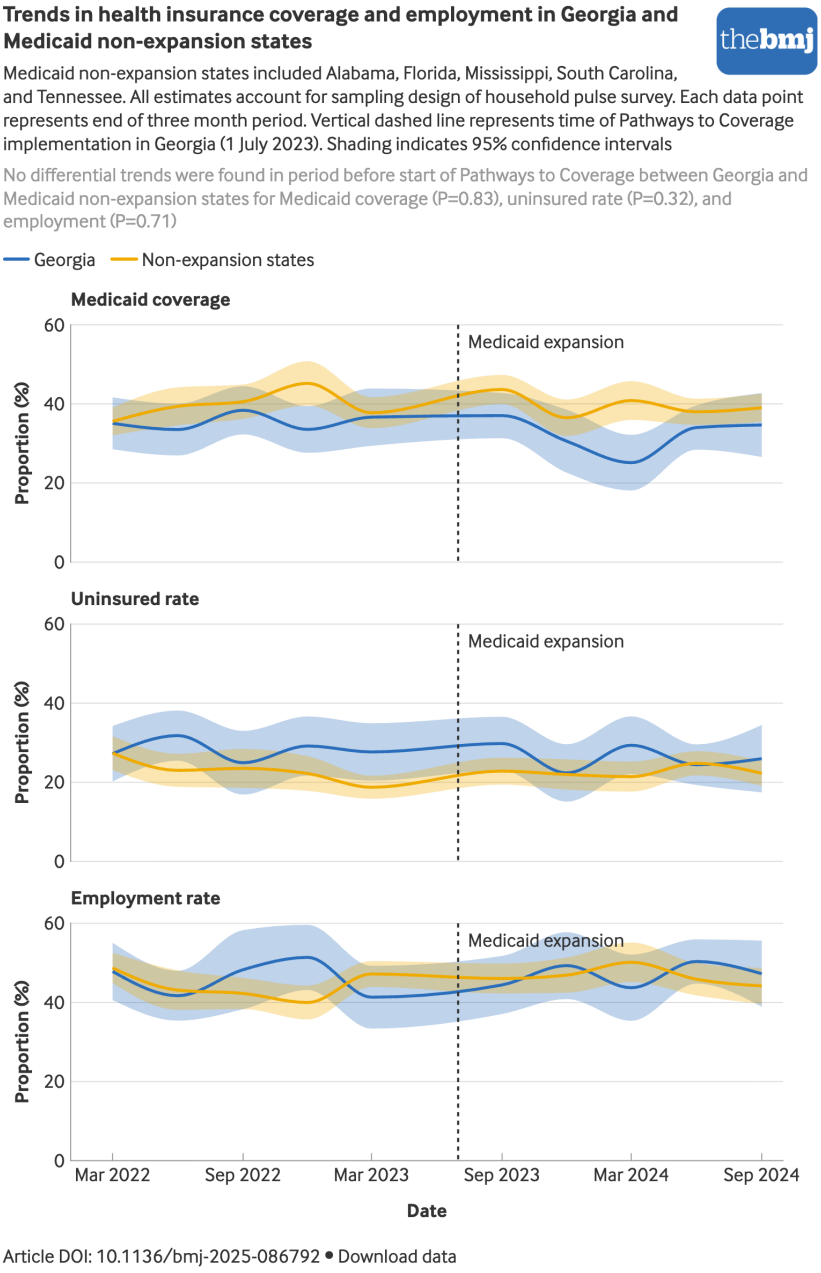

Fig 1 | Trends in health insurance coverage and employment in Georgia and Medicaid non-expansion states. An interactive version of this graphic and downloadable data are available at https://public.flourish.studio/visualisation/25063764/

Georgia compared with neighboring non-expansion states

There was no change in Medicaid coverage among adults with low incomes in Georgia after the implementation of Pathways to Coverage (35.5% to 32.4%; difference −3.0 percentage points, 95% confidence interval −7.5 to 1.4). Similarly, Medicaid coverage in non-expansion states did not change during the study period (39.6% to 39.3%; −0.2 percentage points, −3.1 to 2.6). As a result, there was no differential change in Medicaid coverage in Georgia compared with neighboring non-expansion states (adjusted difference-in-differences −3.0 percentage points, 95% confidence interval −7.6 to 1.6; fig 1, table 2). There was also no significant change in the uninsured rate (−2.3 percentage points, −6.9 to 2.3) or employment (−1.6 percentage points, −8.7 to 5.4) among adults with low incomes in Georgia compared with those in non-expansion states.

