Does Intensive Mentoring Improve Teaching? Results from a Randomized Experiment

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Policy Research, Inc.

The New Teacher Problem

- High Turnover
  - Costly to replace
  - Disruptive to school
- Inexperience and Productivity
  - Inadequate preparation
  - Need OJT?

Policy Response?

"Comprehensive Teacher Induction"

What Is Comprehensive Induction?

- Mentors
  - Carefully selected and trained
  - Full-time mentors with 12:1 ratio
- Curriculum
  - Instructionally focused
  - Structured and sequenced
- Activities
  - Weekly meetings with mentor
  - Monthly professional development sessions
  - Classroom observation with formative assessment
  - End-of-the-year colloquium
  - Outreach to district and school administrators

Research Questions

***Compared to prevailing induction support*, what is the impact of comprehensive induction on…**

1. **Induction services?**
2. **Workforce outcomes?**
3. **Classroom outcomes?**

Study Design

- Selected 17 districts
  - Large (urban), high poverty
  - No current comprehensive induction program
- Randomized 418 elementary schools
- Followed 1,009 teachers
  - 698 eligible for classroom observation in year 1
  - 190 eligible for test-score analysis in year 3
- In year 2, created two experiments
  - "One-year districts": one-year induction program
  - "Two-year districts": two-year induction program

Data

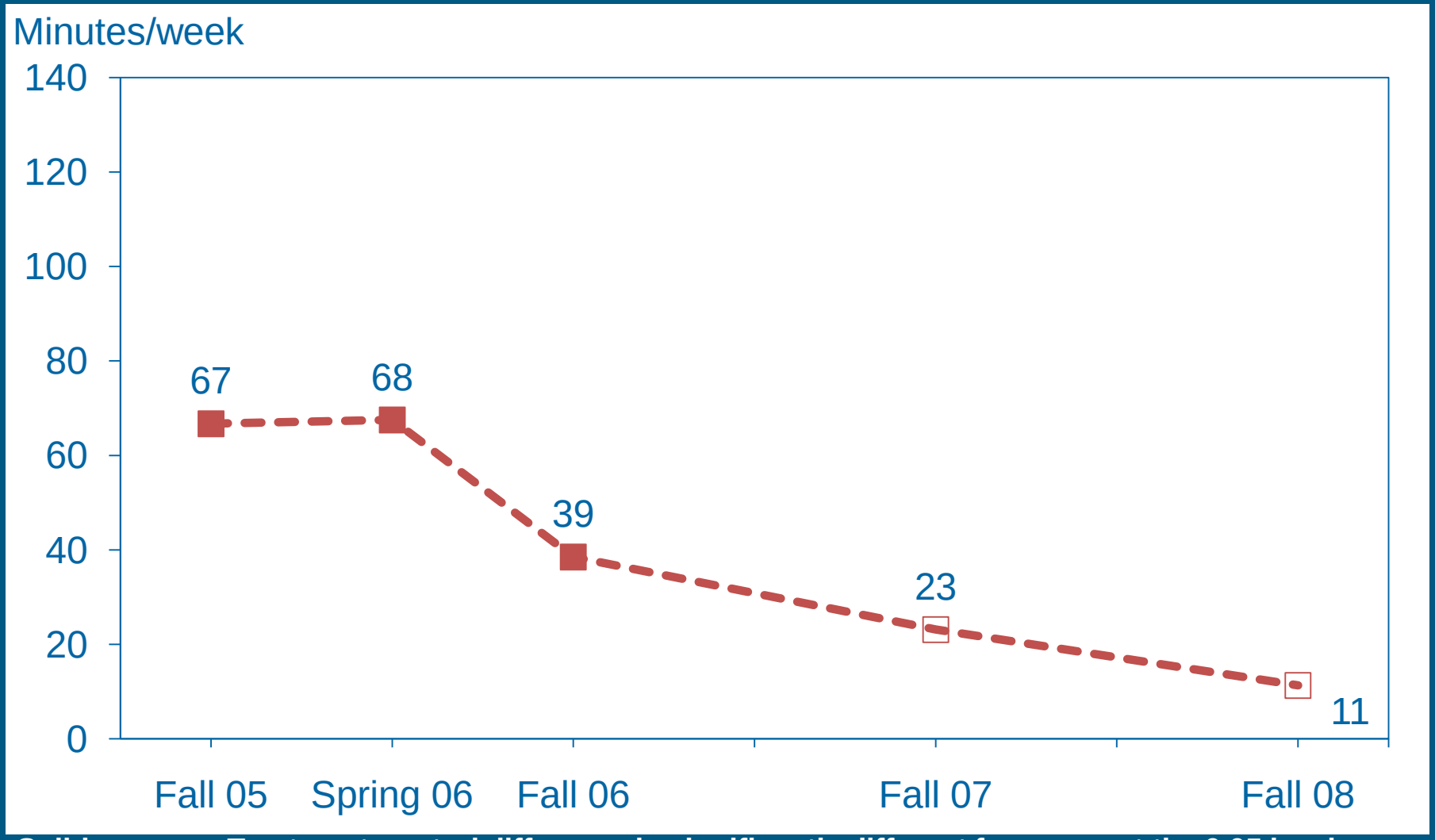
- Mentor survey at baseline
- Six teacher surveys over four years
  - Background information (at baseline)
  - Induction activities
  - Attitudes (satisfaction, preparedness)
  - Mobility outcomes
- Classroom observations during year 1
- District-administered student test scores after each of the first three years

Summary of Findings

- **Induction services**
  - Control group received induction services
  - Treatment group received more induction during intervention period
- **Workforce outcomes**
  - No impact on attitudes
  - No impact on teacher retention, mobility
- **Classroom outcomes**
  - No impacts on classroom practices in the first year
  - No impacts on test scores in one-year districts
  - Positive impacts on test scores in two-year districts
    - Years 1 and 2: no impacts
    - Year 3: effect size = 0.11 (reading) and 0.20 (math)
    - Positive impacts are sensitive to sample definition

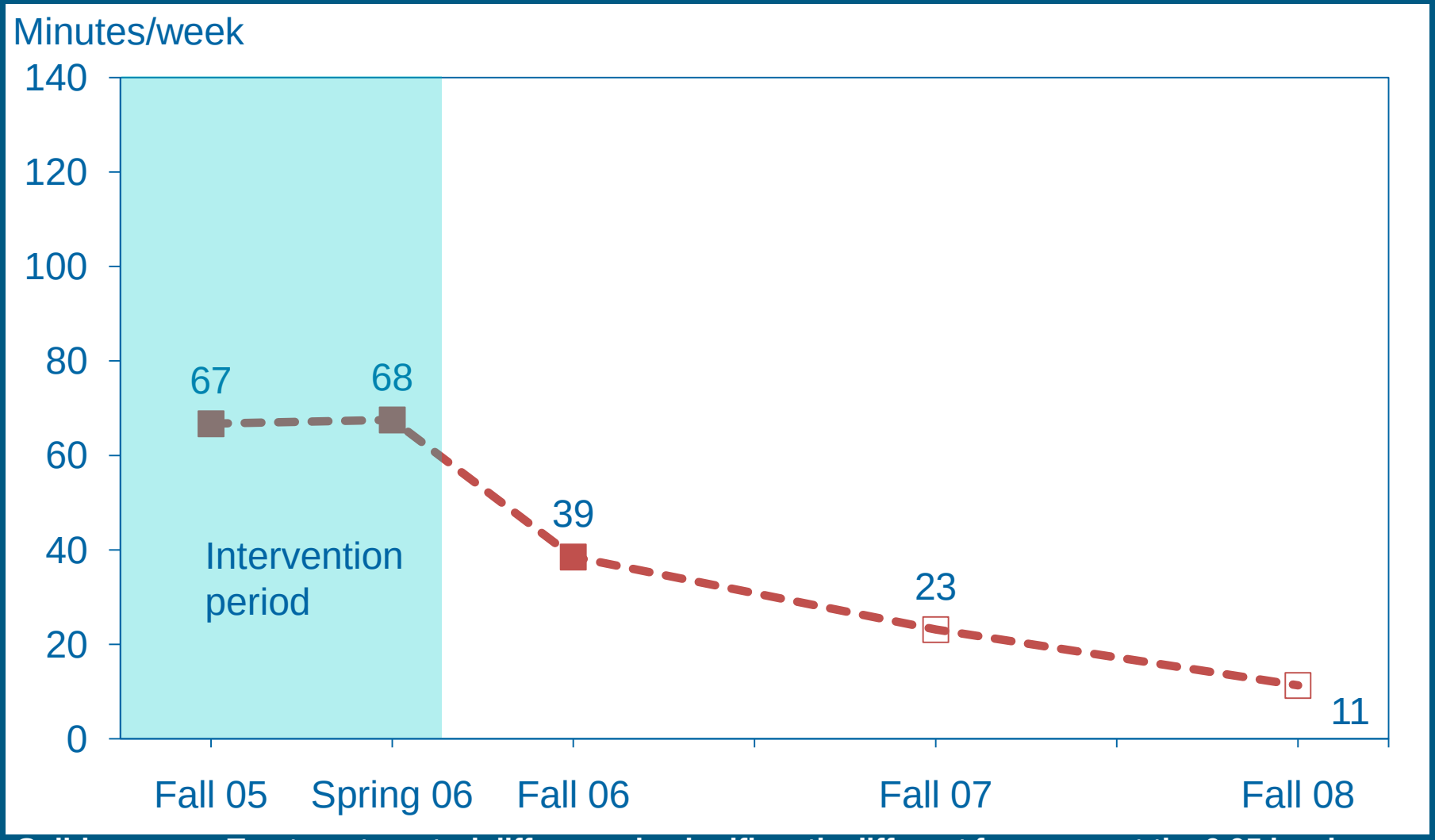
Induction Support

Time Spent with Mentors: One-Year Districts



Solid square = Treatment-control difference is significantly different from zero at the 0.05 level (n = 398 to 503 teachers).

