

# Incentives, Selection, and Teacher Performance

Thomas S. Dee (Stanford GSE & NBER) and  
James Wyckoff (University of Virginia)

# Motivation

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- ▶ A growing research consensus...
  - ▶ Large educational and economic returns to students when assigned to higher rather than lower-quality teachers
    - ▶ For example, replacing a bottom 5% teacher with an average teacher for 1 year increases lifetime income by an amount equal to \$250k in present value per classroom (Chetty et al. 2011)
  - ▶ But most easily observed teacher traits (e.g., experience, credentials) predict teacher quality only modestly.

# Motivation

- ▶ How to drive systematic improvements in teacher quality?
  - ▶ Interest in rethinking conventional teacher training and broadening pathways into the teaching profession
  - ▶ Substantial expenditures on teacher professional-development but little rigorous evidence on efficacy (Yoon et al. 2007)
  - ▶ Interest in teacher-compensation reforms
    - ▶ Teacher pay is currently based on rigid “single-salary” schedules that reward experience & credentials
    - ▶ Assessments of teacher performance are typically low-stakes “drive-by” without meaningful implications for pay, promotion, or targeted professional development

# The Diffusion of New Reforms

- ▶ **Pilots that reconceive teacher evaluation, pay, and tenure**
  - ▶ Strong federal encouragement through Race to the Top (RttT), Teacher Incentive Fund (TIF), School Improvement Grants (SIG), and NCLB Waivers
- ▶ **A fitful and uncertain implementation?**
  - ▶ Three big-city TIF awardees (NYC, Chicago, and Milwaukee) recently returned their funds because they could not secure teacher buy-in
  - ▶ Slow implementation of teacher evaluation in schools with SIG awards?
  - ▶ US DoED now allowing states with first NLCB waivers to delay teacher evaluation systems until AY 2016-17
  - ▶ State reforms complicated by the simultaneous roll-out of Common Core State Standards?

# Recent evidence on teacher incentives

- ▶ Several recent “cash for test scores” experiments suggest no impact of incentives on teacher performance. Why?
- ▶ Teachers already highly motivated; marginal effect of incentives is slight?
- ▶ Test score targets were too ambitious to motivate teachers or weakly powered because they were often group-based?
- ▶ Incentives are muted when linked to a singular outcome (i.e., test scores) over which teachers don’t perceive that they have direct control?
- ▶ Extant teachers lack the capacity or willingness to respond to incentives?
  - ▶ Better teacher supports are necessary and/or...
  - ▶ Differential recruitment of higher-quality teachers is more relevant than improving existing teachers.

# New Insights from DC Public Schools?

- ▶ IMPACT is the seminal, high-profile and uniquely ambitious performance assessment system introduced in DC Public Schools (DCPS) under then-Chancellor Michelle Rhee during AY 2009-10
- ▶ Teachers were evaluated annually on multiple measures and received an overall score [100, 400]



# Why is IMPACT Unique?

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- ▶ *High-powered and individual* incentives (i.e., both large financial incentives but also *dismissal threats*)
- ▶ Teacher performance based on multiple measures (mostly classroom observation), not test scores alone (MET 2013)
- ▶ Implementation details: communication of expectations, rater training & data systems, teacher supports to meet expectations (e.g., instructional coaches)
- ▶ An at-scale, enduring system in a major urban school district, not a small-scale, temporary pilot

# IMPACT Timeline

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- ▶ Fall 2006: Adrian Fenty elected Mayor of District of Columbia
  - ▶ January 2007: Fenty introduces legislation to restructure DCPS on first day in office
  - ▶ June 2007: Hours after officially assuming control of DCPS, Fenty announces Michelle Rhee as Chancellor
- ▶ March 2009: Rhee informs Council that a new teacher-evaluation system that includes student achievement data and classroom observation will be implemented in fall 2009
- ▶ Summer 2010: First DCPS teachers rated as Ineffective are dismissed; ME teachers under dismissal threat?
- ▶ September 2010: Fenty loses Democratic primary to Vincent Gray; Rhee resigns.
- ▶ March 2011: Kaya Henderson named Chancellor of DCPS
- ▶ Summer 2011: Teachers rated as Ineffective in 2010-11 are dismissed. *Teachers with second consecutive ME rating are dismissed for the first time.*

# Components of IMPACT Scores

- ▶ Teaching and Learning Framework (TLF): Classroom observations (3 by administrator, 2 by “master educator”) on rubric for effective instruction (e.g., well-organized, objective-driven lessons, checking for student understanding, etc.)
- ▶ Individual Value Added (IVA): *Growth* of teacher’s students on DC Comprehensive Assessment System (CAS) tests conditional on student and peer traits
- ▶ Teacher-Assessed Student Achievement (TAS): teachers choose (and administrators approve) learning goals based on non-CAS assessment(s)
  - ▶ At end of year, administrator rates success with rubric that privileges years of student learning or content mastery
- ▶ Commitment to School Community (CSC): administrator rates teacher support of school initiatives, promotion of high expectations, partnership with colleagues & parents
- ▶ School Value-Added Student Achievement (SVA): growth measure based on DC CAS

