Administrative Design and Educational Inequality:

Evidence from SNAP Certification Length Policy

by

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THESIS ABSTRACT

Title: Administrative Design and Educational Inequality: Evidence from SNAP Certification Length Policy

Approximately 1 in 8 Americans rely on the Supplemental Nutrition Assistance Program (SNAP) each month for help paying for groceries. As a countercyclical safety net program, SNAP plays an important role in protecting against food insecurity, promoting household stability, and bolstering the economy during downturns. Although SNAP is federally funded, states administer the program, and administrative design varies widely. These choices, including certification length, reporting requirements, application modality, and caseworker access, affect the administrative burden that participants and applicants face. A growing body of literature finds that administrative burden affects program take-up by eligible individuals, but less is known about downstream effects on developmental outcomes for children when administrative burden constrains access or increases household instability. This paper focuses on certification length, or the frequency with which participants must renew their eligibility, as a key policy lever shaping administrative burden, and thus, access. I use state-level variation through time to examine how increases in SNAP certification length are associated with changes in educational outcomes for economically disadvantaged students. I use a panel from the Stanford Education Data Archive (SEDA) on the economic disadvantage achievement gap, alongside USDA data on SNAP participation rates and average certification length across state programs. I apply a difference-in-differences design with staggered treatment timing. I find that longer certification periods are associated with statistically significant reductions in the economic disadvantage achievement gap. These findings suggest that SNAP administrative design may have downstream implications for educational inequality.

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1. Introduction

Educational inequality begins long before a student sits down for a standardized test; it begins in the home. Household conditions shape students' development and academic outcomes, making household stability an important pathway through which administrative policy may affect educational inequality for economically disadvantaged students (Gassman-Pines & Bellows, 2015, 2018; Heinrich et al., 2022). The Supplemental Nutrition Assistance Program (SNAP) is one of the largest public programs shaping these conditions for low-income children in the United States. In FY 2024, SNAP served an average of 41.7 million participants per month (SNAP Key Statistics, 2025). Children under 18 made up 40 percent of participants, and nearly 62 percent of SNAP participants were in families with children, making the program especially relevant to the household environments in which low-income children live (Center on Budget and Policy Priorities, 2024). SNAP provides food assistance to help low-income households pay for groceries, but its benefits are not limited to nutrition (USDA Food and Nutrition Service [USDA FNS], 2025a; Tiehen et al., 2012). By increasing food-purchasing resources, SNAP can expand the household budget and help families absorb expenses across multiple domains (Tiehen et al., 2012; Dasgupta & Plum, 2023). For children, this kind of material stability translates to basic-needs security and reduced household stress, which may affect the conditions that support development and learning (Gassman-Pines & Bellows, 2015, 2018; Heinrich et al., 2022).

SNAP's stabilizing benefits can only be realized if eligible households successfully access and maintain benefits over time. Households must move through application procedures, documentation requirements, interviews, and recertification deadlines. These requirements can create costs for households, especially when the process is time consuming, complicated, confusing, or difficult to complete. Prior research shows that SNAP participation among eligible

households varies substantially across states, and that state administrative choices may help explain part of this variation (Cody et al., 2008; Newby et al., 2022; Edwards et al., n.d.). This suggests that SNAP administrative design can shape whether eligible households receive stable support.

This study focuses on certification length as a specific SNAP administrative policy lever. Certification length determines how often households must re-prove eligibility in order to continue receiving benefits. Shorter certification periods require households to recertify more frequently, increasing exposure to paperwork, interviews, deadlines, and the risk of procedural failure. The administrative burden framework categorizes these barriers as learning, compliance, and psychological costs that can prevent eligible people from accessing or maintaining benefits (Herd & Moynihan, 2025). Gray (2018) finds that exits from SNAP cluster around recertification months and are often linked to missed deadlines, while Giannella et al. (2024) show that reducing procedural barriers can improve program access. If certification length affects the stability of SNAP participation, then it may also affect the household conditions through which SNAP supports children's development.

This connection between SNAP stability and children's educational outcomes is supported by research showing that household resource timing can affect academic performance. Gassman-Pines and Bellows (2015) find that test performance among SNAP-receiving students varies with the number of days since benefit receipt, and later work connects this pattern to the SNAP benefit cycle, where food availability and household stress change as benefits are depleted and renewed (Gassman-Pines & Bellows, 2018). Administrative disruptions may create another layer of instability if eligible households lose access at recertification or cycle into and out of the program. The student outcomes assessed in this paper do not identify which individual students

receive SNAP, therefore this study does not measure outcomes for SNAP-recipient students directly. Instead, it uses the economic disadvantage achievement gap as a state-level measure of educational inequality for the students most likely to be affected by changes in SNAP administrative design.

Existing literature shows that SNAP reduces poverty depth and material hardship, especially for children, and that administrative burden can reduce access to public benefits (Tiehen et al., 2012; Dasgupta & Plum, 2023; Herd & Moynihan, 2025; Murphy, 2023). Prior research also suggests that state administrative choices affect SNAP participation and that benefit instability may shape children's academic outcomes (Cody et al., 2008; Newby et al., 2022; Gassman-Pines & Bellows, 2015, 2018). However, less is known about whether SNAP administrative design affects educational inequality. In this paper, I address that gap by asking whether longer SNAP certification periods, which reduce the frequency of recertification burden, are associated with changes in the economic disadvantage achievement gap.

To answer this question, I use a state-year panel that combines educational outcomes from the Stanford Education Data Archive (SEDA), SNAP participation estimates from USDA's *Reaching Those in Need* reports, and average certification length from the USDA SNAP Policy Database. The main outcome is the SEDA economic disadvantage achievement gap, measured as the difference in standardized achievement between economically disadvantaged students and non-economically disadvantaged students. The treatment is defined as a meaningful upward increase in average SNAP certification length compared to the 2010 baseline. Two control groups are used as counterfactuals for what would have happened to the treated states in the post-treatment period without a policy change. The full control group uses all states that had no meaningful (see treated definition) upward or downward certification length change. Low-

certification control states are those in the control group who had an average certification length below 7.5 months for the duration of the study. I use a difference-in-differences design with state and year fixed effects to compare changes in treated states after certification length increased to changes in control states over the same period.