Time Spent with Mentors: One-Year Districts



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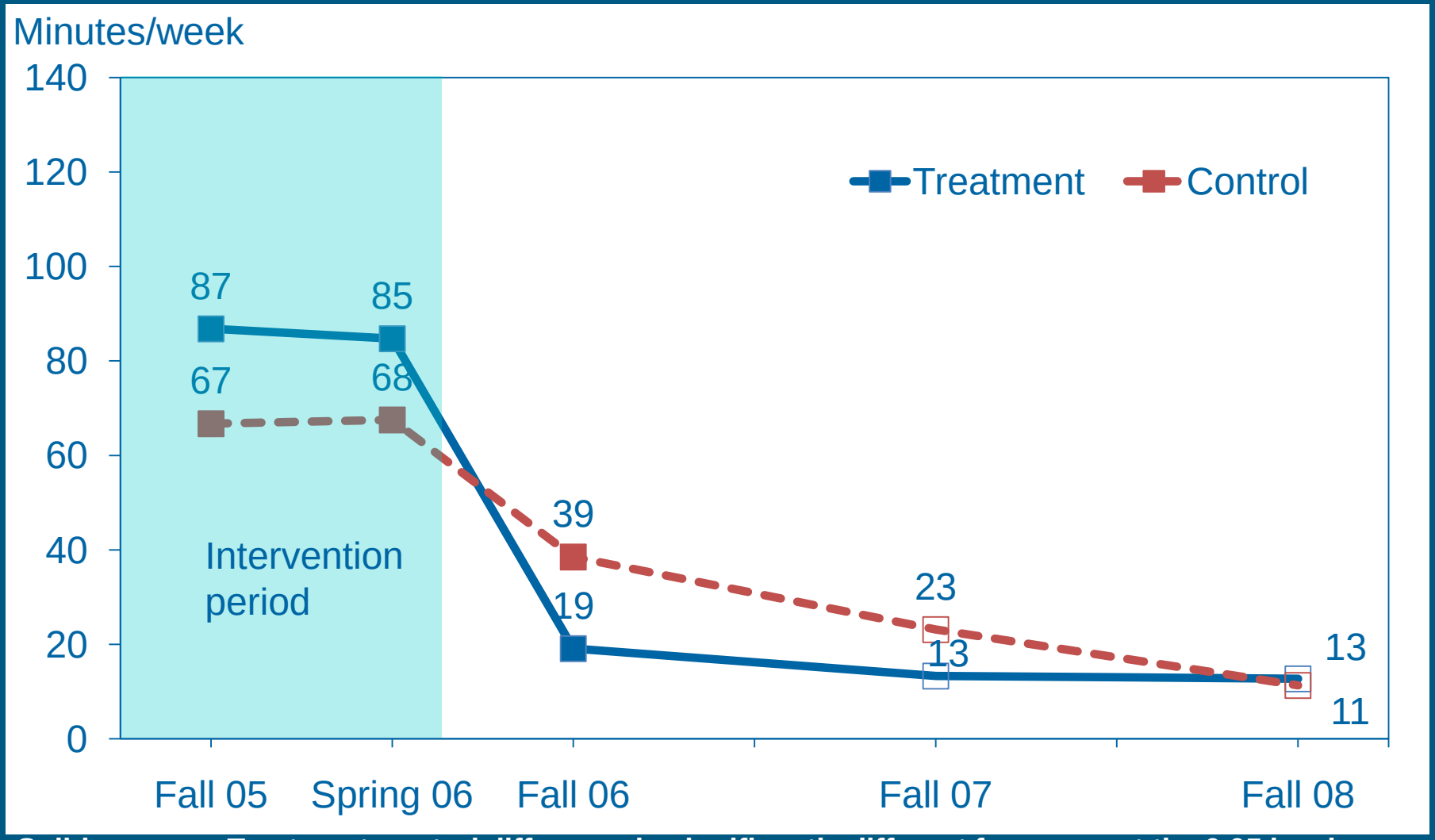
Time Spent with Mentors: One-Year Districts



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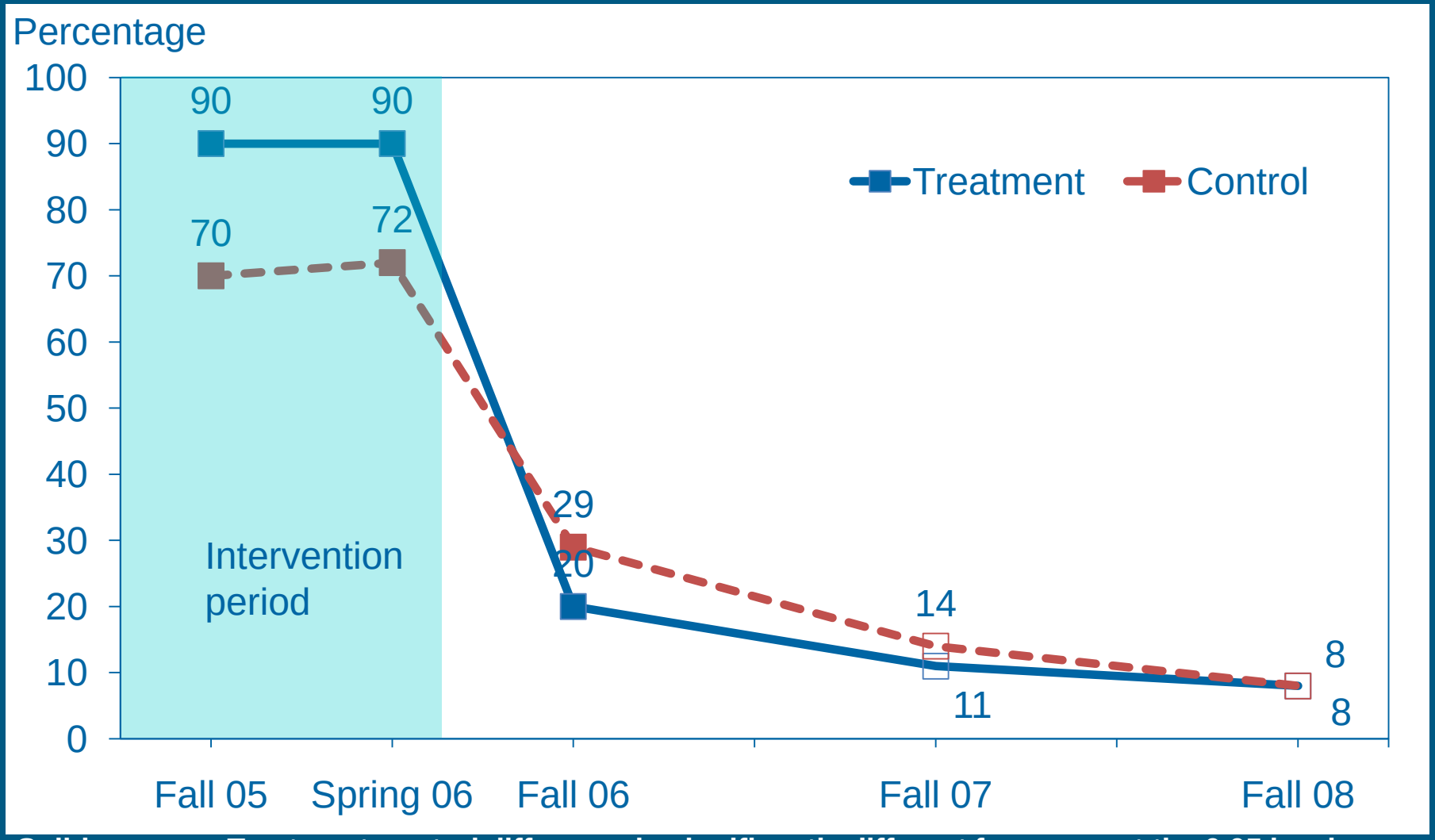
Percentage With a Mentor Assigned: One-Year Districts



Solid square = Treatment-control difference is significantly different from zero at the 0.05 level (n = 358 to 503 teachers).

Percentage Receiving Assistance in Year 1: One-Year Districts

Type of Assistance	Treatment	Control	Impact
Suggestions to improve practice	77	53	24*
Encouragement/moral support	87	66	21*
Opportunity to raise concerns	76	65	21*
Help with administrative issues	67	53	14*
Help with state/district standards	61	44	17*
Help identifying teaching challenges	82	55	27*
Instructional goals	73	48	25*
Advice on how to assess students	58	44	14*
Shared lesson plans	56	48	8
Acted on a request from beg. teacher	72	51	21*

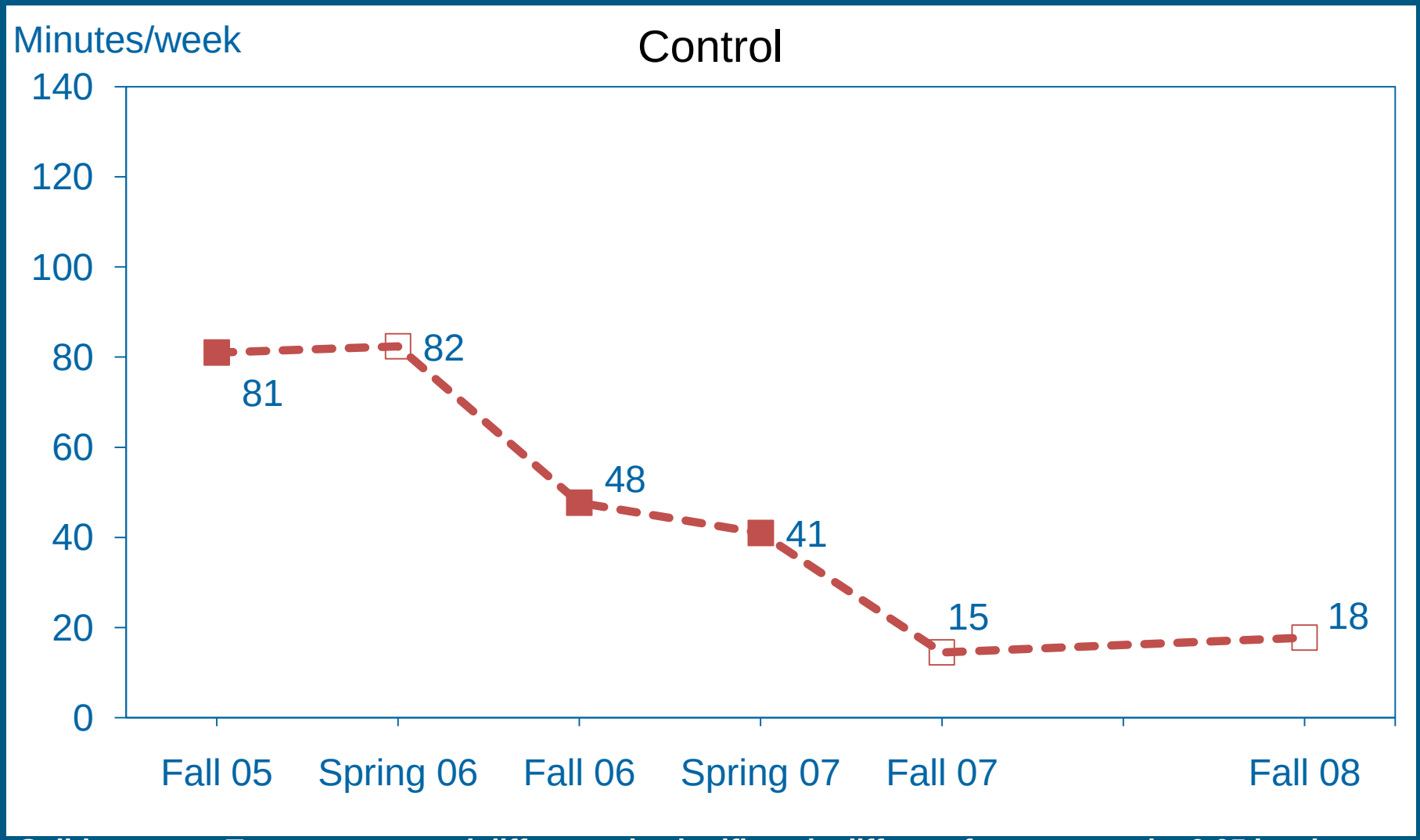
*** Treatment-control difference is significantly different from zero at the 0.05 level (n = 503 teachers).**

Percentage Receiving Assistance in Year 2: One-Year Districts

Type of Assistance	Treatment	Control	Impact
Suggestions to improve practice	15	27	-12*
Encouragement/moral support	21	33	-12*
Opportunity to raise concerns	18	32	-14*
Help with administrative issues	12	25	-12*
Help with state/district standards	11	19	-8*
Help identifying teaching challenges	16	25	-9*
Instructional goals	14	24	-10*
Advice on how to assess students	11	21	-10*
Shared lesson plans	13	23	-9*
Acted on a request from beg. teacher	12	21	-9*