# Weighting of IMPACT Components

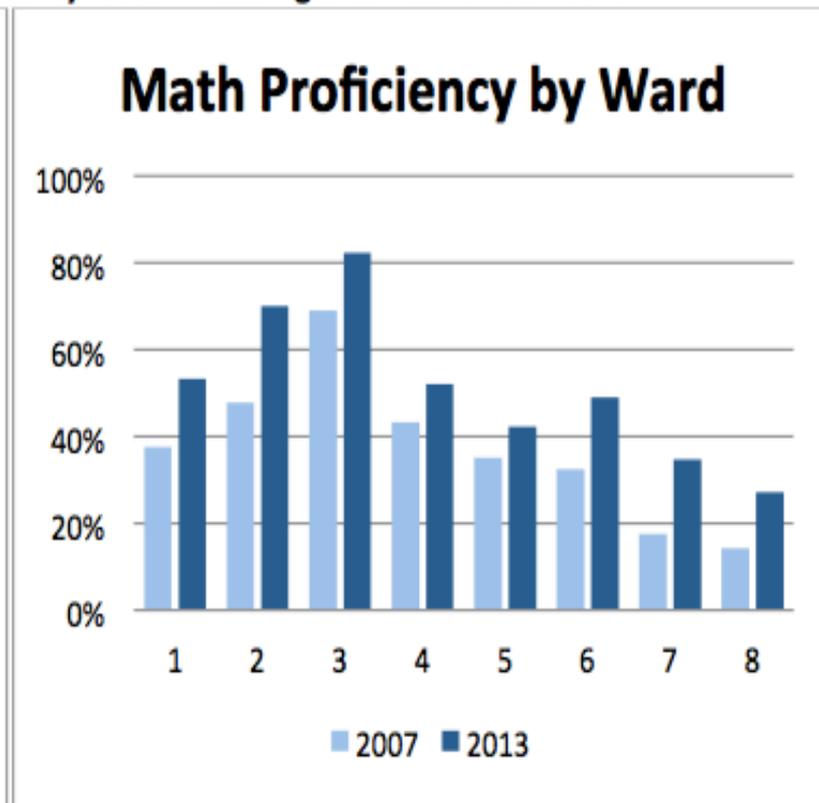
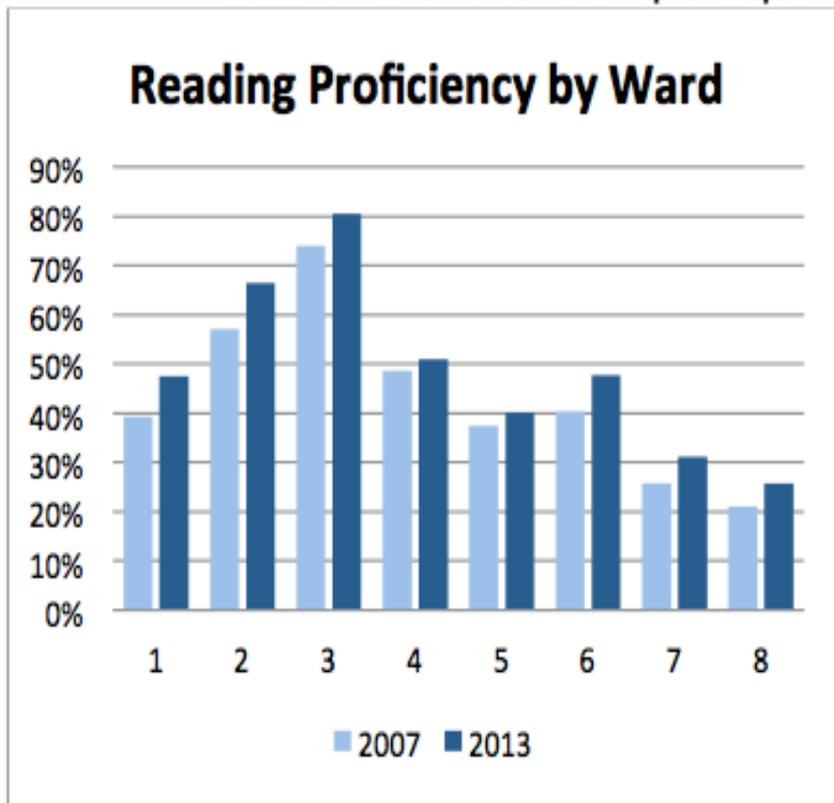
- ▶ ~80% of general-education teachers are “Group 2”. IVA cannot be calculated
  - ▶ Overall IMPACT Score: 75% TLF, 10% TAS, 10% CSC, 5% SVA
- ▶ IVA scores can be calculated for “Group 1” teachers
  - ▶ Math teachers in grades 4-8; ELA teachers in grades 3-10
  - ▶ Overall IMPACT Score (2009-2012): 50% IVA, 35% TLF, 10% CSC, 5% SVA
- ▶ Core Professionalism (CP): administrator deductions (10-40 points) for poor attendance, punctuality, respect, adherence to policies and procedures

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## 2013 DC CAS Fast Facts

DCPS-ODS

Student in all 8 wards have improved proficiency rates in reading and math since 2007.



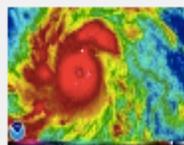


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# Education

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## D.C. posts significant gains on national test, outpacing nearly every state



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By Emma Brown, Published: November 7 [E-mail the writer](#) ↵

The District's fourth- and eighth-graders made significant gains on national math and reading tests this year, posting increases that were among the city's largest in the history of the exam.

Students at the city's public charter and traditional schools also showed more improvement than nearly every state on the [2013 National Assessment of Educational Progress](#), an exam the federal government has administered every two years since the early 1990s. Results of the tests, known as the Nation's Report Card, were released Thursday morning.

# Evaluating IMPACT's Effects

- ▶ There are candidate explanations for observed improvements in DCPS other than IMPACT (e.g., other district reforms, gentrification, charters, etc.)?
  
- ▶ Credibly causal evidence on the hypothesized mechanisms underlying IMPACT (Dee and Wyckoff 2013)
  - ▶ A “regression discontinuity” study that leverages the strong incentive contrasts at ME/E and HE/E thresholds
  - ▶ IMPACT score < 250 → Dismissal threat
  - ▶ IMPACT score > 349 → Opportunity for permanent base-pay increase (3-5 years of service credit)
    - As much as \$27k annually, ~\$180k in present value over 15 years for a teacher with BA in high-poverty school