Georgia compared with South Dakota

Although Medicaid coverage did not significantly change in Georgia after the implementation of Pathways to Coverage, Medicaid coverage increased in South Dakota after expansion without work requirements (36.6% to 44.6%; difference +8.0 percentage points,

Table 2 | Changes in insurance coverage and employment after Medicaid expansion with work requirements in Georgia compared with Medicaid non-expansion states

	Georgia (n=3303)			Medicaid non-expansion states* (n=14 148)			Adjusted difference-in-differences§	P value
Outcome	Pre-period†	Post-period‡	Difference	Pre-period†	Post-period‡	Difference		
Medicaid coverage	35.5 (32.3 to 38.6)	32.4 (29.0 to 35.8)	−3.0 (−7.5 to 1.4)	39.6 (37.3 to 41.9)	39.3 (37.5 to 41.1)	−0.2 (−3.1 to 2.6)	−3.0 (−7.6 to 1.6)	0.21
Uninsured rate	28.2 (24.8 to 31.5)	25.9 (22.5 to 29.3)	−2.3 (−6.8 to 2.2)	23.2 (21.3 to 25.1)	22.8 (21.3 to 24.4)	−0.3 (−2.5 to 1.8)	−2.3 (−6.9 to 2.3)	0.33
Employment	46.0 (41.9 to 50.1)	46.6 (42.7 to 50.5)	0.6 (−5.8 to 7.0)	44.4 (42.6 to 46.1)	46.3 (44.0 to 48.5)	1.9 (−1.0 to 4.8)	−1.6 (−8.7 to 5.4)	0.65

Data are percentages (95% confidence intervals) unless stated otherwise. All numbers are unweighted and all percentages are survey weighted.
*Medicaid non-expansion states included Alabama, Florida, Mississippi, South Carolina, and Tennessee.
†From 29 December 2021 to 13 March 2023.
‡From 26 July 2023 to 16 September 2024. Surveys from 29 March 2023 to 10 July 2023 were excluded to account for temporal differences in start of Medicaid disenrollment across states after end of Medicaid continuous enrollment provision on 31 March 2023.
§Difference-in-difference estimate represents mean (percentage point) differential change (with 95% confidence interval) between Georgia and Medicaid non-expansion control states after Medicaid expansion in Georgia compared with pre-expansion period. Models adjusted for age (19-24, 25-34, 35-44, 45-54, or 55-64), sex (male or female), and race or ethnicity (non-Hispanic Asian, non-Hispanic black, Hispanic, non-Hispanic white, or other—"any other race alone, or in combination") and included time and state fixed effects.

95% confidence interval 1.0 to 15.1). This resulted in a differential decrease in Medicaid coverage in Georgia compared with South Dakota (adjusted difference-in-differences −11.7 percentage points, 95% confidence interval −19.5 to −3.9; fig 2, table 3). There was no change in the uninsured rate (+4.8 percentage points, −5.2 to 14.8) or employment (−0.1 percentage points, −9.8 to 9.6) between Georgia and South Dakota.

Sensitivity analyses

Among adults aged ≥65 years (who were not eligible for Pathways to Coverage), there was no significant change in Medicaid coverage after expansion in Georgia compared with non-expansion states (adjusted difference-in-differences +0.7 percentage points, 95% confidence interval −1.3 to 2.8; supplementary figure 1, supplementary table 2). Similar patterns were observed for adults ≥65 years in Georgia and South Dakota, who were also not eligible for traditional Medicaid expansion (+0.1 percentage points, −3.1 to 3.3; supplementary figure 2, supplementary table 3). Our findings for Medicaid coverage, uninsured rates, and employment between Georgia and non-expansion states were consistent in our leave-one-out sensitivity analysis that sequentially excluded each non-expansion state from the control group (supplementary table 4). In our additional analysis using CPS ASEC data, we found no significant changes in Medicaid coverage, uninsured rates, or employment in Georgia after Pathways to Coverage compared with non-expansion states, consistent with our primary results (supplementary table 5).

