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ASSESSING THE IMPACT OF THE NEWARK EDUCATION REFORMS:

**The Role of Within-School Improvement
vs. Between-School Shifts in Enrollment**

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SYNOPSIS

Aided by \$200 million in private philanthropy, city and state leaders launched a major school reform effort in Newark, New Jersey, starting in the 2011–2012 school year. In a coinciding National Bureau of Economic Research (NBER) working paper, we assessed the impact of those reforms on student achievement growth, comparing students in Newark Public Schools (NPS) district and charter schools to students with similar prior achievement, similar demographics, and similar peers elsewhere in New Jersey. Here, we describe our key findings, which can be summarized as follows:

- Prior to the reform, the average rate of student achievement growth in Grades 4–8 (combining Newark’s district and charter schools) was above the state average in math and comparable to the state average in English, largely driven by strong results in the Newark charter sector.
- On net, by the 2015–2016 academic year, Newark students had seen a significant improvement in the rate of growth in English and no significant change in math.¹
- The progress did not follow a straight line. Indeed, during the initial years of the reform, the rate of student achievement growth declined in both the district and charter schools in English and math before recovering to earlier levels of growth in math and exceeding earlier growth rates in English.
- Much of the net change in achievement growth in Newark was driven by shifts in enrollment due to school closures, new school openings, and student choice, as opposed to improvements in achievement growth within existing schools. Shifting enrollment from lower- to higher-achievement growth schools was responsible for nearly two-thirds (62%) of the gain in English. In math, average achievement growth would have declined relative to the baseline years if students had not shifted to higher-growth schools.
- Although many Newark parents seemed to “opt out” of state tests in the spring of 2015, we find no evidence that the gains in Newark in the 2014–2015 school year were caused by the increase in the number of opt-outs.

¹ As of the publication of our paper, student-level test scores from the 2016–2017 school year were not yet available, so our analysis uses 2015–2016 as the last year of data. In a public presentation in September 2017, Newark Public Schools reported significant gains in 2016–2017 relative to the state in Grades 3–8 proficiency, particularly in math (<http://www.nps.k12.nj.us/mdocs-posts/superintendent-report-september-2017/>).

Reform Efforts in Newark Public Schools

School reform in Newark was not a single intervention, but a comprehensive package of measures. Rather than attempt to parse the effect of each component (likely an impossibility), we divide the reforms into two broad categories: within-school reforms aimed at improving existing schools (such as personnel changes, Common Core implementation, and participation in the ReNew Schools initiative²) and between-school reforms aimed at facilitating student movement toward schools with higher achievement growth (such as school closures, charter expansion, and a universal enrollment system).

Within-School Reforms

During her first three years as the Newark superintendent, Cami Anderson replaced more than half of the district's principals and reorganized the central office, cutting 120 positions. The new team implemented districtwide reforms such as monthly training sessions with principals, an online platform facilitating mutual consent hiring, an early warning system to prevent drop out, changes to data and accountability systems, a revamped student registration system, and extended learning time in a subset of schools. Newark also piloted "blended learning models" incorporating educational software in classrooms.

In November 2012, the district ratified a new contract with the Newark Teachers Union (NTU). The four major contract provisions were: 1) a new teacher evaluation system combining classroom observations, student growth, and other indicators such as lesson plans and teacher attendance; 2) differentiated teacher compensation including incentives for high performers to stay in low-performing schools; 3) extended learning time in 28 schools; and 4) greater school-based decision making (including the ability for teachers to vote to overturn portions of the collective bargaining agreement). In return, NTU members received a \$31 million one-time payment to resolve outstanding wage demands from prior years and \$20 million in stipends during the first year of implementation.

Newark reportedly began emphasizing the Common Core State Standards before many other New Jersey districts, adopting Common Core-aligned math and literacy instructional materials in Grades K–8 starting in 2013–2014. For example, nearly 90% of schools serving Grades 3–8 adopted the Expeditionary Learning (EL) curriculum in English—a curriculum highly rated by EdReports for its alignment to the Common Core. The switch to these materials may have contributed to temporary declines in performance on the New Jersey Assessment of Skills and Knowledge (NJ ASK), as the materials were less aligned with the assessment and teachers and students likely needed time to learn how to use the new resources effectively.

Eight K–8 schools were chosen for turnaround during the 2012–2013 academic year, while an additional eight were chosen for 2014–2015. The schools—labeled "renew schools"—were the focus of a multipronged effort. First, principals were required to reapply for their jobs and half

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² The ReNew Schools initiative was launched in Spring 2012 as an effort to improve academic achievement in the most challenging Newark Public Schools. According to the Newark Public Schools, ReNew Schools focus on: 1) Establishing a clear vision and mission; 2) Ensuring that a transformational leader is in place; 3) Selecting teachers based upon quality and fit for the school; 4) Expanding the school day, providing additional resources, increasing technology; and 5) Engaging families (http://www.newarktrust.org/fact_or_fiction_turnaround_schools).

were replaced in the first year. In turn, principals were given the freedom to choose teachers. In the first round of renewal schools, about half of the teachers were replaced. Students were given extended learning time and teachers received professional development. Renew schools also conducted extra outreach to families and offered students better access to nurses, social workers, and community-based mentoring.