The results suggest that longer certification periods are associated with a reduction in the economic disadvantage achievement gap. In the main difference-in-differences model, upward certification-length treatment is associated with a 0.045 standard deviation reduction in the achievement gap. A second model using low-certification control states produces a similar estimate of 0.038 standard deviations. Participation results are directionally consistent with the proposed administrative burden mechanism, but they are less conclusive. Overall, the findings suggest that SNAP administrative design choices such as certification length may have an impact on educational equality for economically disadvantaged students by defining the administrative burden that their households face. Because treatment is not randomized and the data do not identify SNAP-recipient students directly, these results should be interpreted as evidence consistent with a channel from SNAP administrative policy and educational inequality rather than definitive proof of causation.

2. SNAP Institutional Setting

The Supplemental Nutrition Assistance Program (SNAP) is one of the largest social safety-net programs in the United States, serving tens of millions of people each month and reaching many households with children. In FY 2024, SNAP served an average of 41.7 million participants per month, with federal spending totaling $99.8 billion (SNAP Key Statistics, 2025). SNAP operates at a scale that makes administrative design consequential for millions of households, many of them with children. Nearly 62 percent of SNAP participants are in families

with children and children under 18 make up 40 percent of SNAP participants (Center on Budget and Policy Priorities, 2024).

SNAP's modern structure comes from the Food Stamp Act of 1964, the federal legislation that made food assistance a permanent national program (USDA FNS, 2025b). Because SNAP funding is authorized through agriculture legislation, federal-level program changes are often debated through the Farm Bill process, placing nutrition assistance inside broader negotiations over agriculture, food access, and spending. SNAP policy is shaped by tradeoffs between program access and program accountability, where requirements such as certification and reporting can be understood as program-integrity tools. However, these events also create procedural points where eligible households may lose access. Recent state-policy discussions continue to frame certification periods, simplified reporting, and online case management as levers for reducing administrative burden (USDA FNS, 2025c; Prenatal-to-3 Policy Impact Center, 2025).

Federal legislation establishes important national standards, but households access the program through state-run agencies, whose administrative policies can vary widely within federal bounds. State agencies make implementation choices through state plans, approved waivers, and state policy. USDA's State Options Report tracks these choices across all 53 SNAP state agencies, including options related to certification periods, simplified reporting, interviews, electronic notices, telephonic signatures, early denial, and reinstatement after procedural termination (USDA FNS, 2025c). These choices are generally administrative rather than direct voter decisions, although they may be shaped by state legislation and voter sentiment. For this study, certification length is the central policy lever because it determines how frequently households must reverify eligibility and face the procedural risks associated with recertification.

The Farm Security and Rural Investment Act of 2002, also known as the 2002 Farm Bill, allowed states to assign most households to simplified reporting in attempt to ease administrative complexity (Trippe et al., 2004). Simplified reporting reduces the information that participating households must provide to maintain eligibility and benefits and allowed states to lengthen certification periods (Trippe et al., 2004). Prior to the expansion of simplified reporting, some states had certification lengths as short as 1-3 months (SNAP Policy Data Sets, 2025). Trippe et al. (2004) examine early state implementation of simplified reporting and find that states used the option to lengthen certification periods and reduce interim reporting requirements. State officials reported reduced staff workload, improved client access, and reduced exposure to Quality Control errors, although implementation challenges limited the full potential of the reform (Trippe et al., 2004).

3. Literature Review

3.1 SNAP Eligibility and Program Benefits

SNAP is designed to serve low-income households that meet income, resource, and household composition requirements (USDA FNS, 2025b). In order to receive benefits, households must apply in the state where they live and move through the eligibility determination process, which may include documentation and an interview (USDA FNS, 2025b, 2025c). After completing the application process, eligible households receive a notice stating their benefit amount and how many months they can receive SNAP before they must reapply (USDA FNS, 2025c). This period is referred to as the certification period. Before the certification period ends, households must recertify their eligibility to continue receiving SNAP benefits. The recertification process is often similar to the initial application process and may require households to submit updated information or complete another interview. A USDA ERS

report notes that completing the average SNAP application took nearly five hours, including at least two local office trips, while recertification took over two hours (Stacy et al., 2018)

Once eligible households connect with the program, SNAP's benefits extend beyond food security, increasing household material well-being and reducing poverty depth and severity, especially for children. In 2012, Jolliffe et al. found that SNAP benefits reduced the prevalence of poverty by an average of 4.4 percent across 2000–2009. SNAP's poverty-reducing effects were especially strong for children, reducing child poverty depth by 15.5 percent and child poverty severity by 21.3 percent. (Tiehen, Jolliffe, and Gundersen, 2012). One reason SNAP benefits have such a stabilizing effect is because the in-kind assistance offsets food expenditures, creating an income-transfer mechanism which expands the household budget (Tiehen, Jolliffe, and Gundersen, 2012). Tiehen and coauthors find that this effect is strongest among the poorest households, where marginal resources are especially consequential. In 2023, Dasgupta and Plum examined the effects of the termination of pandemic-era SNAP Emergency Allotments and found that termination of benefits was linked to worsened food sufficiency and increased economic hardship. They found that SNAP benefit reductions can produce cross-domain hardship when households must absorb lost food-purchasing resources by reallocating scarce income away from other necessities (Dasgupta and Plum, 2023).

3.2 SNAP Participation

Despite the clear benefits of the program, participation rates of eligible individuals vary considerably across states. Participation depends not only on need and eligibility, but also on whether households successfully enter and remain connected to the program. State SNAP participation rates measure the share of SNAP-eligible people who actually participate, making participation rates distinct from caseload totals or the share of the population receiving SNAP.