Discussion

Principal findings

Adults with low incomes in Georgia—the first state to expand Medicaid with work requirements—experienced no gains in Medicaid coverage compared with their counterparts in neighboring non-expansion states during the 15 months after Pathways to Coverage. Additionally, there was no change in employment in Georgia compared with non-expansion states. Taken together, these findings suggest that Georgia's work requirements have so far undermined well established coverage gains that typically occur with Medicaid expansion without producing increases in employment.[44]

Georgia state officials estimated that up to 345 000 people would be eligible for Pathways to Coverage and approximately 64 000 would enroll.[45-47] In this study, we found that Pathways to Coverage did not change Medicaid coverage or the uninsured rate during its first year compared with states that did not expand Medicaid to adults with low incomes, suggesting the

Table 3 | Changes in insurance coverage and employment after Medicaid expansion with work requirements in Georgia compared with South Dakota

	Georgia (n=3303)			South Dakota (n=1191)			Adjusted difference-in-differences‡	P value
Outcome	Pre-period*	Post-period†	Difference	Pre-period*	Post-period†	Difference		
Medicaid coverage	35.5 (32.3 to 38.6)	32.4 (29.0 to 35.8)	−3.0 (−7.5 to 1.4)	36.6 (32.6 to 40.5)	44.6 (38.9 to 50.3)	8.0 (1.0 to 15.1)	−11.7 (−19.5 to −3.9)	0.003
Uninsured rate	28.2 (24.8 to 31.5)	25.9 (22.5 to 29.3)	−2.3 (−6.8 to 2.2)	26.6 (21.3 to 31.9)	19.2 (13.3 to 25.0)	−7.4 (−16.0 to 1.2)	4.8 (−5.2 to 14.8)	0.35
Employment	46.0 (41.9 to 50.1)	46.6 (42.7 to 50.5)	0.6 (−5.8 to 7.0)	51.6 (46.8 to 56.4)	52.9 (46.7 to 59.2)	1.3 (−6.7 to 9.3)	−0.1 (−9.8 to 9.6)	0.99

Data are percentages (95% confidence intervals) unless stated otherwise. All numbers are unweighted and all percentages are survey weighted.
*From 29 December 2021 to 13 March 2023.
†From 26 July 2023 to 16 September 2024. Survey data from 29 March 2023 to 10 July 2023 were excluded owing to temporal differences in start of Medicaid disenrollment across states after end of Medicaid continuous enrollment provision on 31 March 2023.
‡Difference-in-differences estimate represents mean (percentage point) differential change (with 95% confidence interval) between Georgia and South Dakota after Medicaid expansion compared with pre-expansion period. Models adjusted for age (19-24, 25-34, 35-44, 45-54, or 55-64), sex (male or female), and race or ethnicity (non-Hispanic Asian, non-Hispanic black, Hispanic, non-Hispanic white, or other—"any other race alone, or in combination") and included time fixed effects.