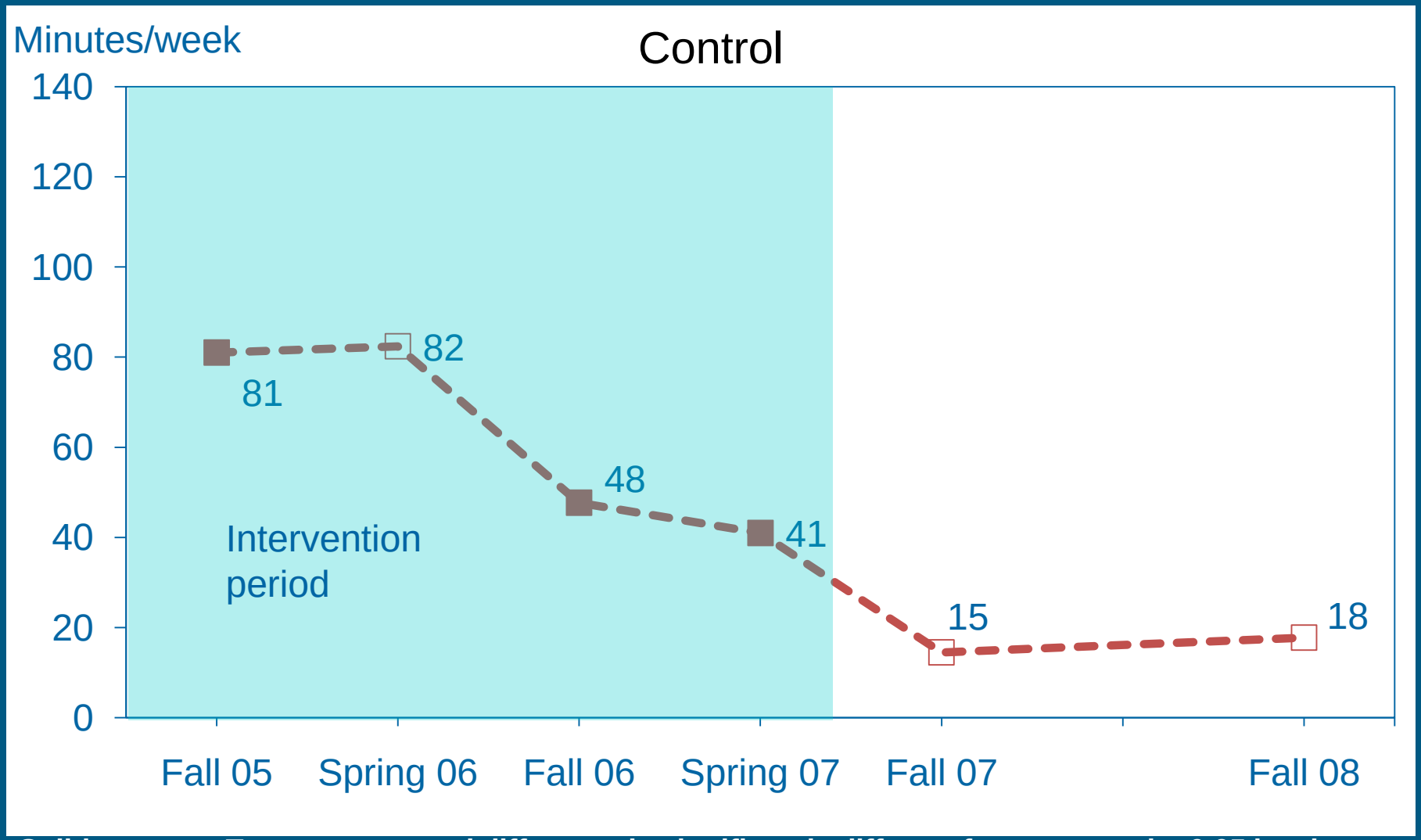
*** Treatment-control difference is significantly different from zero at the 0.05 level (n = 472 teachers).**

Time Spent with Mentors: Two-Year Districts



Solid square = Treatment-control difference is significantly different from zero at the 0.05 level (n = 321 to 395 teachers).

Time Spent with Mentors: Two-Year Districts



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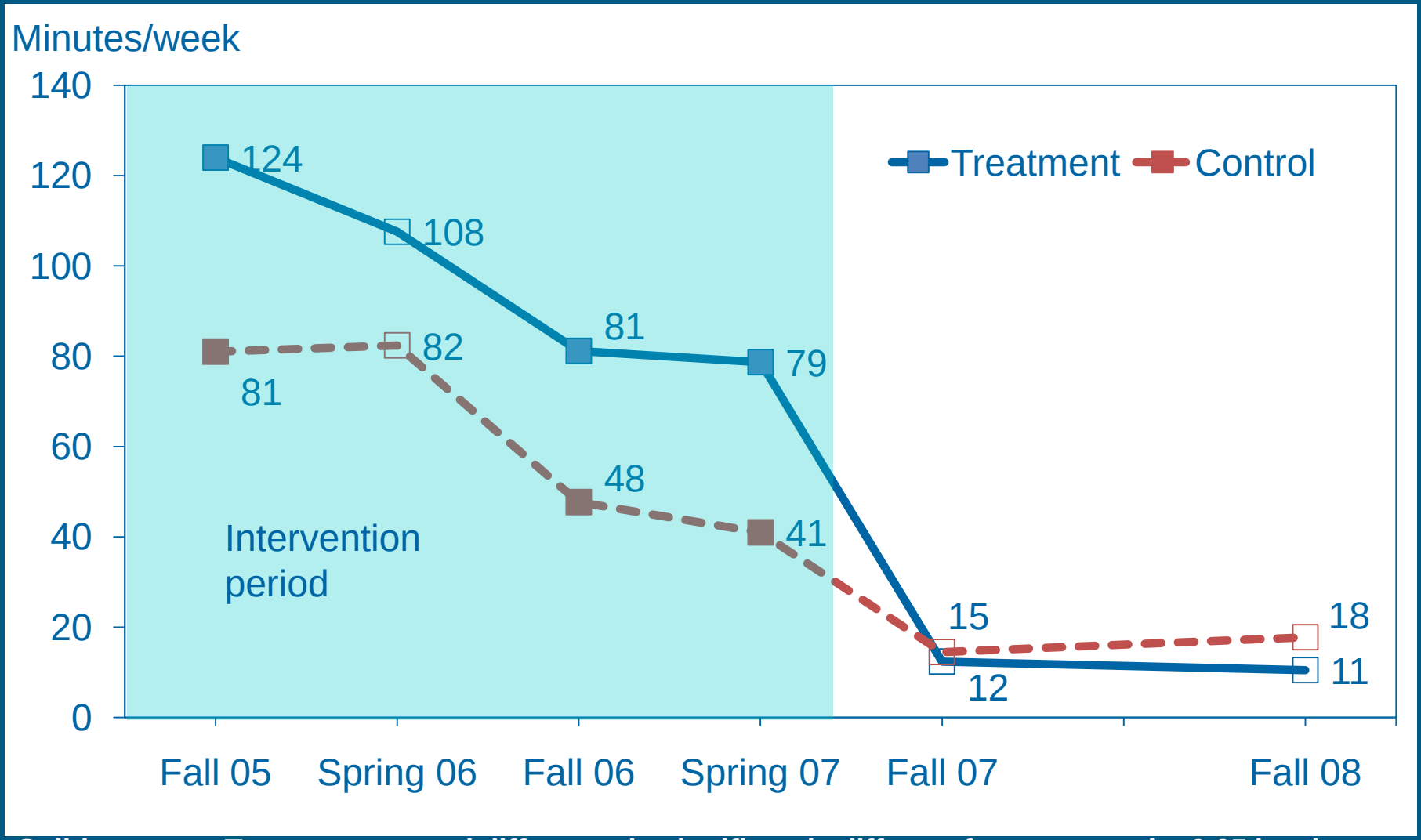
Time Spent with Mentors: Two-Year Districts



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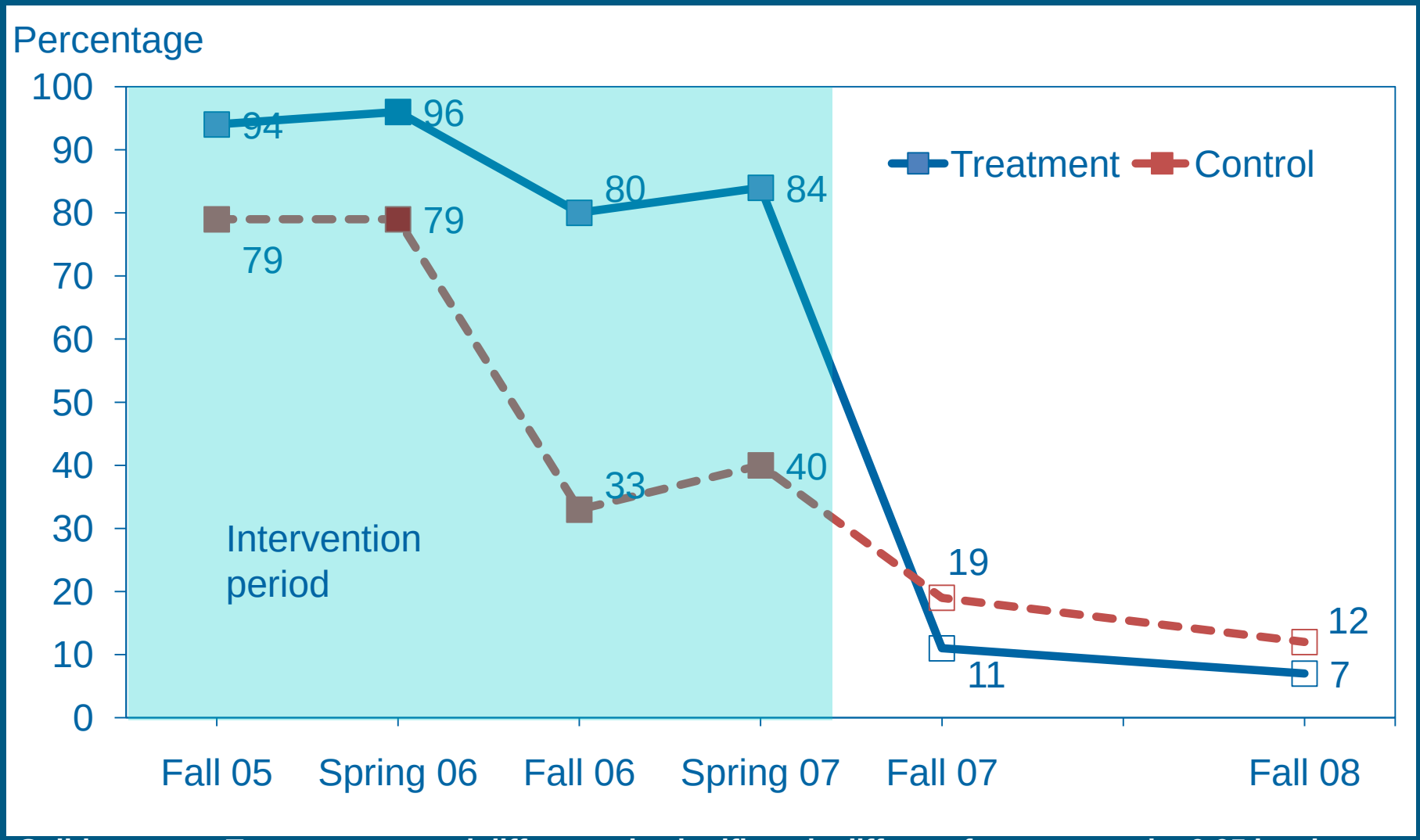
Percentage with a Mentor Assigned: Two-Year Districts



Solid square = Treatment-control difference is significantly different from zero at the 0.05 level (n = 321 to 395 teachers).