Participation rates are useful for studying the effects of administrative policy choices because they capture take-up among the eligible population rather than overall population-level program use, which is more strongly correlated with local and national economic conditions (Edwards et al., n.d.). In 2022, an estimated 88% of eligible people received SNAP benefits nationwide (Cunnyngham, 2025). According to the USDA's Economic Research Service, in 19 states and the District of Columbia, the SNAP participation rates in FY 2022 were statistically significantly higher than the national rate of 88%, while in 19 other states, the rates were significantly lower (Cunnyngham, 2025). The highest participation rates hovered around 100%. In both pre-pandemic FY 2020 and FY 2022, the District of Columbia, Illinois, Massachusetts, New Mexico, Oregon, Pennsylvania, and Wisconsin were cited as having significantly higher participation rates than two-thirds of the other states (Cunnyngham, 2025). Those with the lowest estimated participation rates, Arkansas and Wyoming, were estimated to be 59% and 63%, respectively (Cunnyngham, 2025).

There have been several attempts to explain the substantial variation in state-level SNAP participation. In 2008, Cody et al. found that population composition appeared to play a role. States with more elderly-headed eligible households tended to have lower participation, and states with more nonelderly households without earnings tended to have higher participation (Cody et al., 2008). However, even after standardizing participation rates for population composition, substantial state variation remained (Cody et al., 2008). In 2022, state-policy research found that less restrictive SNAP administrative policies are associated with higher participation, suggesting that the unexplained state variation may be partly explained by administrative design (Newby et al., 2022). In a working paper, Edwards et al. show that caseload growth depends on flows into and out of SNAP not only economic need. Their

comparison of Oregon and Florida suggests that state administrative contexts can shape whether eligible households remain connected to benefitsd.

3.3 Administrative Burden Framework

Administrative burden is a mechanism by which formally eligible households can fail to access or maintain benefits. The administrative burden framework describes the transaction costs that individuals and households face in staying connected to public programs. In "Administrative Burdens in the Social Safety Net," Herd and Moynihan (2025) point out that burdens occur at every stage of program interaction: learning about a program, applying, proving and maintaining eligibility, renewing benefits, and using benefits (Herd and Moynihan, 2025). Administrative burden arises through three main categories of costs: Learning, Compliance, and Psychological.

Table 1. Categories of Administrative Burden

Learning Costs	Time and effort expended to gain information about the program, its eligibility requirements, the nature of the benefits, and the process for gaining access.
Compliance Costs	Time and effort spent complying with reporting rules, financial costs to access services (information access fees, legal representation, travel costs), opportunity costs of being available to respond to and meet the demands of administrators.
Psychological Costs	Stigma arising from participation in publicly provided programs, loss of autonomy, frustration with inefficient systems and costs, stress of uncertainty, fear of coercive state power.

Source: Adapted from Herd and Moynihan (2025)

These costs often fall hardest on individuals with fewer resources, poor health, or diminished administrative capacity, exacerbating inequality (Herd and Moynihan, 2025). Murphy (2023) documents how transaction costs affect SNAP take-up of eligible households, using Food Security Survey data and the SNAP Policy Index. Murphy frames SNAP take-up as a

household decision shaped by net benefits, wherein eligible households are more likely to participate when the value of benefits exceeds the application, compliance, and participation costs associated with the program. According to Murphy's findings, middle-income-quintile eligible households appear most marginal, while very low-income households are less responsive to changes in administrative burden (Murphy, 2023). As a result, the costs of participation accrue unequally to those most in need of the program's benefits.

3.4 Administrative Burden in SNAP: Re-Certification

To receive and maintain benefits from SNAP, eligible households must repeatedly interact with the agency to complete administrative tasks which include interviews, paperwork, submitting documentation, and reporting changes (Giannella et al., 2024). Each of these required tasks presents potential barriers and the risk of procedural failure. In an examination of procedural denials in SNAP, Giannella et al. (2024) demonstrated that easing administrative burden improved access. In their study in Los Angeles County, missed interviews accounted for a large share of program denials. The opportunity for flexible, applicant-initiated interviews increased initial approval by 6.2 percentage points, and long-term participation increased by 2.2 percentage points over five months (Giannella et al., 2024). Gray (2018) provides quasi-experimental evidence that administrative barriers have a significant impact on SNAP participation, through a study of the roll-out of Michigan's integrated SNAP website. The new interface was found to coincide with a reduction in long-term exit at recertification of nearly two percentage points (Gray 2018).

Certification length determines the frequency with which participating households face administrative requirements to re-certify eligibility. In "Why Leave Benefits on the Table? Evidence from SNAP," Gray (2018) examines SNAP administrative enrollment data and finds

that about one-half of new SNAP cases are not receiving benefits one year later. Program exits cluster around recertification months, with the primary reason for exit cited as, “Missed Deadline.” Disconnection from the program was found to be long-term, even though many of the households were determined to be evidentiarily eligible. These findings indicate that shorter certification periods—requiring households to re-certify their eligibility with greater frequency—promotes program instability. With each renewal event, eligible households are exposed to barriers, prohibitive costs, and the risk of procedural error. Certification length is therefore an important aspect of SNAP administrative design because it likely contributes to household exposure to administrative burden and the risk of benefit instability.

3.5 Impacts on Children

Interruptions or instability in SNAP benefit access may affect the household conditions that shape children’s academic performance, potentially connecting administrative design to children's outcomes. Gassman-Pines and Bellows (2015) provide direct evidence of this connection in a study of more than 148,000 SNAP-receiving public-school students in North Carolina. They find that end-of-grade test scores vary by the number of days since the household received SNAP benefits, with scores highest around the third week after benefit transfer. In later work, Gassman-Pines and Bellows (2018) explain this pattern through the SNAP benefit cycle: benefits are often depleted within the month, creating variation in food availability, nutrition, and household stress as resources dwindle and are renewed. Re-certification events and administrative deadlines introduce additional points of instability. Heinrich et al. (2022) show that administrative burden in child-serving social programs can interfere with access to supports related to children’s health, development, and school readiness. This evidence suggests that SNAP administrative burden can shape the stability of the household environment.