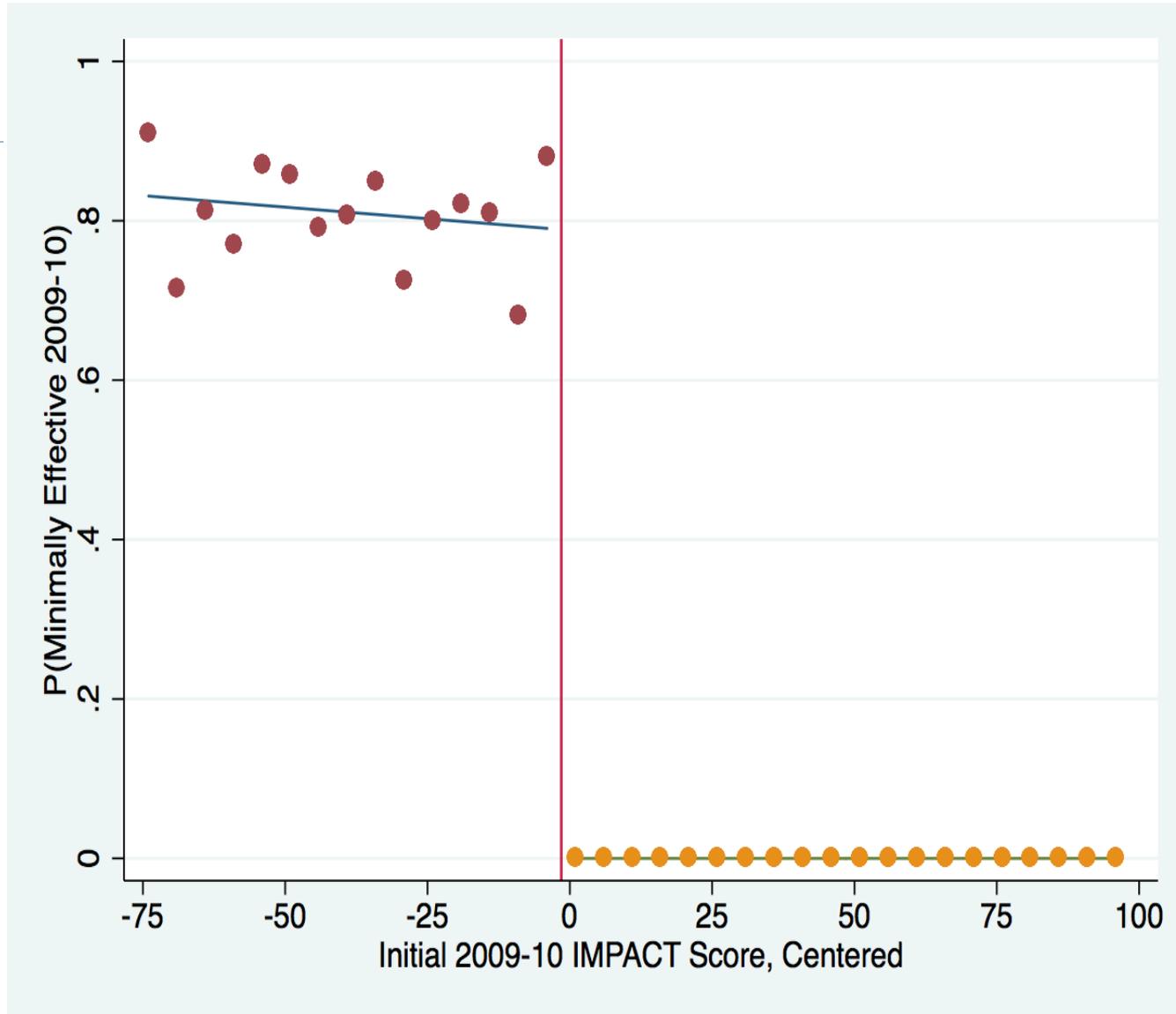


Figure 3a – ME First Stage, AY 2009-10

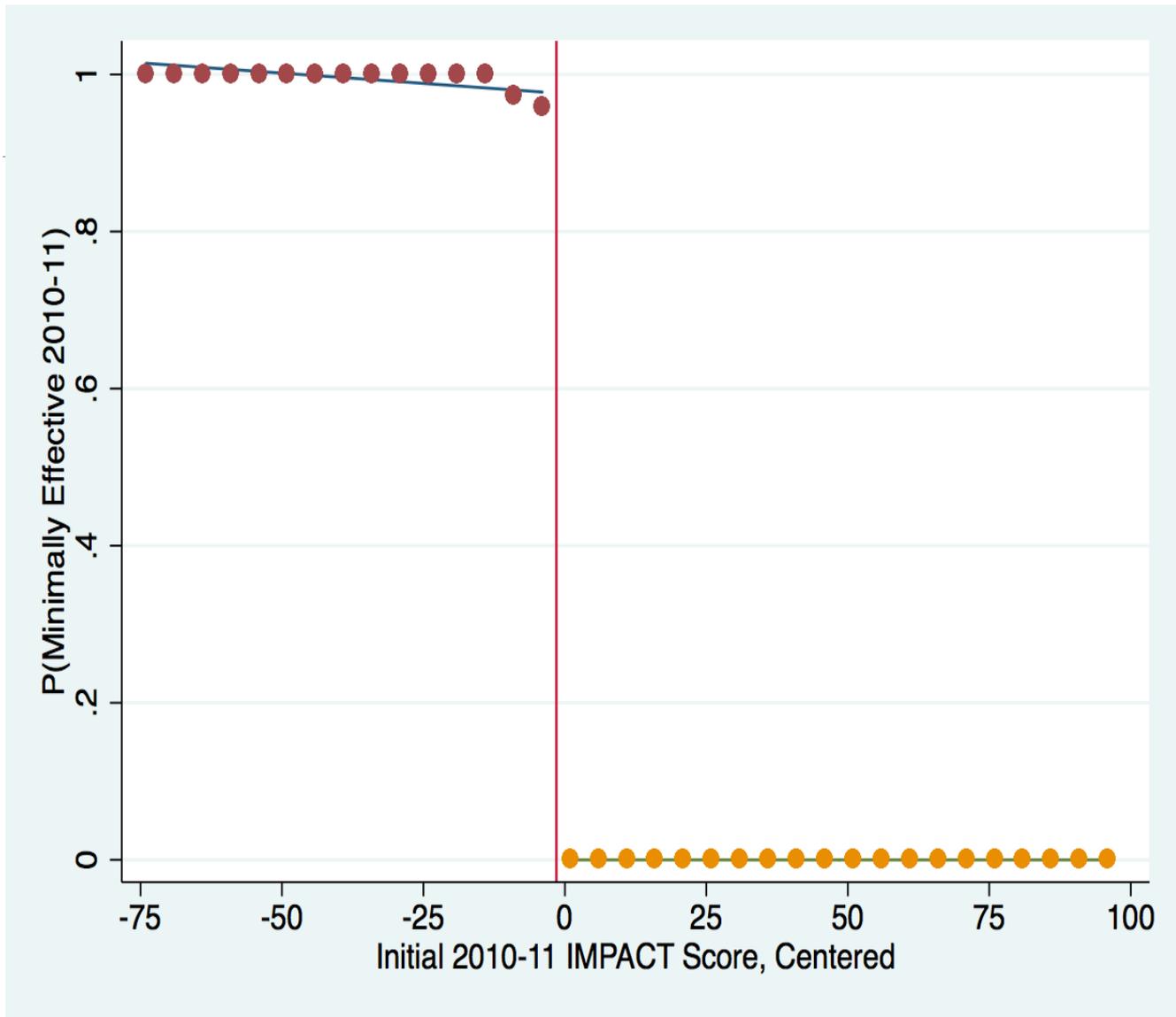