Percentage Receiving Assistance in Year 1: Two-Year Districts

Type of Assistance	Treatment	Control	Impact
Suggestions to improve practice	81	62	19*
Encouragement/moral support	92	73	19*
Opportunity to raise concerns	90	69	21*
Help with administrative issues	74	60	14*
Help with state/district standards	68	51	17*
Help identifying teaching challenges	82	58	25*
Instructional goals	75	48	27*
Advice on how to assess students	66	48	18*
Shared lesson plans	70	54	16*
Acted on a request from beg. teacher	78	50	28*

*** Treatment-control difference is significantly different from zero at the 0.05 level (n = 395 teachers).**

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Percentage Receiving Assistance in Year 2: Two-Year Districts

Type of Assistance	Treatment	Control	Impact
Suggestions to improve practice	62	23	40*
Encouragement/moral support	72	30	43*
Opportunity to raise concerns	72	28	44*
Help with administrative issues	63	24	38*
Help with state/district standards	55	22	33*
Help identifying teaching challenges	64	23	41*
Instructional goals	57	26	31*
Advice on how to assess students	50	21	29*
Shared lesson plans	54	25	28*
Acted on a request from beg. teacher	60	23	37*

*** Treatment-control difference is significantly different from zero at the 0.05 level (n = 360 teachers).**

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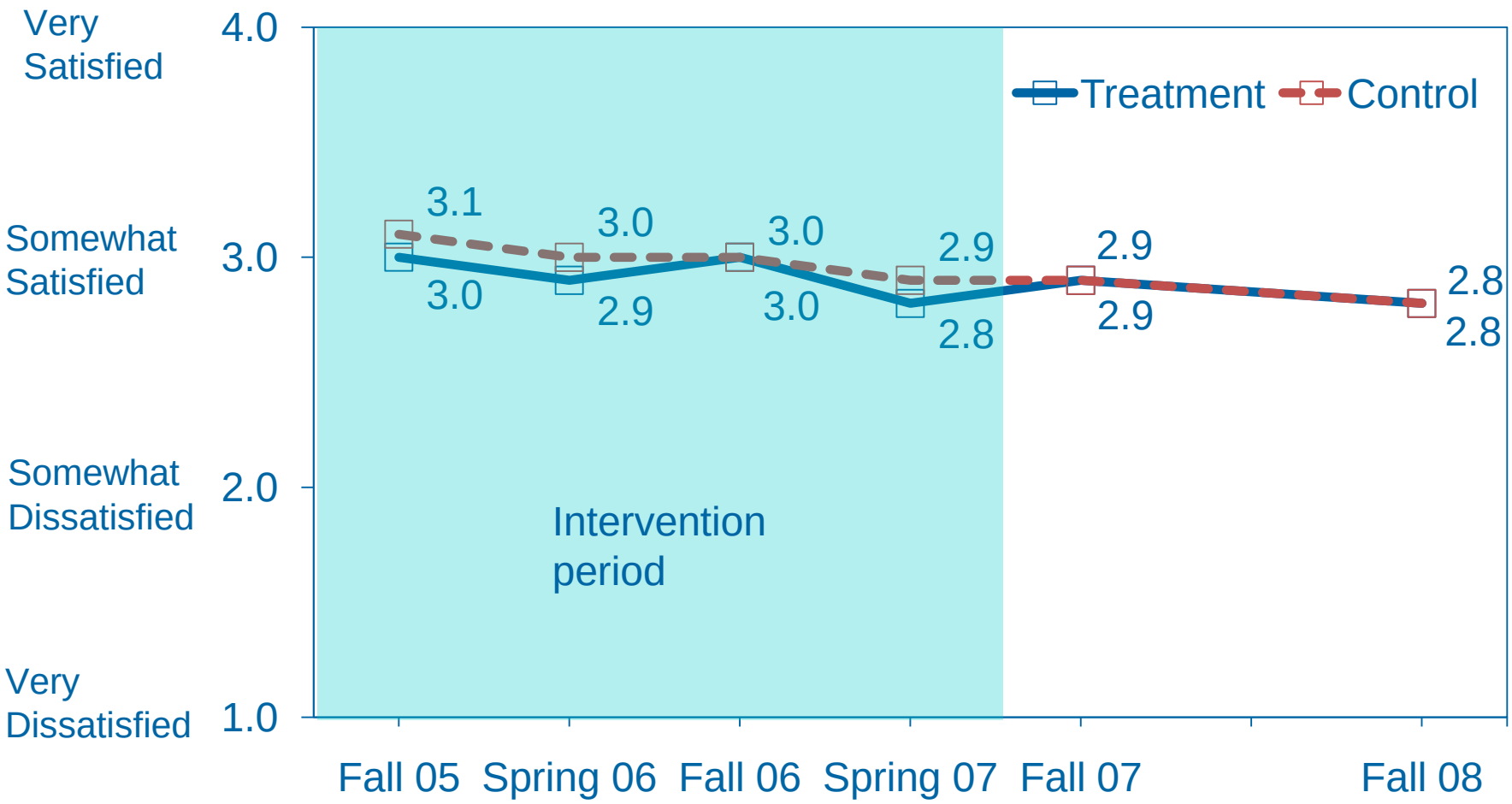
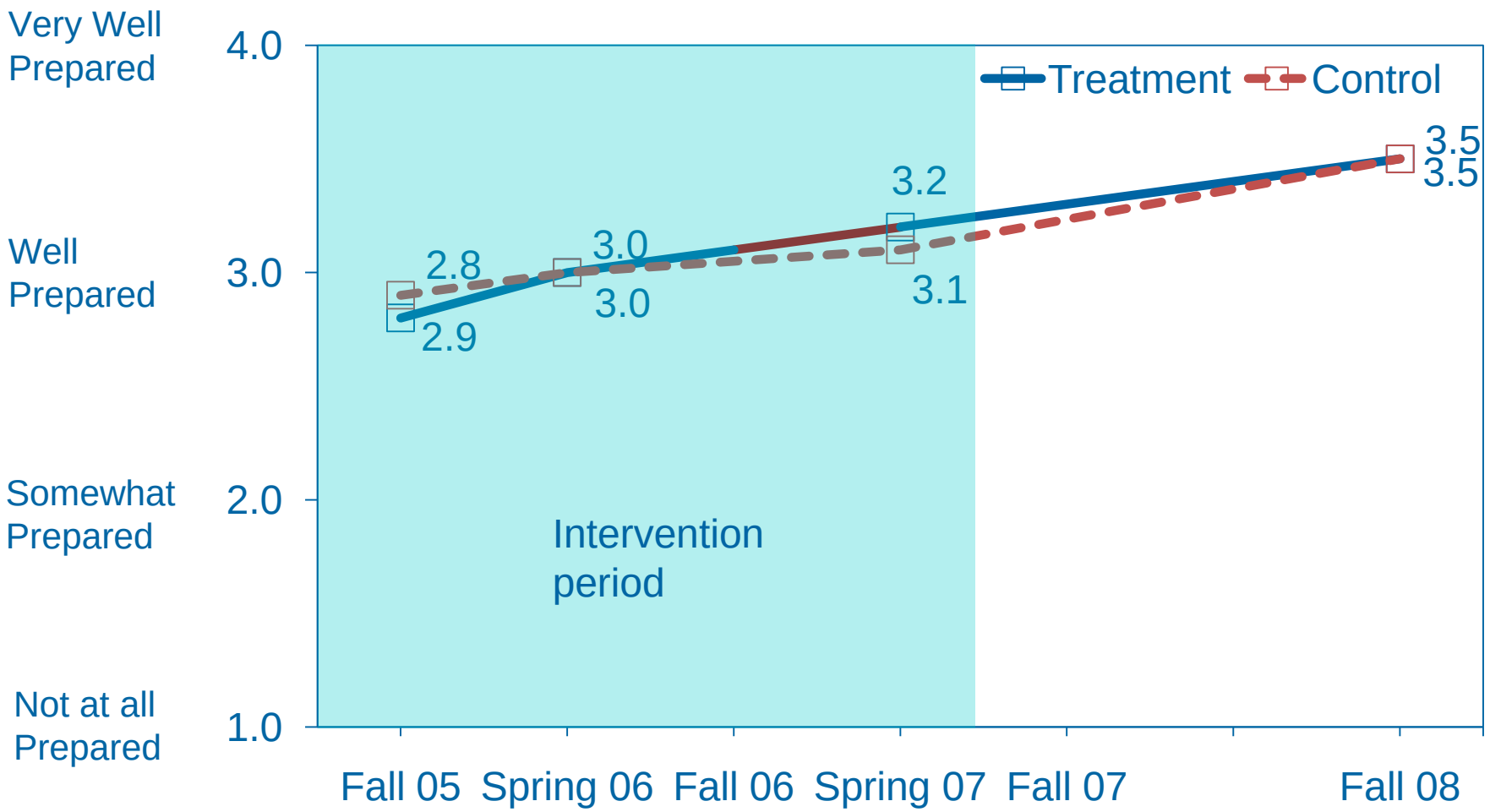
Impacts on the Workforce:
Teacher Attitudes

Teacher Satisfaction with School: Two-Year Districts



Treatment-control differences are not significantly different from zero at the 0.05 level (n = 318 to 391 teachers).

Teacher Preparedness to Instruct: Two-Year Districts



Treatment-control differences are not significantly different from zero at the 0.05 level (n = 308 to 394 teachers).

No Impacts on Teacher Attitudes

- No significant impacts on satisfaction with—
  - Career
  - School
  - Class
- No significant impacts on feelings of preparedness to—
  - Instruct
  - Work with others
  - Work with students