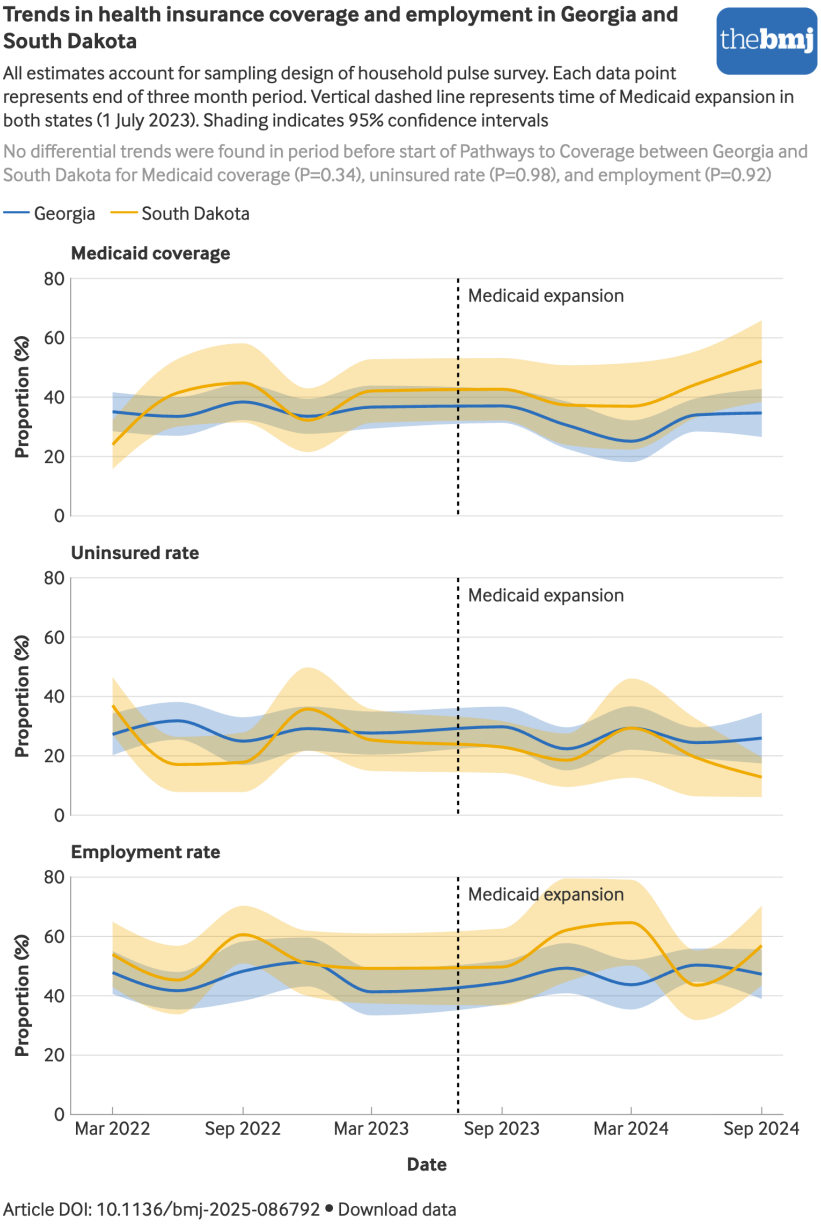

Fig 2 | Trends in health insurance coverage and employment in Georgia and South Dakota. An interactive version of this graphic and downloadable data are available at https://public.flourish.studio/visualisation/25066417/

program's goal of increasing insurance coverage has not yet been met.

We also found that compared with South Dakota—a control state that simultaneously expanded Medicaid without work requirements—Georgia's Pathways to Coverage program reduced Medicaid coverage without generating gains in employment. These findings suggest that the administrative complexities of applying and reporting work hours likely impeded Medicaid enrollment in Georgia. Of more than 110 000 people who elected to be considered for Pathways to Coverage during the Medicaid application process, only 5% ultimately enrolled, while approximately 50% were denied coverage owing to failure to report qualifying activities or not meeting activities requirements.[45 48] These findings align with previous evidence showing that work requirements reduce participation in federal assistance programs, even among those who meet or have exemptions from work requirements, by imposing onerous and restrictive eligibility determination procedures.[49-54]

There are several reasons why Pathways to Coverage may have failed to increase employment. Most notably, several studies have shown that most working age Medicaid beneficiaries already work or are unable to work, and those who do work are often employed in jobs that do not offer employer sponsored health insurance.[19 53 55-58] As a result, work requirements

are unlikely to increase participation in eligible activities within this population. Additionally, the implementation of work requirements in Pathways to Coverage focused on reporting eligible activities, but did little to address structural barriers to employment—such as childcare or transportation issues—that are critical for workforce participation.