3.6 Gap and Contribution

Existing literature establishes SNAP's role in reducing poverty and increasing household stability (Tiehen et al., 2012; Dasgupta & Plum, 2023), and further, that participation depends not only on eligibility or need, but on state administrative design choices (Cody et al., 2008; Newby et al., 2022; Edwards et al.,). The administrative burden framework explains how eligible households can fail to access or maintain benefits (Herd & Moynihan, 2025; Murphy, 2023). Certification length is a key design feature which determines how frequently households are exposed to administrative burden and the risk of procedural failure (Gray, 2018). SNAP instability may have important consequences for affected children. Benefit timing and household resource stability are linked to academic performance, and administrative burden in child-serving programs is shown to have spill-over effects on development and school readiness (Gassman-Pines & Bellows, 2015, 2018; Heinrich et al., 2022). While prior research shows that SNAP can improve household stability and that administrative burden can reduce program access, less is known about whether administrative burden affects SNAP's ability to reduce educational disadvantage among children. This paper addresses that gap by studying whether longer SNAP certification periods, which reduce the frequency of recertification burden, are associated with changes in educational achievement gaps.

4. Data

This study uses a state-year panel that combines educational outcomes (Reardon et al., 2026), estimated SNAP participation rates (USDA 1999-2022), and SNAP administrative policy measures (USDA 2024). This structure allows the analysis to compare changes within states over time rather than treating state SNAP systems as fixed or identical. I use participation estimates to test the proposed mechanism through which administrative design impacts the educational

inequality for economically disadvantaged students. The outcome data measure educational achievement, with a particular focus on economically disadvantaged students, who are more likely to be impacted by the effects of administrative design changes in SNAP. These data are combined to connect program access and administrative design to downstream educational outcomes.

4.1 USDA SNAP Policy Database

I focus on average certification length as the main administrative policy change as it captures how often households are exposed to administrative burden and procedural hazard through the process of re-certifying eligibility. The data come from the USDA Economic Research Service SNAP Policy Database for the years 2010 - 2019 (USDA ERS, 2024; www.ers.usda.gov/data-products/snap-policy-data-sets), which tracks state-level SNAP policy choices over time. The key variable for this study is average certification length, measured in months. Longer certification periods indicate a reduced frequency of recertification, while shorter certification periods indicate that households are exposed more often to paperwork, reporting, interviews, and deadlines. Exits from the program cluster around these recertification deadlines, providing evidence for certification length as a useful proxy for measuring administrative burden (Gray, 2018).

4.2 USDA Reaching Those in Need

SNAP participation rate is an estimated measure of program take-up among people who are eligible for benefits (USDA FNS, 1999-2020). Data on SNAP participation come from the USDA's Reaching Those in Need reports for the years 1999-2020, accessed from www.fns.usda.gov/research/snap/state-participation-rates. While measures such as caseload size provide information about the total size of the program in a state, participation rates are useful

for determining whether the program is accessible to the households it is intended to serve. Prior research supports this interpretation by showing that administrative policies and administrative and procedural barriers can shape SNAP take-up and continued participation (Murphy, 2023; Newby et al., 2022; Giannella et al., 2024). Participation is estimated because it is difficult to precisely measure the number of eligible households (USDA FNS, 1999-2020). Therefore, the measure is best used to compare states relative to one another. In this analysis, participation rates are used to examine the proposed mechanism and connect administrative design to SNAP access.

4.3 SEDA

I measure educational outcomes using the Stanford Education Data Archive (SEDA) Version 6.0 (Reardon et al., 2026; www.edopportunity.org/opportunity/data/downloads). SEDA provides standardized achievement data that allow educational outcomes to compared across states and over time (Reardon et al., 2026). SEDA measures are not raw test scores; they are standardized relative to a national reference distribution, where a score of zero represents the national average, and positive or negative values indicate achievement above or below that reference point (Reardon et al., 2026). The main outcome in this study is the economic disadvantage achievement gap. This measure captures the difference in achievement between economically disadvantaged students and their comparison group. I use the achievement gap to go beyond average achievement and assess the impacts of SNAP administrative design on educational inequality. SEDA data do not identify which students receive SNAP, so the measure should not be interpreted as a direct SNAP-recipient outcome. Instead, the economic disadvantage gap is used as a state-level measure of educational inequality for the student population most likely to be affected by SNAP administrative design changes. If longer certification periods reduce SNAP administrative instability and improve household material

well-being, the expected effect would be stabilization of educational outcomes for affected children, and a potential shrinking of the disadvantage gap. Prior research motivates this link by showing that SNAP benefit timing and resource stability impact academic performance and that access barriers in child-serving public programs can affect children's well-being and school readiness (Gassman-Pines & Bellows, 2015, 2018; Heinrich et al., 2022).

5. Empirical Design

I use a quasi-experimental difference-in-differences design with fixed effects to estimate whether SNAP certification length policy variation is associated with changes in the educational achievement gap for economically disadvantaged students. The treatment is defined as an upward change in average SNAP certification length, which represents a reduction in the frequency of recertification events that households face. The main outcome measured is the SEDA economic disadvantage achievement gap. States are sorted into those that are treated, and those that did not experience a sustained upward or downward policy change during the study period, 2010 – 2019. There are a total of six treated states and forty-one control states in the study. Four states with downward treatment are excluded. States differ in many persistent ways that impact educational trends and SNAP participation, including education systems, population composition, public perception of social programs, administrative capacity, and more. For this reason, the design of this study aims to compare changes within states over time, rather than relying only on cross-state differences. The empirical design will estimate whether achievement gaps changed after certification length increased, relative to the changes observed in the control states.

5.1 Treatment Definition

Treatment is defined as a meaningful upward increase in average SNAP certification

length for households with earned income, measured as a change of greater than three months compared to the baseline year 2010. The treatment year is the first year that the state crosses the defined treatment threshold. There are six treated states with treatment years in 2011, 2012, and 2015. States with a decrease in certification length of equal magnitude are dropped from the analysis of educational achievement for clearer interpretation of the results. This included two states that had both upward and downward treatment, Kansas and Mississippi. To estimate the directional effect of average certification length on participation, all states are included. For the difference-in-differences models, treatment and control groups are consistently defined. Control states tended to have average certification lengths clustered around six or twelve months. Those states that stay close to a six-month certification length average are identified as, "Low Cert Controls" for a more robust pre-treatment trend analysis

Figure 1. Distribution of First Treated Year for Upward-Treated States. This figure displays the timing of first treatment among states with upward SNAP certification-length changes.