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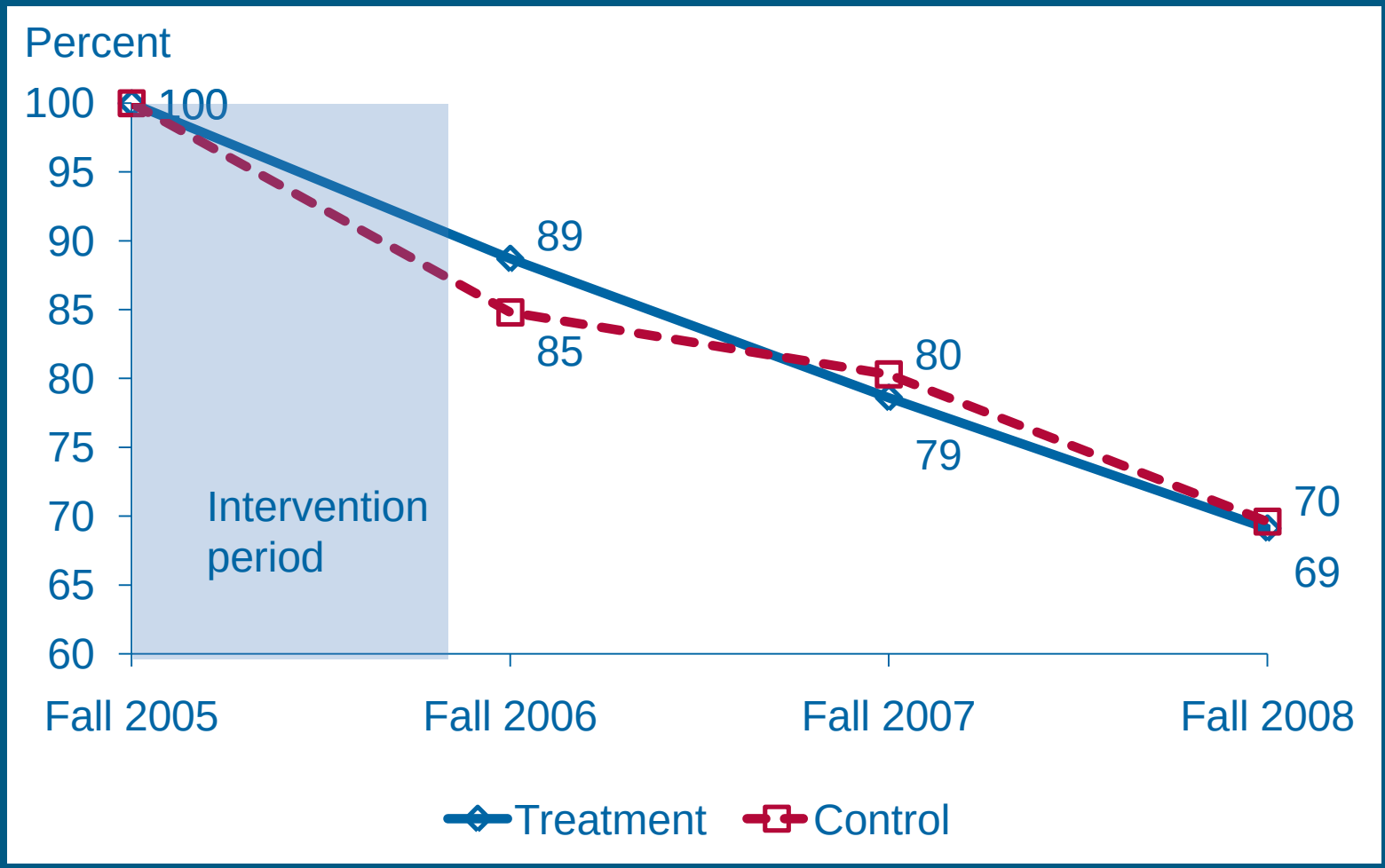
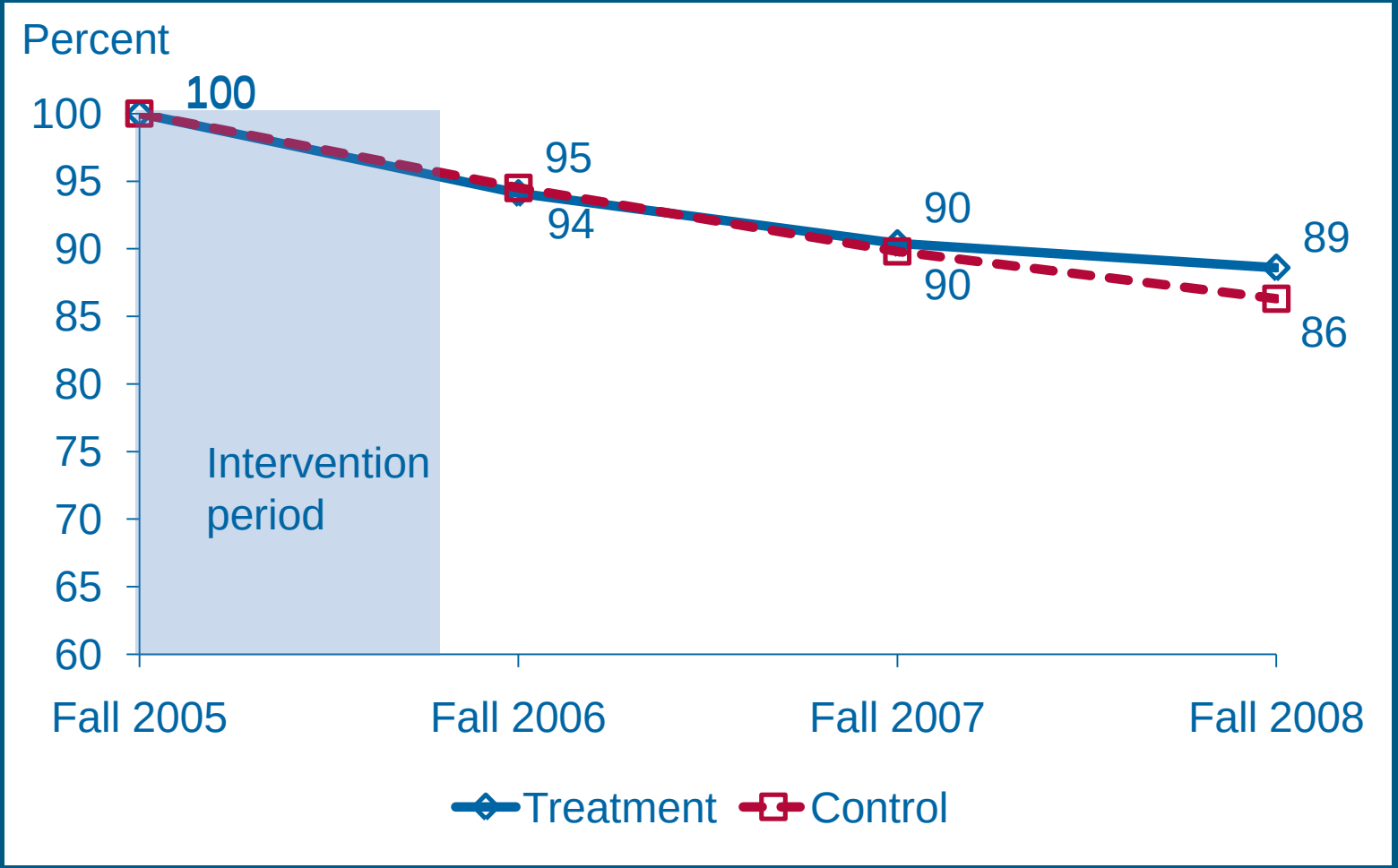
Impacts on the Workforce:
Teacher Mobility

Retention in the District: One-Year Districts



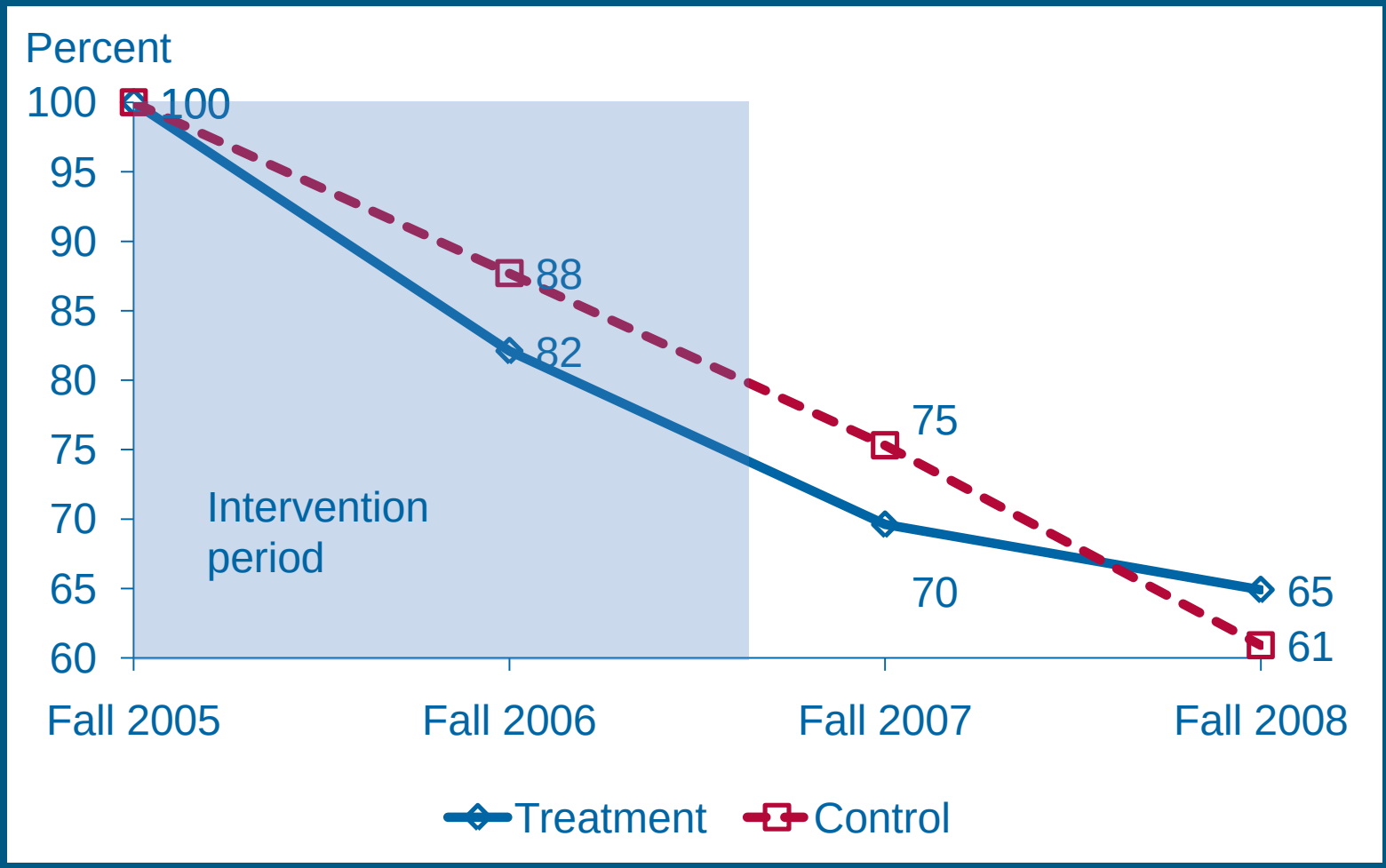
Treatment-control differences are not significantly different from zero at the 0.05 level (n = 417 to 561 teachers).