Comparison with other studies

Our findings extend upon previous studies of Arkansas, the only other state to have fully implemented Medicaid work requirements. Arkansas' work requirements only applied to adults aged 30-49 years, and previous studies evaluated outcomes after the policy was in effect for only six months, before it was halted by a federal judge three months later.[53 54 59] In contrast, Georgia's work requirements applied to adults aged 19-64 years and were in effect for 15 months by the end of our study period, which may better reflect expected changes in outcomes once work requirements are implemented nationwide following recent Congressional legislation.[8 9] Work requirements in Arkansas decreased Medicaid and Marketplace coverage by 13.2 percentage points among adults aged 30-49 years within six months, while there was no change in employment or engagement in community activities.[53 54] In our study, we found that the addition of work requirements to Medicaid expansion in Georgia resulted in a similar, almost 12 percentage point, decrease in Medicaid coverage and no increase in employment.

Policy implications

These results have critical implications because Medicaid work requirements are one of the primary issues currently being debated by US policy makers. Congress recently enacted the One Big Beautiful Bill Act, which will implement a nationwide 80 hour per month work requirement mandate for able bodied, working age adults across all state Medicaid programs by 31 December 2026.[8 9] Several Medicaid non-expansion states were already pursuing statewide work requirements through Section 1115 waivers, and the passage of this bill may permit these states to implement Medicaid expansion programs similar to Pathways to Coverage.[7] Additionally, Georgia has requested a five year extension of Pathways to Coverage, with some state policy makers arguing that the program has successfully increased access to health care while encouraging self-sufficiency.[21] Our study provides timely evidence suggesting that work requirements could reduce Medicaid coverage without improving employment.

Limitations of this study

This study has several limitations. Outcomes were self-reported and could be subject to recall bias. The low survey response rate of the household pulse survey could also lead to non-response bias.[60] Although the survey response rate during our study was consistent with the US Census Bureau's anticipated response rate based on the design of the survey and survey weights were used to account for non-responses, weighting procedures may not have fully addressed non-response bias.[30 31] Additionally, the household pulse survey recruits participants through email addresses and telephone numbers maintained in the Census Bureau's master address file and uses an online survey, which could introduce sampling bias and non-coverage bias among people without contact information or internet access.[31]

We were unable to fully account for state level variation in the implementation of Medicaid unwinding. However, there were no significant differential changes in Medicaid coverage among adults aged ≥65 years in Georgia compared with those in the control groups, who were subject to unwinding but not to Pathways to Coverage or traditional Medicaid expansion. Our study was also limited to a single state implementing work requirements and does not account for other potential differences in program implementation between Pathways to Coverage and traditional Medicaid expansion. Finally, our study focused on changes in outcomes during the 15 months after implementation of Pathways to Coverage, and further research will be needed to understand the long term implications of this program.

Conclusions

The implementation of work requirements with Medicaid expansion in Georgia impeded expected gains in insurance coverage without increasing employment during the program's first 15 months. These findings have important policy implications given US policy makers' recent decision to mandate Medicaid work requirements nationwide beginning in 2026.

Contributors: DYJ and SAM contributed equally and are joint first authors. All authors conceived and designed the study. DYJ and ML performed the statistical analyses. DYJ and SAM drafted the initial manuscript. All authors interpreted the data, revised the manuscript for intellectual content, and approved the final manuscript. RKW supervised the study and is the guarantor. The corresponding author attests that all listed authors meet authorship criteria and that no other persons meeting the criteria have been omitted.

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Ethical approval: The study used publicly available data and was considered exempt from review by the institutional review board at Beth Israel Deaconess Medical Center.

Data sharing: The study used publicly available data.

Transparency: The manuscript's guarantor (RKW) affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

Dissemination to participants and related patient and public communities: The findings of this study will be disseminated to patients and the public in several ways. Firstly, our findings were already presented as a late-breaking, oral presentation at the 2025 Academy Health Annual Research Meeting. Secondly, we will work with our institution (Beth Israel Deaconess Medical Center) to prepare a press release when the paper is published with the goal of spreading awareness to the public and policy makers. Thirdly, the study authors will make themselves available to respond to inquiries from researchers, government agencies, policy makers, and the broader public community.

Provenance and peer review: Not commissioned; externally peer reviewed.

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Web appendix: Supplementary appendix