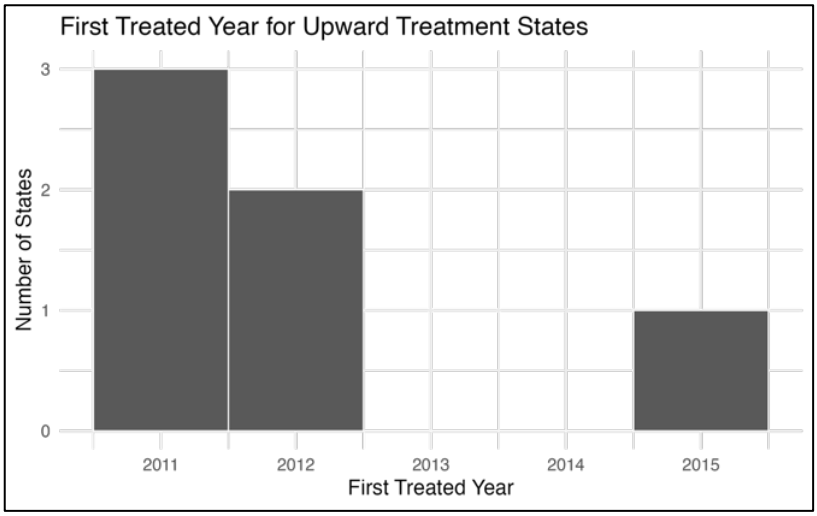


Figure 2. Average Certification Length Trends Among Upward-Treated States, 2010–2019*. This figure shows average SNAP certification length among upward-treated states over the study period.*

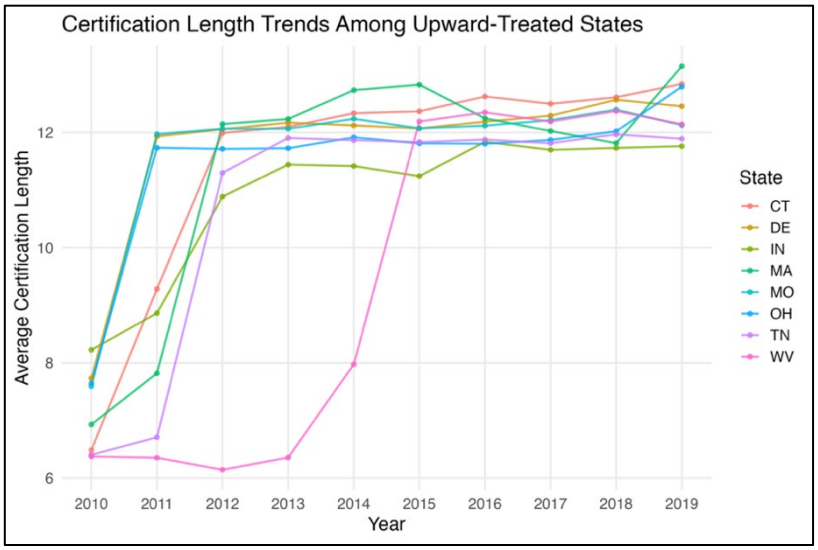
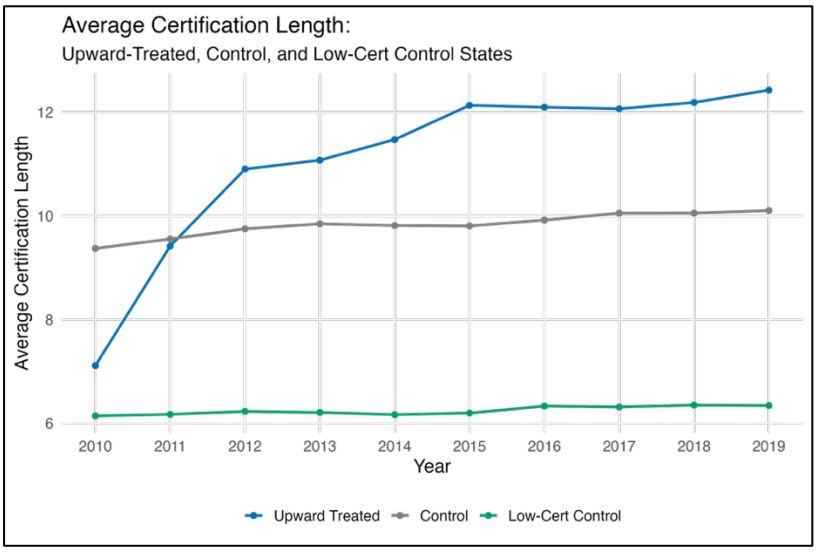


Figure 3. Average Certification Length Trends by Treatment Group, 2010–2019*. This figure compares average SNAP certification length over time among upward-treated states, all control states, and low-certification control states. Low-certification controls are control states that remained near a low average certification length throughout the study period.*



5.2 Specification

$$Gap_{st} = \beta_0 + \beta_1 Treated_s \times Post_t + \alpha_s + \lambda_t + \varepsilon_{st}$$

The primary outcome of interest is the SEDA economic disadvantage gap score, defined as the estimated difference in standardized achievement between non-economically disadvantaged (non-ECD) and economically disadvantaged (ECD) students. Gap_{st} captures the state-year distance between the two groups' educational achievement in standard deviations from the national average. The key explanatory variable in the difference-in-differences model is the interaction between treatment status and the post-treatment period. Treatment status identifies states that ever experience the upward certification-length change and no downward changes, and the post-treatment period identifies the years after they increased certification length. *Treated x Post* is the binary indicator for state-year pairs that are treated and in the post-treatment period. The coefficient $\beta 1$ estimates how much the achievement gap changed in treated states after treatment, relative to the change in control states over the same period. If $\beta 1$ is negative, the economic disadvantage gap shrinks in response to the policy change, and if it is positive, the gap widens. The interaction term is key because the treatment variable, on its own, does not account for differences among states before the change, and the post-treatment indicator fails to account for broader national changes that impact SNAP use and educational outcomes.