Figure 3b – ME First Stage, AY 2010-11

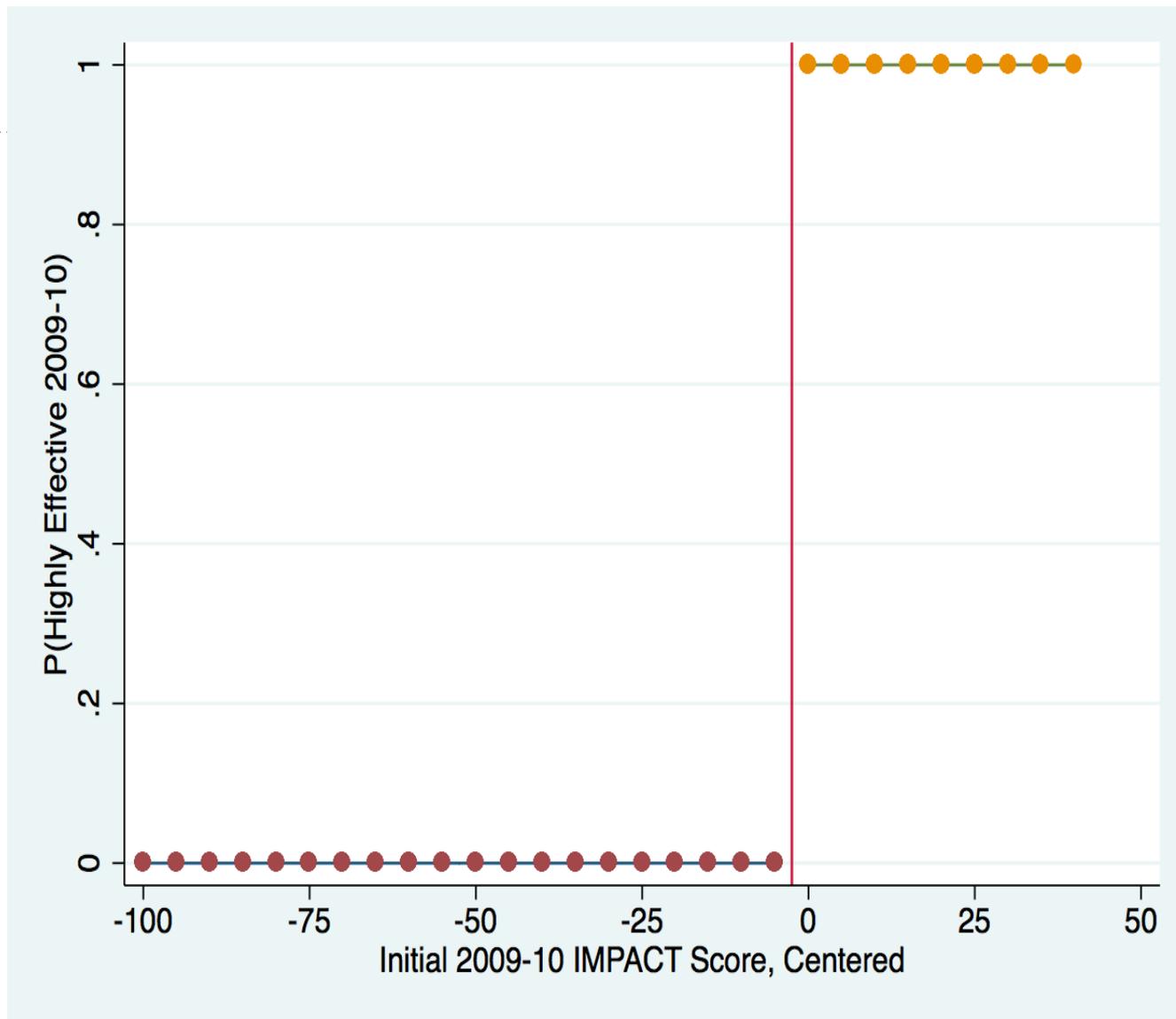