Retention in Teaching: One-Year Districts



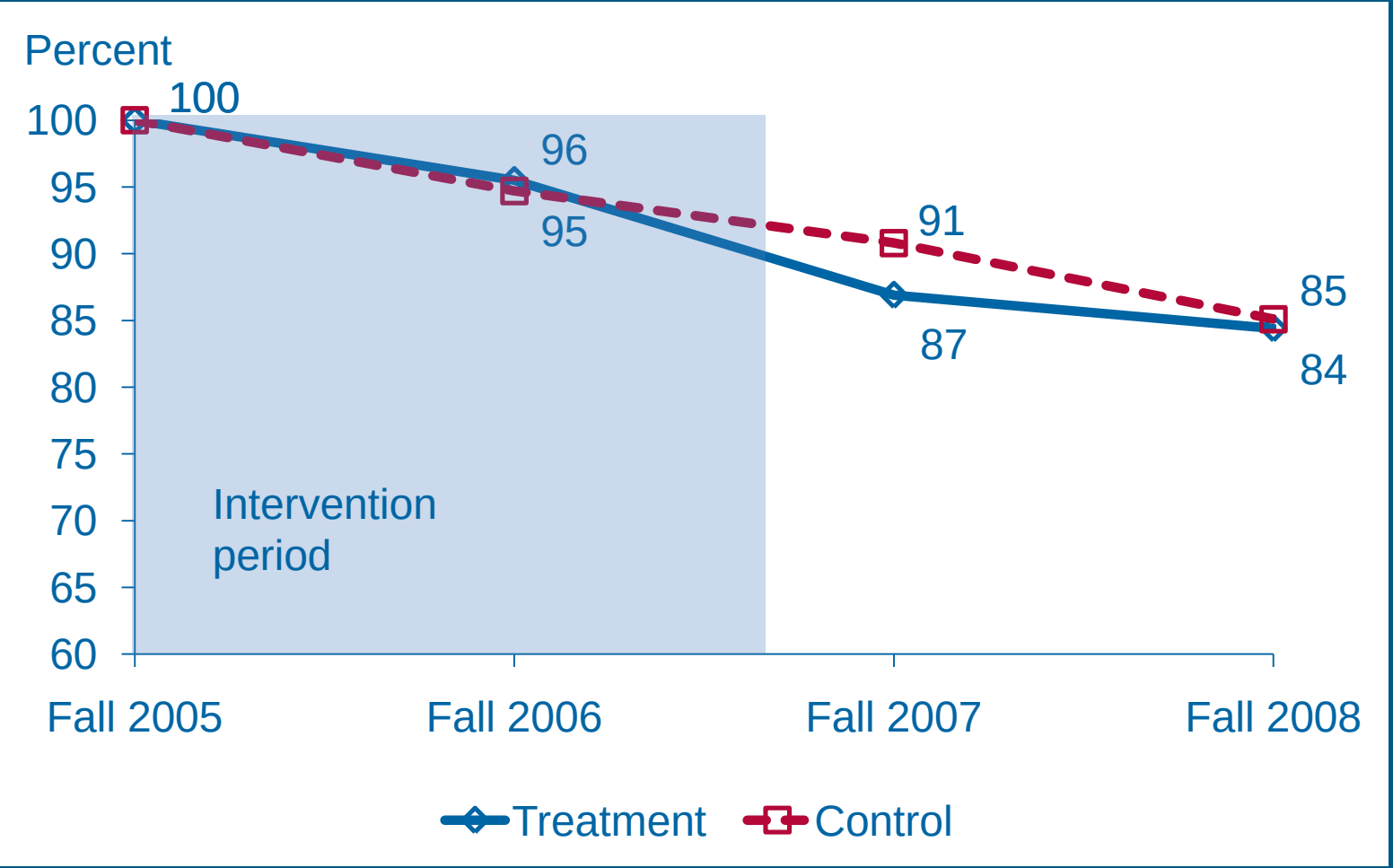
Treatment-control differences are not significantly different from zero at the 0.05 level (n = 464 to 561 teachers).

Retention in the District: Two-Year Districts



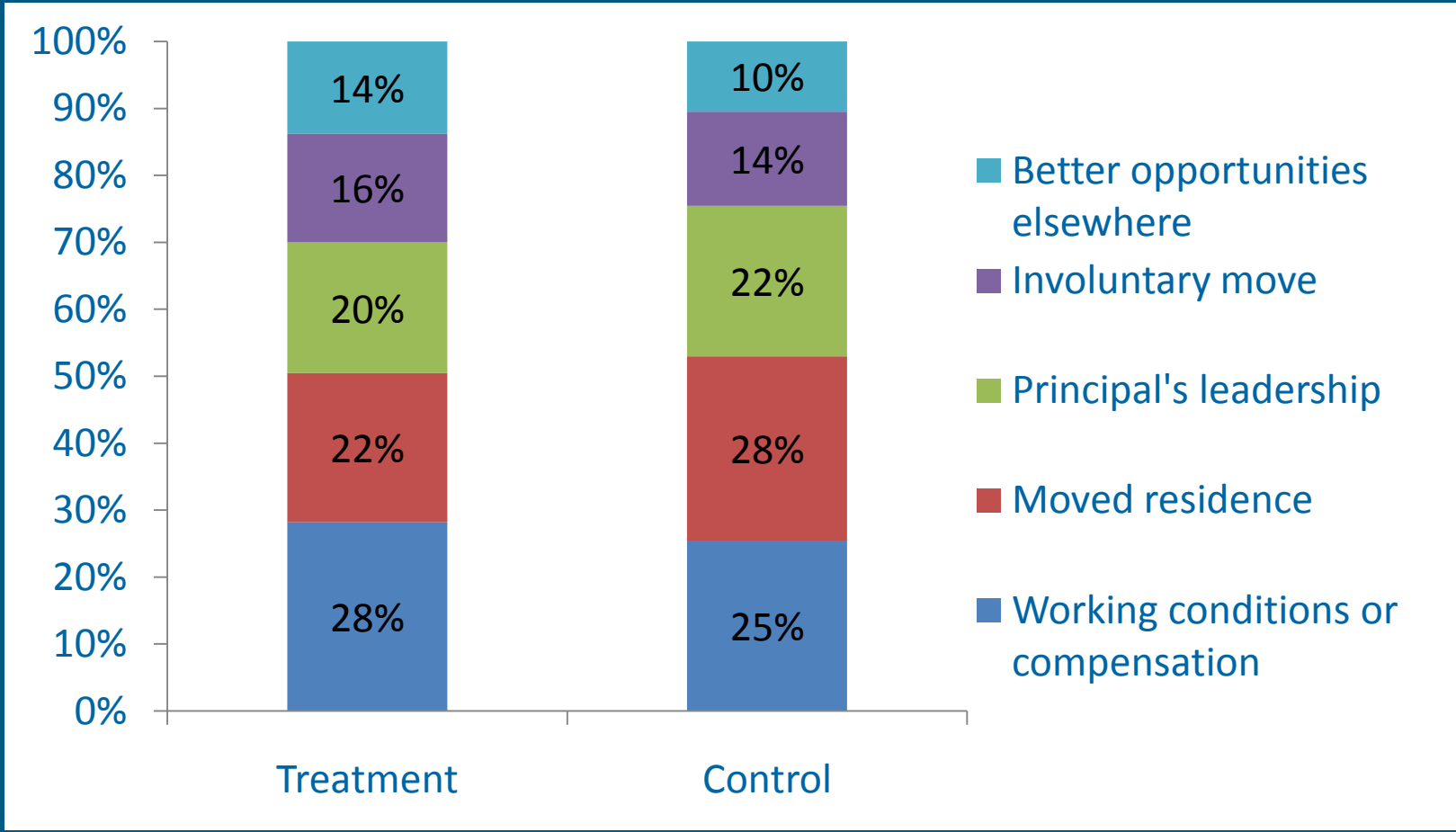
Treatment-control differences are not significantly different from zero at the 0.05 level (n = 345 to 448 teachers).

Retention in Teaching: Two-Year Districts



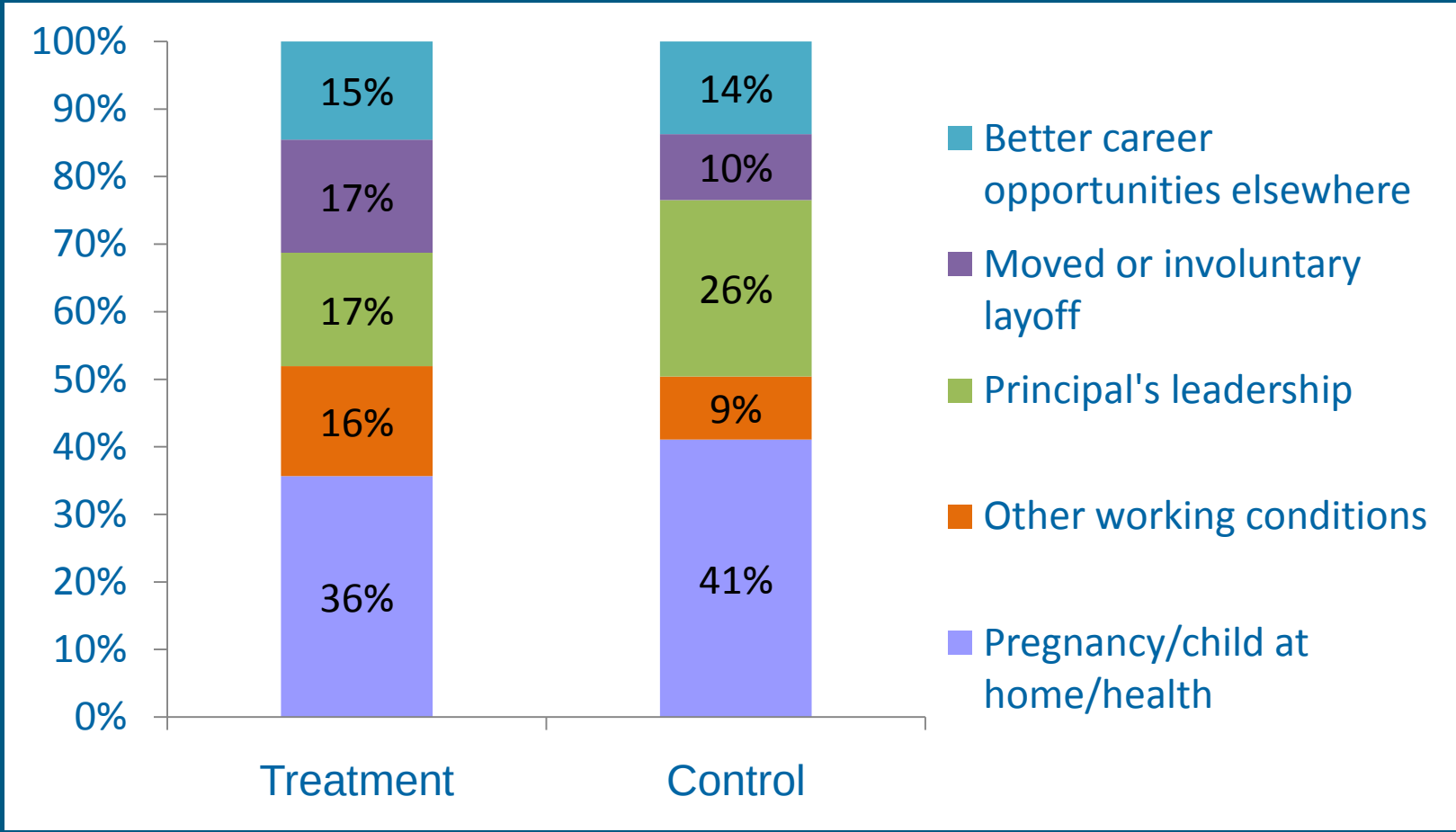
Treatment-control differences are not significantly different from zero at the 0.05 level (n = 375 to 448 teachers).