The regression analyses also include state and year fixed effects. State fixed effects account for persistent differences across states such as differences in education systems, SNAP administration, demographics, and policy environments. The state fixed effect, α_s, represents each state's time-invariant baseline difference in achievement gap relative to other states. Year fixed effects account for national shocks or common time trends affecting all states in the same year. The year fixed effect, λ_t, describes common year-specific shifts in the achievement gap

across all states in the study. Finally, standard errors are clustered by state because observations are repeated within the same state over time. Clustering helps account for state-specific shocks which may be correlated across years.

5.3 Pre-Treatment Analysis

I conduct an analysis of pre-treatment trend for each of the difference-in-differences regression specifications. This diagnostic focuses on whether the treatment and control groups were moving along similar trends prior to the treatment period, to determine the validity of the control group as a counterfactual for what would have occurred in the treated states had they not underwent the policy change. An average first treatment year is calculated to be near 2012, as indicated on the plots. Participation rates, SEDA educational achievement scores for ECD students, and SEDA's economic disadvantage gap all show similar trends in the pre-treatment period for the treatment and control groups. In each case, the treatment group is compared against the full control group in addition to the low-cert control group. Pre-treatment trends appear to be similar across both groups, particularly for the models containing all control states. The panel with the low-certification control group may be a better approximation for untreated post-treatment trends, since these states have a low-certification length policy throughout the study. However, the low-certification control group has fewer than half the observations as the full study, which may make the results less reliable. Therefore, it is useful to examine the outputs from both models to gain a closer approximation of the magnitude of the true impact of certification-length policy change on educational inequality.

Figure 4. SEDA Score Trends for ECD Students. *The panel on the left compares treated states to all controls. The panel on the right uses low-certification controls.*

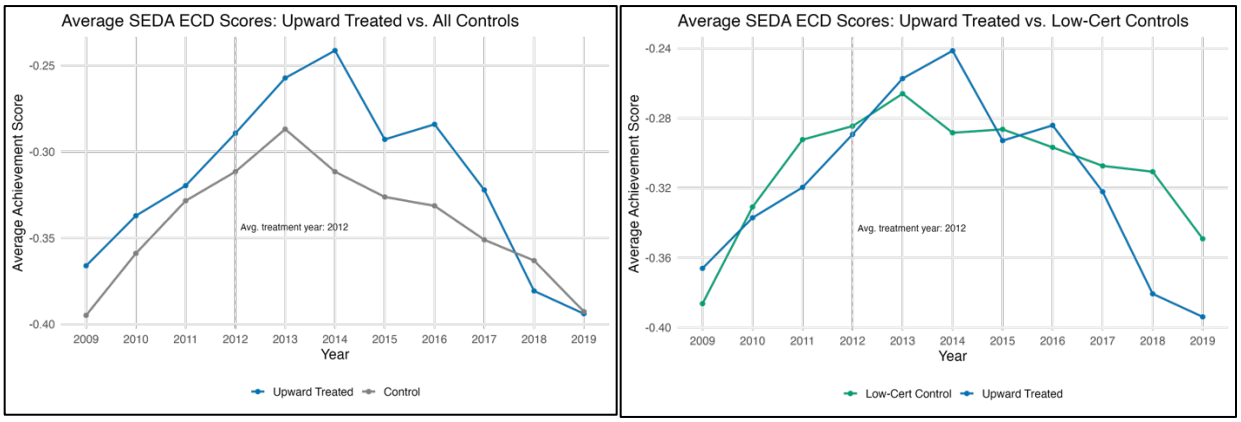


Figure 5. Economic Disadvantage Gap Pre-Treatment Trends*. The panel on the left compares treated states to all controls. The panel on the right uses low certification controls.*

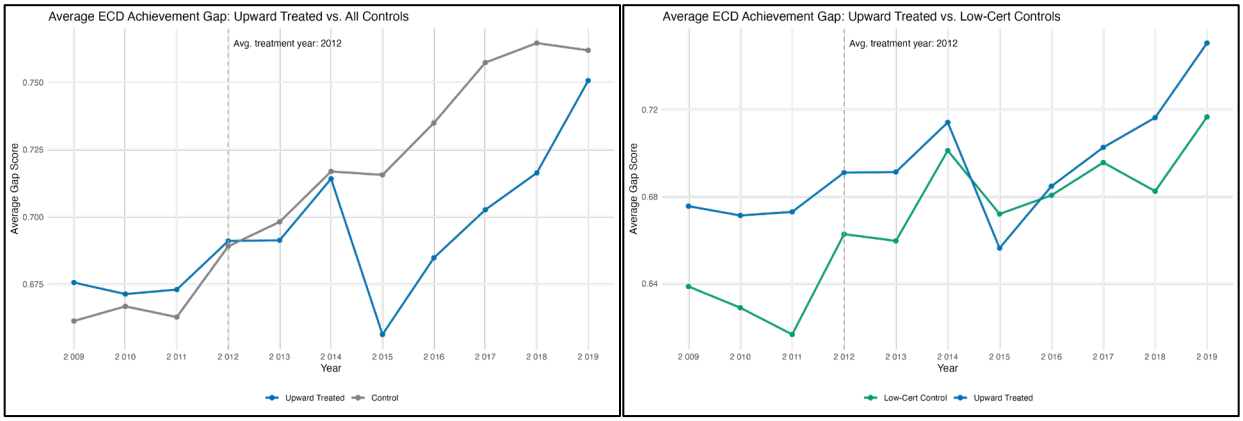
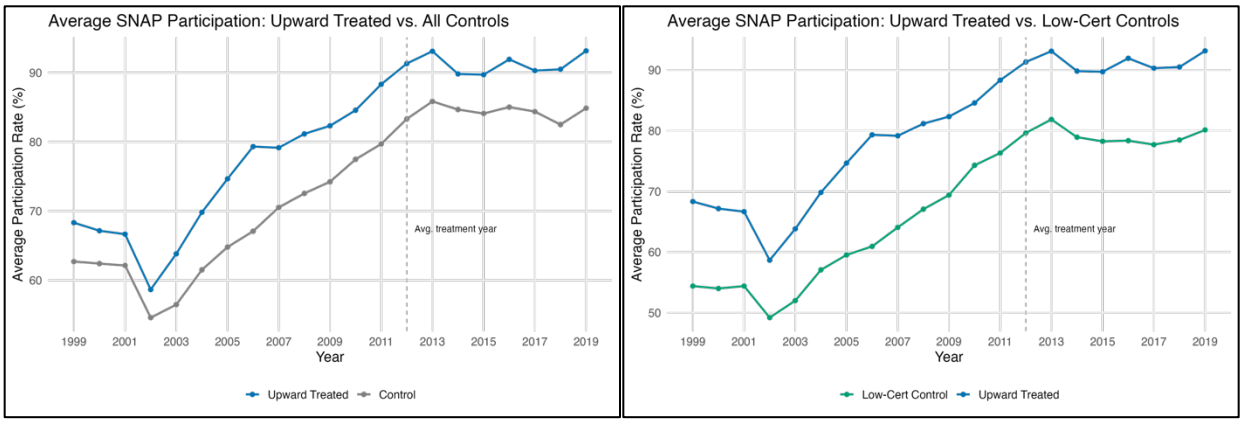