Figure3c – HE First Stage, AY 2009-10

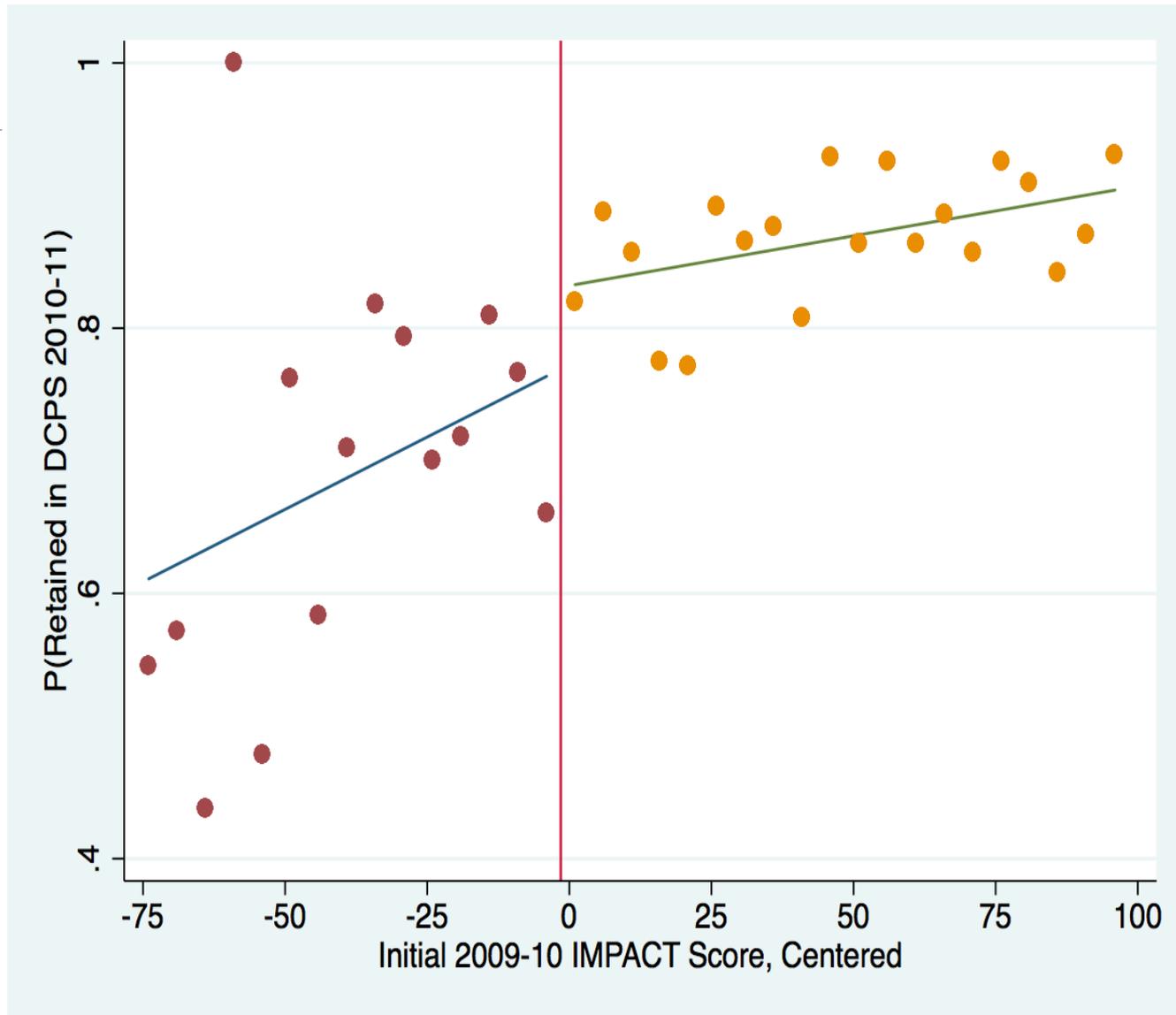
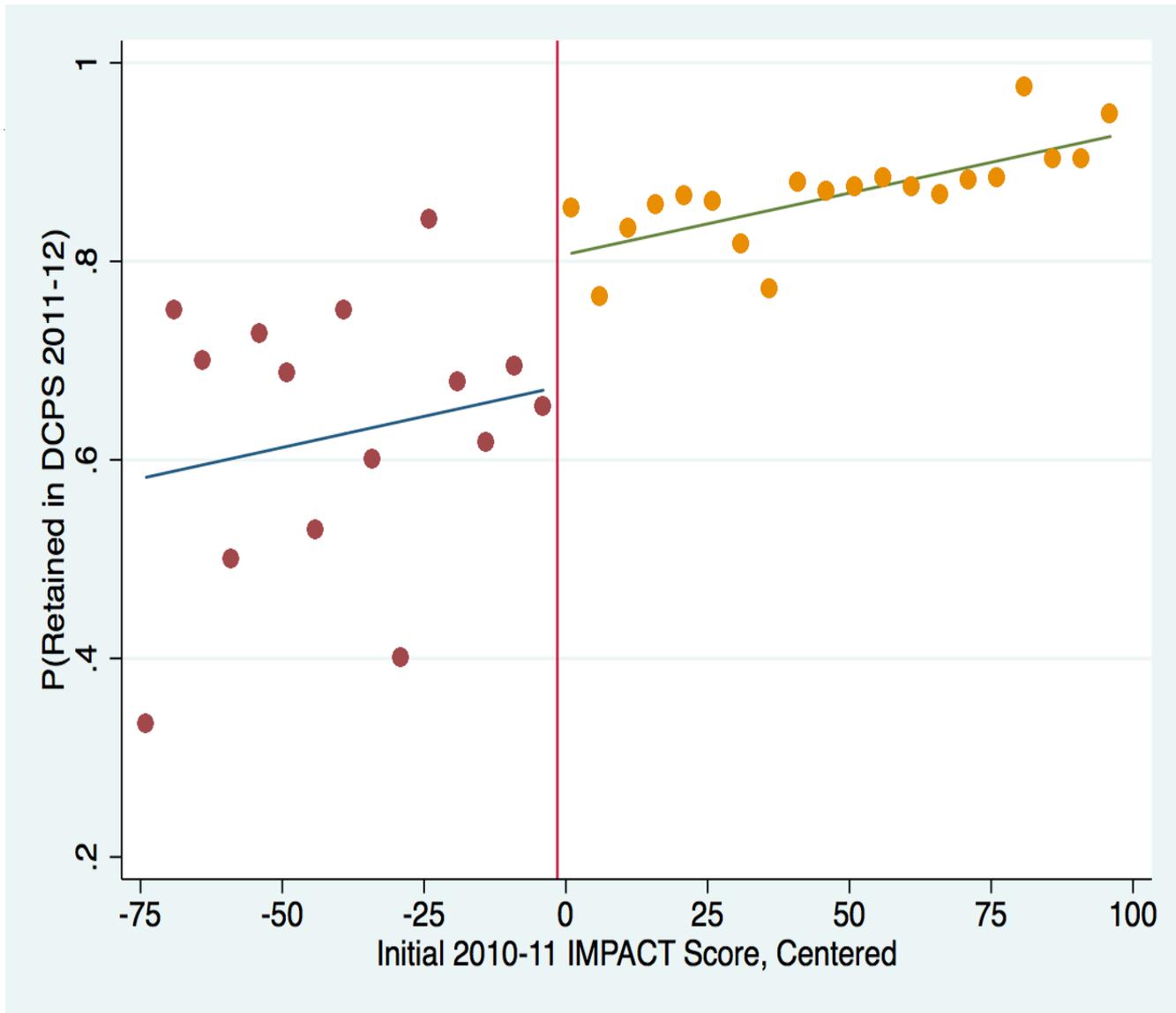