Reasons for Changing Schools



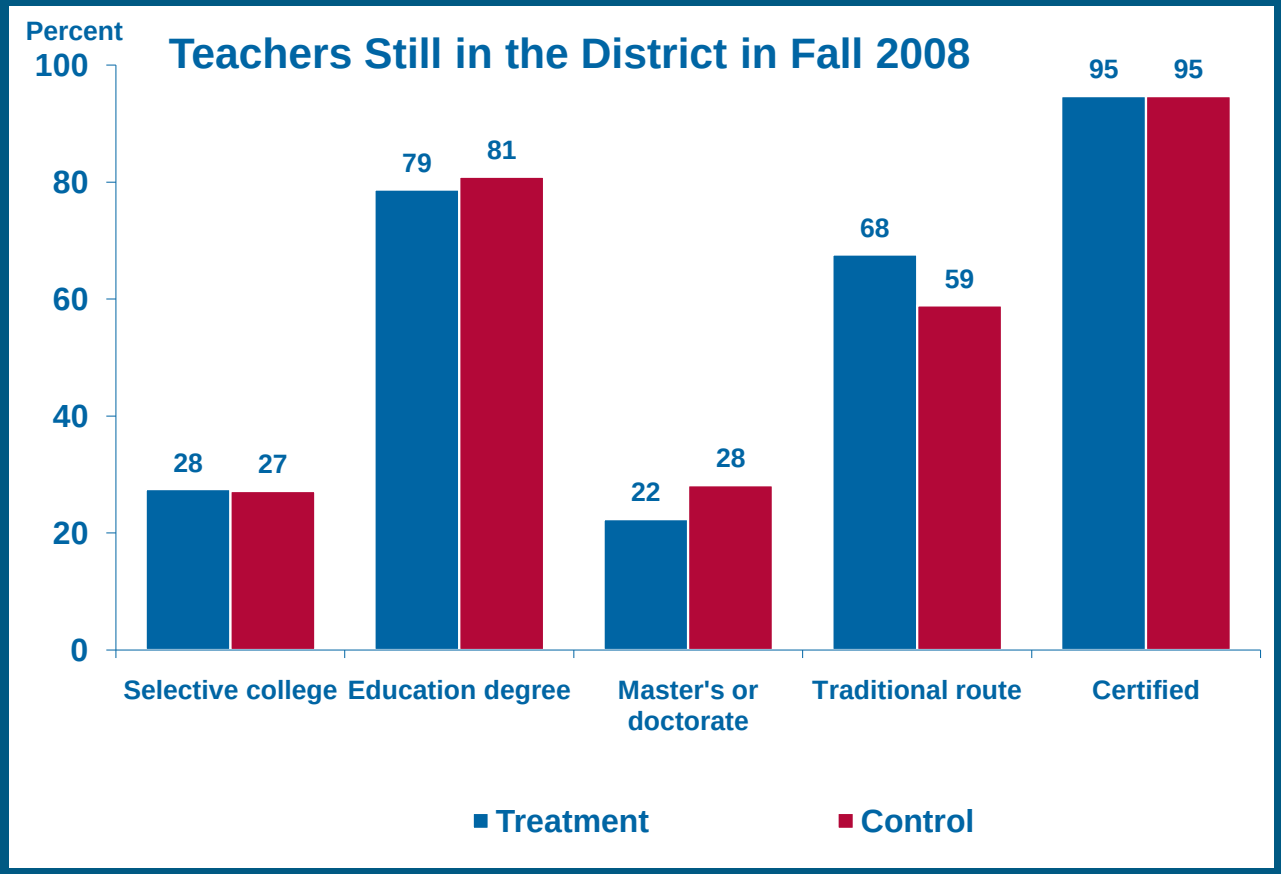
Treatment-control differences are not significantly different from zero at the 0.05 level (n = 227 teachers).

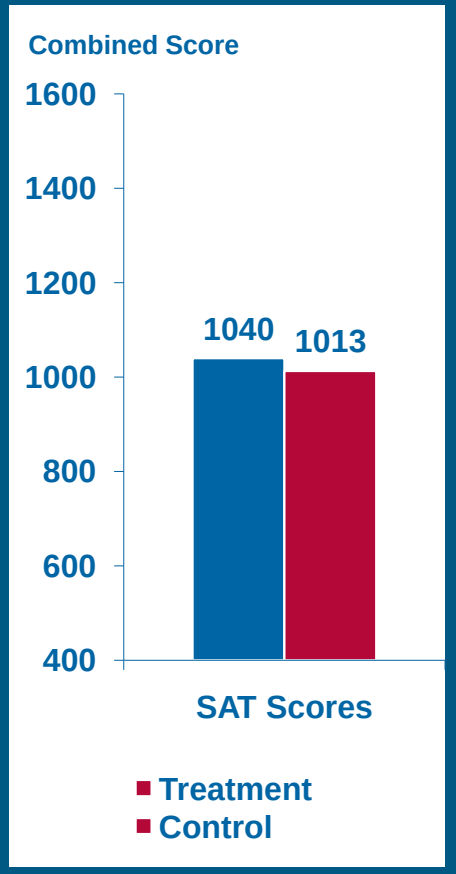
Reasons for Leaving Teaching



Treatment-control differences are not significantly different from zero at the 0.05 level (n = 97 teachers).

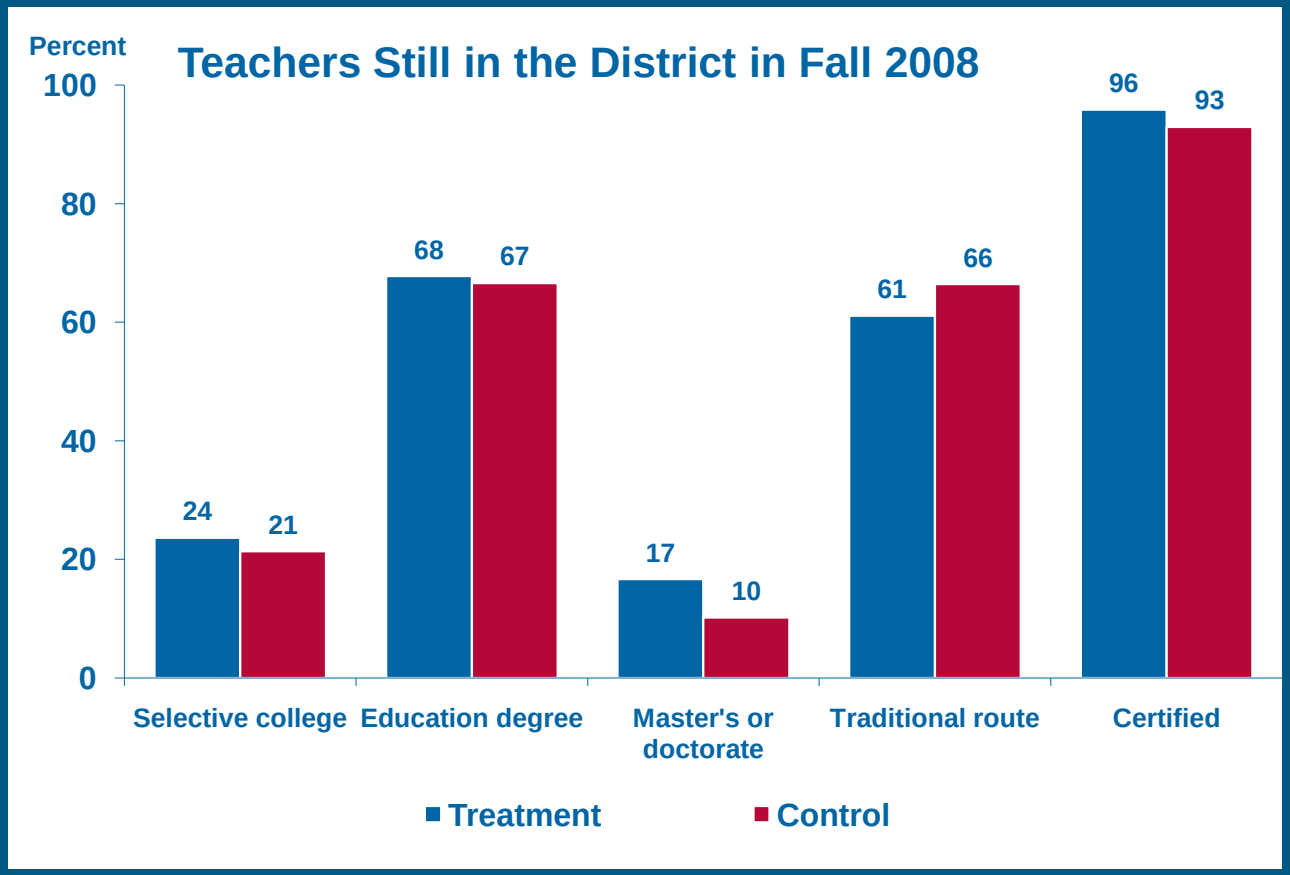
Composition Effects: One-Year Districts

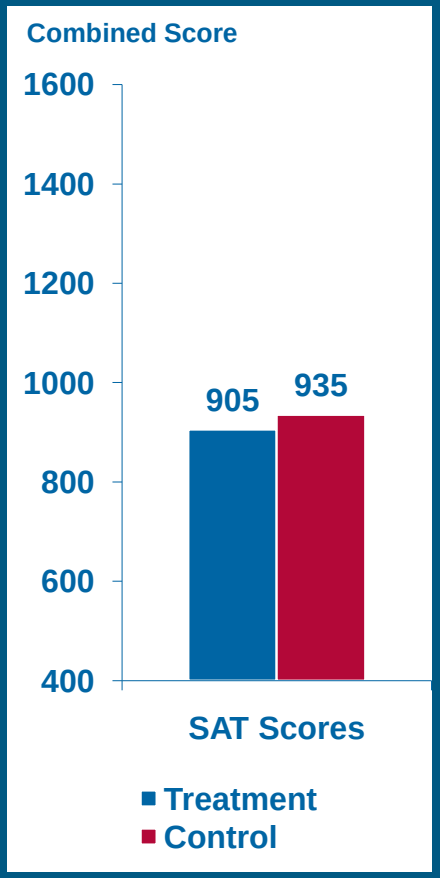




Treatment-control differences are not significantly different from zero at the 0.05 level (n = 287 teachers).