Figure 6. SNAP Participation Pre-Treatment Trends*. The panel on the left compares treated states to all controls. The panel on the right uses low-certification controls.*



5.4 Limitations and Scope

The quasi-experimental design of this study attempts to estimate the causal effect of SNAP certification policy change on the gap in educational achievement between economically disadvantaged students and their peers by exploiting variation in the timing and location of policy changes. However, treatment is not perfectly randomized. Policy changes may be related to other state-level changes that also affect educational outcomes. Furthermore, participation rates in treated states are higher than the control states for all years in the study, indicating that there may be differences in policy environments or in the perception of the SNAP program that motivates these states to select into treatment. Additionally, certification length is used as a proxy for administrative burden exposure, but it does not directly measure each household's experience with the SNAP system in their state. A final limitation is that SEDA does not explicitly identify which students are in households that participate in SNAP. The measure chosen by this study aims to distinguish those students most likely to be impacted by SNAP policy changes, but it does not directly describe outcomes for only SNAP-receiving students. Because of these limitations, the results should be interpreted as evidence of an association between SNAP administrative policy and educational inequality rather than truly causal.

6. Results

The study results are organized by the role each regression plays in the empirical design: analysis of overall achievement scores for ECD students, primary achievement gap finding, and results of testing the proposed mechanism. The SEDA achievement score for ECD students is analyzed for directionality and as a measure of how overall achievement levels might have changed for these students with SNAP certification-length treatment. However, achievement levels are affected by broad state-year educational and economic conditions that may influence

both ECD and non-ECD students. The main achievement gap outcome helps isolate outcomes for ECD students relative to their peers and addresses whether SNAP certification-length policy impacts educational inequality. Participation analyses are included to test a proposed mechanism by which longer certification periods may increase program stability.

6.1 SEDA ECD Achievement Score

The SEDA achievement score regression estimates the relationship between certification-length treatment and the average achievement score of ECD students, providing an initial test of whether ECD students' achievement moved in the expected direction with treatment. The coefficient on post-treatment status is 0.042, with a p-value of 0.298. The positive coefficient is directionally consistent with the theory that reduced administrative burden could improve educational outcomes. However, the finding is not statistically significant, so this result should be interpreted as suggestive.

6.2 The Economic Disadvantage Gap

The primary difference-in-differences model estimates the change in the economic achievement gap after treated states increased average certification length, compared to the same change in those states that were not treated. Two models are deployed: the Main DiD (1) model compares treated states to all control states, and the second, Low-Cert Control (2) model uses control states that had low average certification length for the study period. In the main specification, the coefficient on post upward treatment is statistically significant at -0.045, with a p-value of 0.017. These findings suggest that upward certification length treatment is associated with about a 0.045 standard deviation reduction in the economic disadvantage achievement gap. The Low-Cert Control produced an estimated treatment effect of -0.038, with a p-value of 0.040. Despite the differences between the two models' control groups, the estimates are strikingly close

in magnitude, size of standard error, and fit. These results provide strong quasi-experimental evidence of an association between upward SNAP certification-length treatment and a reduction in the economic disadvantage achievement gap.

Table 2. *Difference-in-Differences Estimates for the Economic Disadvantage Gap*

Regression Estimates for SEDA ECD Achievement Gap		
	(1) Main DiD	**(2) Low-Cert Control**
Post upward treatment	-0.045**	-0.038**
	(0.018)	(0.017)
Observations	419	182
Adjusted R^2	0.84	0.89

* p < 0.10, ** p < 0.05, *** p < 0.01. Standard errors clustered by state in parentheses.

6.3 Participation Rate Mechanism Testing

State-level SNAP participation rates provide a potential test of the proposed mechanism by which certification length policy impacts educational inequality through program churn. In a fixed-effects model that regresses participation rate on average certification length, the coefficient estimates an effect of 0.729, with a nearly significant p-value of 0.055. By this model, a six-month change in certification length would predict an average participation rate increase of 4.374 percentage points, holding all else constant. This result is consistent with the administrative burden mechanism: longer certification periods reduce the frequency of recertification exposure. The treatment-based participation rate difference-in-differences model estimated a treatment effect of 2.195 percentage points and a p-value of 0.443.