Figure 4a – ME Retention, AY 2009-10



“Jump” of -0.112  
percentage points,  
conditional on  
teacher traits &  
school FE

Figure 4b – ME Retention, AY 2010-11

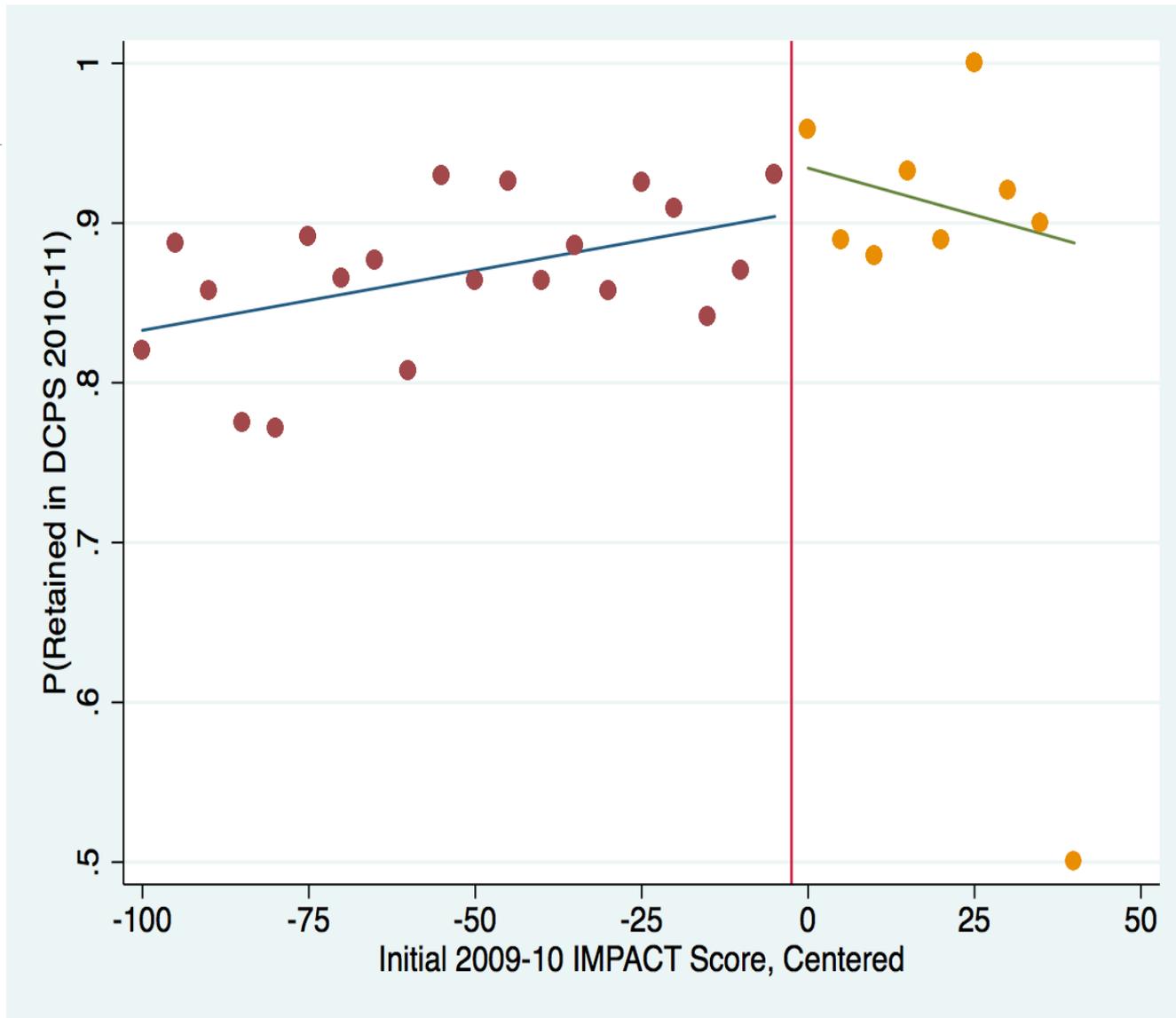


Figure 4c – HE Retention, AY 2009-10

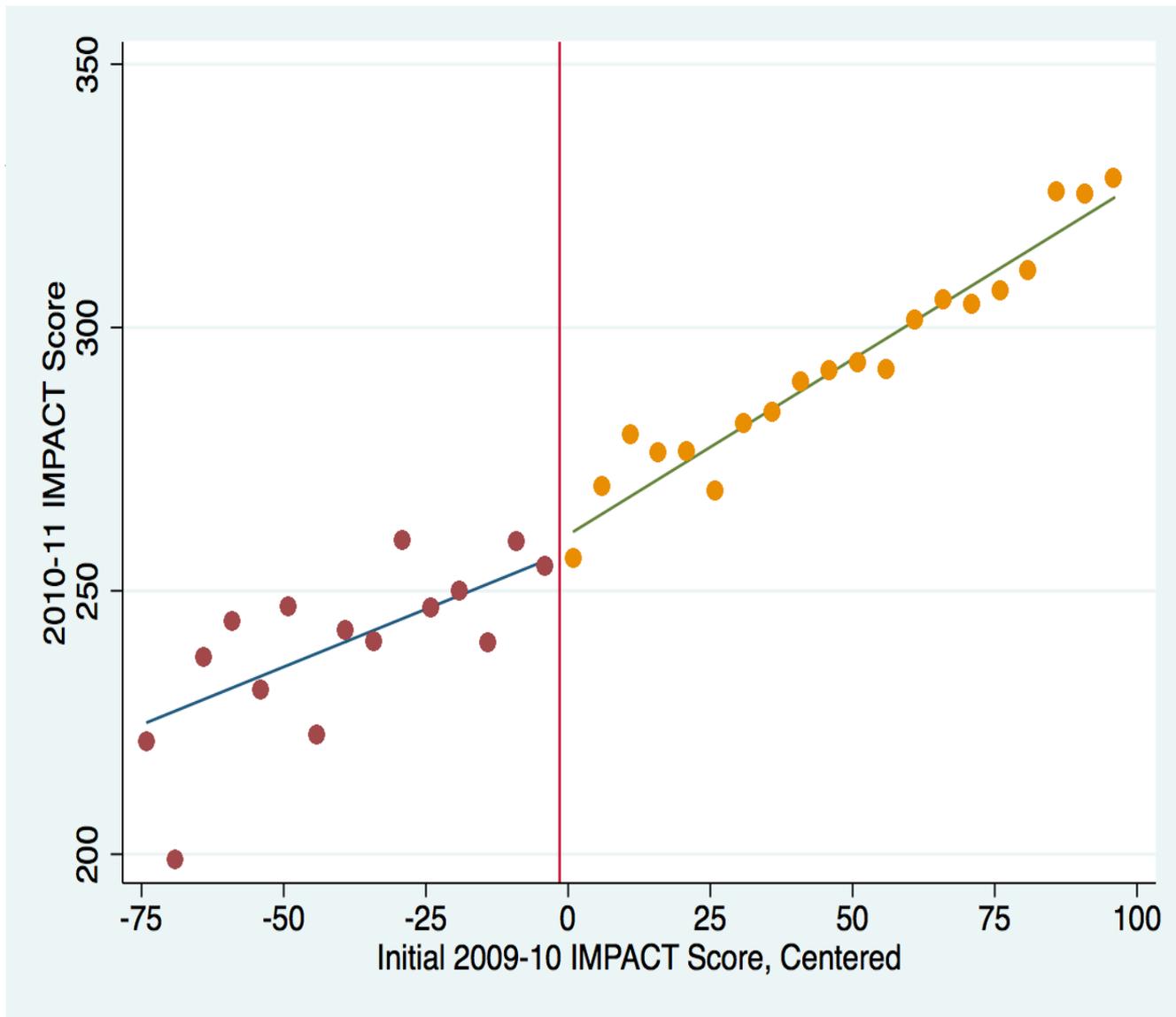
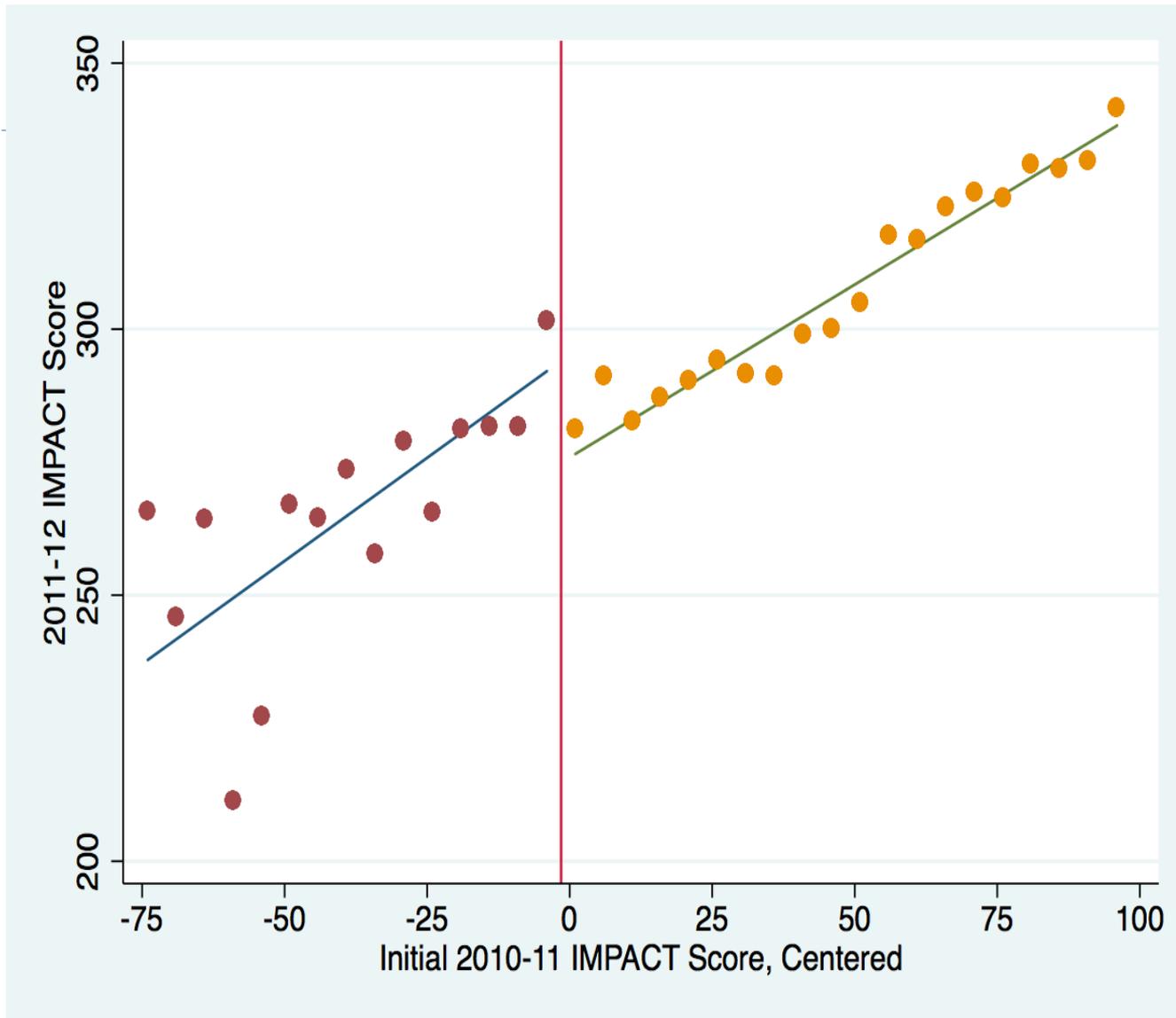
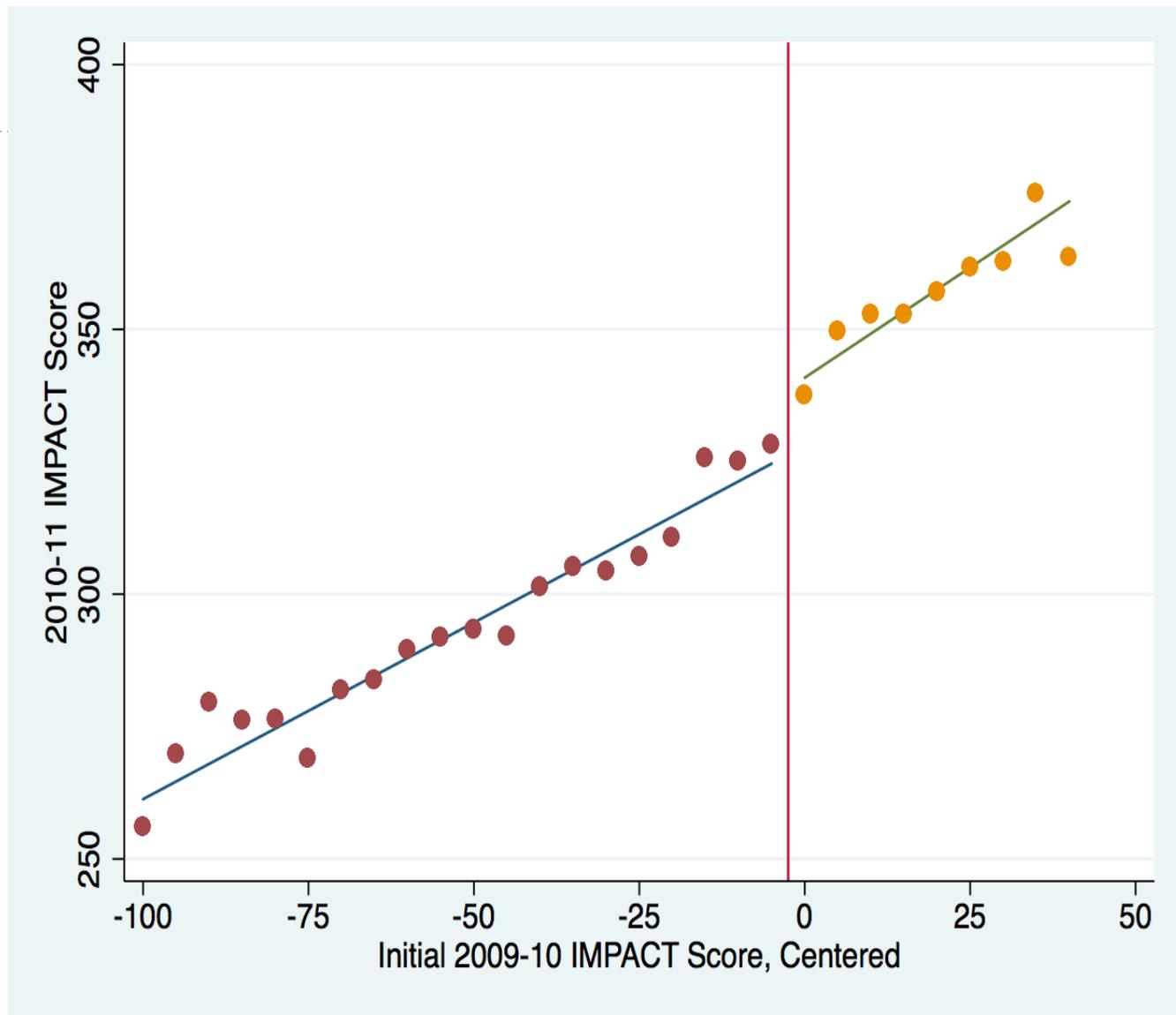


Figure 5a – ME IMPACT Scores, AY 2009-10



“Jump” of 12.6 points, conditional on teacher traits and school FE

Figure 5b – ME IMPACT Scores, AY 2010-11



“Jump” of 10.9 points, conditional on teacher traits and school FE

Figure 5c – HE IMPACT Score, AY 2009-10

# Discussion

- ▶ Evidence that a performance-assessment system with high-powered incentives meaningfully influenced teacher retention and performance
- ▶ Interestingly, IMPACT performance of *new hires* clearly exceeds that of leavers (no general-equilibrium caveats regarding new hires?)
- ▶ Possible lessons for other states & districts?
  - ▶ A compelling *proof point* for this type of human-capital strategy?
  - ▶ Important lessons on effective design & implementation (a cautionary tale?)
    - Target multiple measures, not just test scores
    - Clear communication of expectations/measurement
    - Careful rater training
    - Complementary data systems
    - Policy credibility and leadership buy-in