Composition Effects: Two-Year Districts





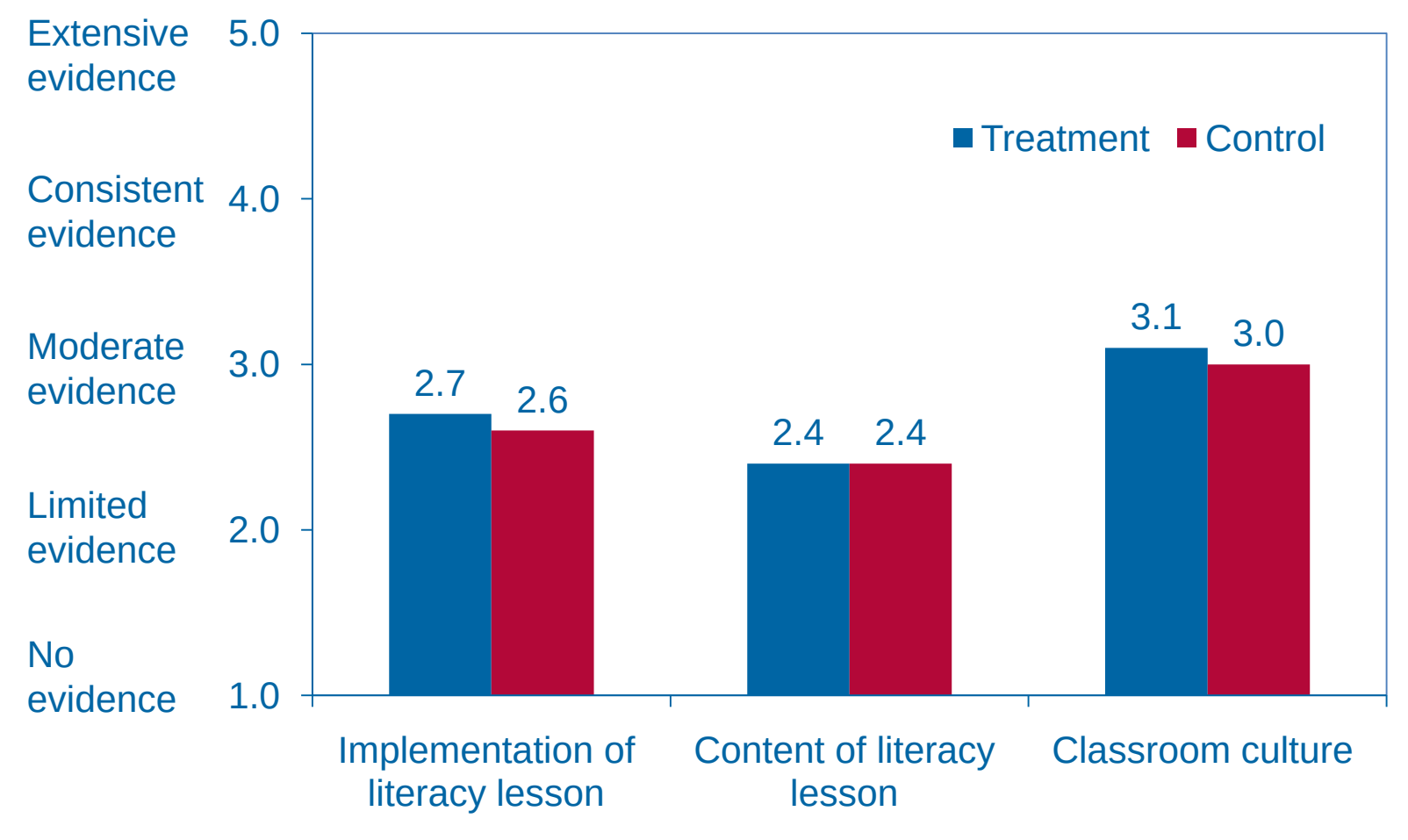
Treatment-control differences are not significantly different from zero at the 0.05 level (n = 217 teachers).

No Composition Effects

- Treatment stayers vs. control stayers
- Findings
  - Professional characteristics of teachers: no difference
  - Classroom practices in year 1: no positive impact
  - Student achievement in year 3: no positive impact

Impacts on the Classroom:
Teacher Practices

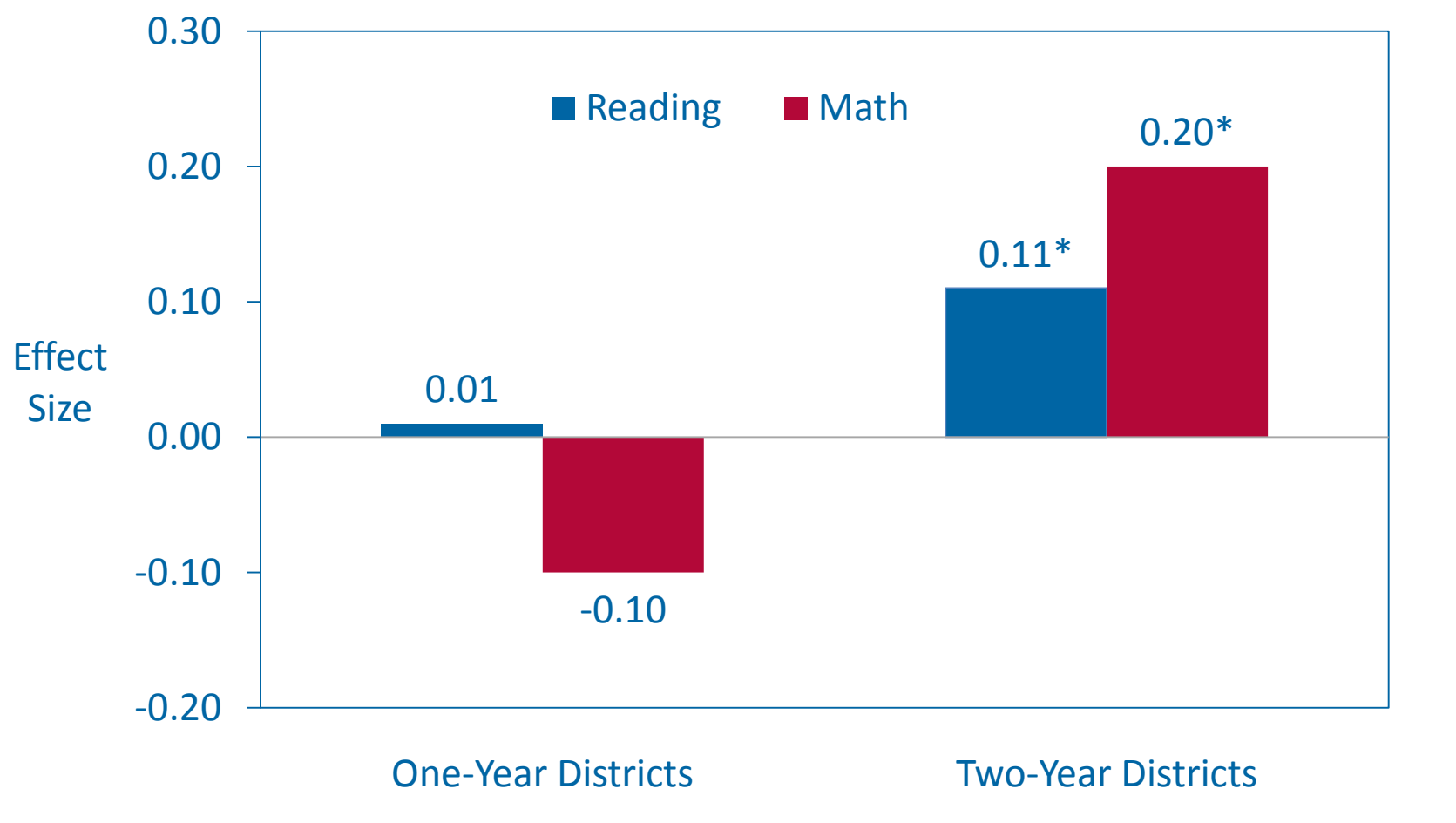
No Impact on Year 1 Classroom Practices



Treatment-control differences are not significantly different from zero (n = 631 teachers).

Impacts on the Classroom:
Student Achievement

Impacts on Test Scores, Year 3

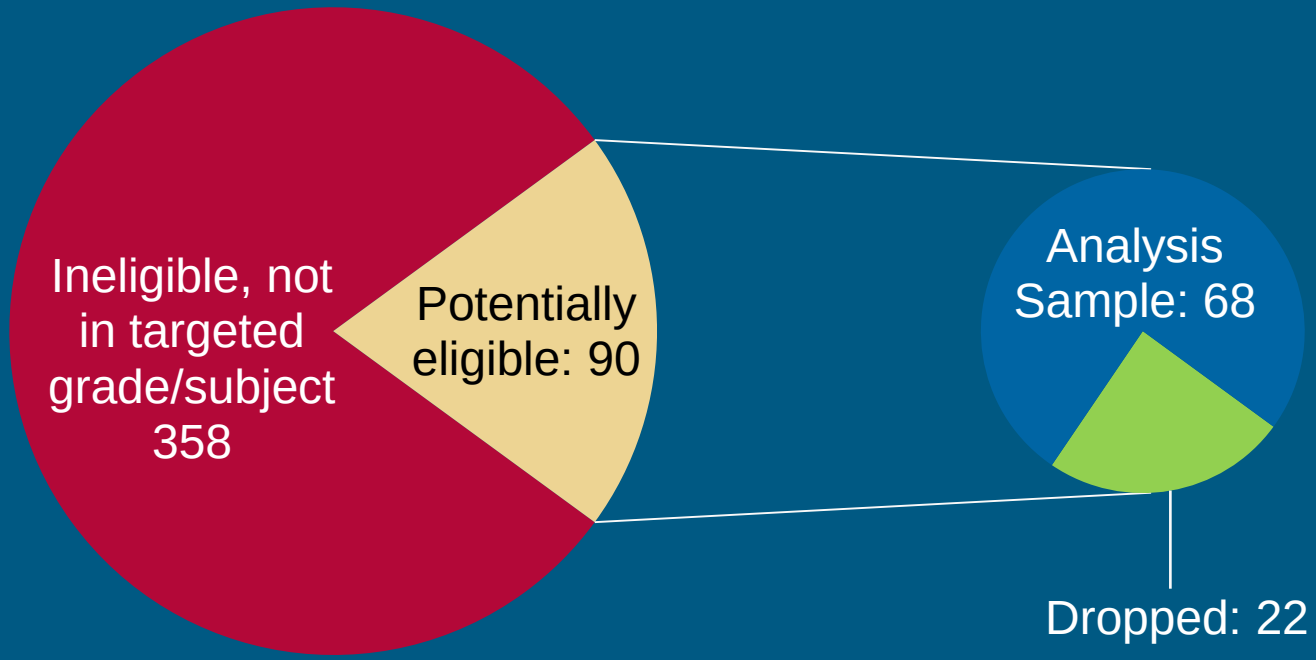


***Treatment-control difference is significantly different from zero at the 0.05 level (n = 95 to 99 teachers in one-year districts and 68 to 74 teachers in two-year districts).**

How Robust Are Year 3 Test Score Findings?

- Different rules for including/excluding teachers
- Different methods for estimating impact
  - Some negative impacts for math in one-year districts
  - No change otherwise
- Addition of "bottom grade" and other students with no pretest
  - All impacts are statistically insignificant

Sample Size for Test Score Analysis: Two-Year Districts



Sensitivity Tests, Year 3 Impact on Reading in Two-Year Districts

Model	Impact (Effect Size)	Standard Error	Sample Size (Teachers)
1. Benchmark	**0.11***	**0.05**	**74**
2. Drop data restrictions	0.11*	0.05	74
3. Allow comparisons across grades	0.16*	0.05	82
4. Drop pretest, benchmark sample	0.05	0.08	74
5. Drop pretest, expanded sample	-0.07	0.09	127

***Significantly different from zero at the 0.05 level.**

Sensitivity Tests, Year 3 Impact on Math in Two-Year Districts

Model	Impact (Effect Size)	Standard Error	Sample Size (Teachers)
1. Benchmark	**0.20***	**0.05**	**68**
2. Drop data restrictions	0.23*	0.05	70
3. Allow comparisons across grades	0.13*	0.06	77
4. Drop pretest, benchmark sample	0.15	0.08	68
5. Drop pretest, expanded sample	-0.03	0.09	120

***Significantly different from zero at the 0.05 level.**

Summary of Findings

- **Induction services**
  - Control group received induction services
  - Treatment group received more induction during intervention period
- **Workforce outcomes**
  - No impact on attitudes
  - No impact on teacher retention, mobility
- **Classroom outcomes**
  - No impacts on classroom practices in the first year
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  - Positive impacts on test scores in two-year districts
    - Years 1 and 2: no impacts
    - Year 3: effect size = 0.11 (reading) and 0.20 (math)
    - Positive impacts are sensitive to sample definition

Questions to Consider

- **Existence of de facto induction**
  - Are veteran teachers helping more than district leaders realize?
  - How well are services coordinated?
- **Quantity and timing of services**
  - Can novice teachers be overloaded?
  - Are services in the second year more beneficial?

For More Information

- **Please contact**
  - **Steve Glazerman**
    - sglazerman@mathematica-mpr.com
- **Report is available online**
  - **http://ies.ed.gov/ncee/pubs/20104027/**

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