The mechanism-testing results are directionally consistent with research showing that

administrative burden can reduce SNAP access, particularly through procedural failures at recertification (Gray, 2018; Giannella et al., 2024). However, the results may be weak because state-year participation rates are too aggregated to capture the specific process by which household stability is impacted by certification length. Participation rate is useful for measuring state-level program accessibility relative to other states, but it may fall short in describing program churn, especially if households are cycling into and out of the program more than once in a year. More broadly, the low number of treated states also reduces the statistical power in a state-year analysis. These results should be interpreted as a test of the effect of certification length on statewide program access rather than a direct measure of household-level program stability, and while the results are not statistically significant, the confidence intervals include effects that are both large and economically meaningful. The "null" results do not reject the hypothesis that certification length plays an important role in shaping statewide SNAP access.

7. Conclusion

This study shows that SNAP administrative design may have downstream impacts on educational inequality for economically disadvantaged children. SNAP is a major safety-net program that reduces poverty depth, material hardship, and household instability, especially for households with children and those with the fewest resources (Tiehen et al., 2012; Dasgupta & Plum, 2023). However, access to the program's stabilizing benefits depends on whether eligible households can successfully access and maintain connection to the program over time. Prior research connects SNAP program take-up and continued access to administrative design choices. The administrative burden framework provides a mechanism by which program rules impact household access. Learning costs, compliance costs, and psychological costs can prevent eligible households from receiving or maintaining benefits (Herd & Moynihan, 2025; Murphy, 2023).

This study contributes to academic discourse on the impacts of administrative burden in public programs by asking whether a specific administrative policy lever, SNAP certification length, is associated with changes in the economic disadvantage achievement gap.

A difference-in-differences study finds a statistically significant relationship between upward certification-length treatment and a reduction in the economic disadvantage achievement gap. In the main difference-in-differences model, upward treatment is associated with a 0.045 standard deviation reduction in the achievement gap, with a p-value of 0.017. The low-certification control model produces a similar estimate of 0.038 standard deviations, with a p-value of 0.040. These findings suggest that increasing average certification length may be associated with a narrowing of the educational gap between economically disadvantaged students and their peers.

The proposed mechanism is that longer certification periods reduce household exposure to recertification events, which may reduce program churn and improve SNAP stability. The participation rate results are consistent with this mechanism, although they are less precise than the achievement gap results. In a fixed-effects model testing the effect of average certification length on participation rate, a six-month increase in average certification length predicts a 4.374 percentage point increase in SNAP participation, holding all else constant. The treatment-based participation model is not statistically significant, but the confidence intervals include effects that are large and economically meaningful. This suggests that certification length may play an important role in shaping statewide SNAP access.

The study's overall findings are consistent with research showing that SNAP benefit timing, resource stability, and household stress can shape children’s academic performance (Gassman-Pines & Bellows, 2015, 2018). The reduction in the achievement gap after treatment is

consistent with the proposed theory that reduced administrative burden may improve the household conditions that affect children's educational outcomes. However, SEDA does not identify which students live in households that participate in SNAP, so the outcome measures the broader population of economically disadvantaged students who are most likely to be affected by SNAP administrative policy and should be interpreted as such.

There are several other limitations to this study. Treatment is not randomized, and states that increased certification length may differ from control states over time in ways that also affect educational outcomes. Additionally, certification length is used as a proxy for administrative burden exposure, but it does not directly measure each household's experience. Because of these limitations, the results should be interpreted as evidence of an association between SNAP administrative policy and educational inequality, but caution should be taken before assigning causation.

Future research should draw on household-level administrative data to track households through SNAP entries, exits, and recertification deadlines. A national or multi-state administrative database would make it possible to compare how different state policy choices affect program access and household stability. Additionally, the empirical design could utilize findings on population composition to more accurately account for differences among demographic groups (Cody et al., 2008) and implement a policy indexing strategy like that set forth by Stacy et al. (2018) to better describe the administrative policy environment that SNAP households face. Overall, this study's findings suggest that further research on administrative burden in SNAP may be warranted, with potential implications for household stability and educational equity.

APPENDIX A. REGRESSION RESULTS

Regression Estimates for SEDA ECD Achievement Score	
	(1) Main DiD
Post upward treatment	0.042
	(0.040)
Observations	427
Adjusted R^2	0.87

* p < 0.10, ** p < 0.05, *** p < 0.01. Standard errors clustered by state in parentheses.

Regression Estimates for SEDA ECD Achievement Gap		
	(1) Main DiD	**(2) Low-Cert Control**
Post upward treatment	-0.045**	-0.038**
	(0.018)	(0.017)
Observations	419	182
Adjusted R^2	0.84	0.89

* p < 0.10, ** p < 0.05, *** p < 0.01. Standard errors clustered by state in parentheses.

Regression Estimates for SNAP Participation		
	(1) Certification Length	**(2) Upward Treatment DiD**
Certification length	0.729*	
	(0.371)	
Post upward treatment		2.195
		(2.838)
Observations	510	510
Adjusted R^2	0.770	0.765

* p < 0.10, ** p < 0.05, *** p < 0.01. Standard errors clustered by state in parentheses.

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APPENDIX B. TREATMENT AND CONTROL GROUP CLASSIFICATION

Treated States and First Treated Year

State	First treated year
DE	2011
MO	2011
OH	2011
MA	2012
TN	2012
WV	2015

Dropped States

State	Reason dropped
KY	Has both upward and downward certification-length policy changes
MS	Has both upward and downward certification-length policy changes
NE	Has a downward certification-length policy change
SC	Has a downward certification-length policy change

Dropped states are excluded from the main upward-treatment comparisons.

Control States

State	Low-certification control
AK	LC
AZ	LC
CO	LC
FL	LC
GA	LC
IA	LC
ID	LC
MD	LC
NC	LC
ND	LC
NH	LC
NV	LC
TX	LC
UT	LC
WY	LC
AL	
AR	
CA	
CT	
DC	
HI	
IL	
IN	
KS	
LA	
ME	
MI	
MN	
MT	
NJ	
NM	
NY	
OK	
OR	
PA	
RI	
SD	
VA	
VT	
WA	
WI	

Low-certification controls are control states with average certification length below 7.5 months.

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