Between-School Reforms

State and district leaders also facilitated the movement of students from less effective schools toward schools with faster rates of achievement growth. School closures were one component of this strategy. Between 2011–2012 and 2014–2015, 11 traditional district schools serving Grades K–8 were closed based on low enrollment and poor performance. Some students from closed schools transferred to charter schools; others were reassigned to nearby district schools, some of which were renew schools. Three charter schools were also closed in this same time period for reasons including poor academic performance and financial and legal concerns. NPS also opened seven new district schools serving students in Grade 6 and above during this period, including two single-sex schools.

Of the 14 schools serving Grades 4–8 that were closed between 2011–2012 and 2014–2015, 12 had rates of achievement growth in math that were below the NJ average in the year before closure. Upon leaving the closed schools, students and their parents moved to higher-growth district and charter schools. We find that the rate of growth for these students also improved on average after they moved to their new schools.

Meanwhile, enrollment in Newark’s charter schools grew rapidly. In spring 2011, 14% of all Newark students were enrolled in charters. By 2015–2016, the percentage had doubled to 28% and was even higher among K–8 students (32%). The charter sector included 20 different operators by 2015–2016. The largest were TEAM Academy, affiliated with the national Knowledge is Power Program (KIPP) network, and North Star Academy, affiliated with the national Uncommon Schools network. These two operators accounted for 46% of Newark’s charter enrollment in 2015–2016 and 56% of the growth in charter enrollment between 2010–2011 and 2015–2016.

In the spring and fall of 2014, Newark instituted a universal choice system (now known as “Newark Enrolls”). This system allowed families to rank their preferred schools on a single application, choosing from among traditional district schools, magnet schools, and most of Newark’s charter schools. Students were then matched to schools, with priority given to students with siblings in a school, students who qualified for the subsidized lunch program or had individualized education plans, and students applying to their neighborhood schools.

Upon leaving the closed schools, students and their parents moved to higher-growth district and charter schools.

Our Analytic Approach

We measure the annual achievement growth of students attending Newark’s charter and district schools relative to students with similar prior achievement, similar demographics, and attending schools with similar peers elsewhere in New Jersey. For our purposes, annual achievement growth is a more valid measure than end-of-year test scores or proficiency rates. If students with higher or lower baseline scores were to enter a given school, the level of performance at the end of the year could rise or fall even if the rate of student progress was unchanged. (The adjustment

was especially important in Newark, given the large shifts in students from one school to another.) Moreover, percentage point changes in proficiency rates can be a misleading indicator of the relative change in performance in different districts, since two districts could have the same change in mean student achievement but different changes in proficiency rates, depending upon the number of students in each district starting near the proficiency cut-off. This would be particularly problematic in New Jersey as the standard of proficiency changed with the transition to the PARCC test.

Our measure of achievement growth will differ from the official school report card data in New Jersey for several reasons: First, because we focus on achievement growth in Newark relative to other similar New Jersey schools, we would ignore any increase in achievement or achievement growth that affected other similar schools in New Jersey simultaneously. For instance, when the state switched to a new assessment in the spring of 2015, many low-income schools in New Jersey saw a sharp increase in achievement growth, especially in English. Our estimates net out such improvements to account for any achievement trends due to factors other than the Newark reforms. Second, our model of achievement growth differs from the state's student growth percentile metric, which controls only for an individual student's baseline achievement. Our models also control for student demographics as well as the mean characteristics of a student's classmates. This is important because among students with the same baseline achievement, those attending schools with more disadvantaged classmates have lower average growth rates. Combining the district and charter schools, we then decompose the change in the average annual rate of achievement growth in Newark into that due to within-school improvements versus shifts in enrollment toward schools with higher achievement growth (which we call between-school growth).

Newark overall saw statistically significant improvements in English achievement growth.

A similar framework has been used to measure the sources of productivity growth in different countries and industries. In those studies, researchers have often found that improvements in productivity are driven by gains in market share by more efficient producers as opposed to productivity improvements within existing producers. In K–12 education, the potential role of shifts in enrollment is typically blunted, since school assignments are often based on residence. However, by closing some schools, allowing students to move to charters or other high-performing public schools, and instituting a universal choice plan, the Newark reform strategy made it possible for parents to switch schools without switching residences. We assess the degree to which the greater opportunities for student movement improved the system's overall rate of achievement growth.

Our Findings

Prior to the reform, Newark's student achievement growth in Grades 4–8 was comparable to the state average for similar schools in English, but above the state average in math. The above average math growth at baseline was driven by strong achievement gains in the charter sector (since achievement growth in Newark district schools was not statistically different from the state average in either subject.) After five years of reform, Newark overall saw statistically significant and educationally meaningful improvements in English achievement growth and no significant change in math achievement growth, above and beyond gains observed by similar students in similar schools throughout New Jersey.

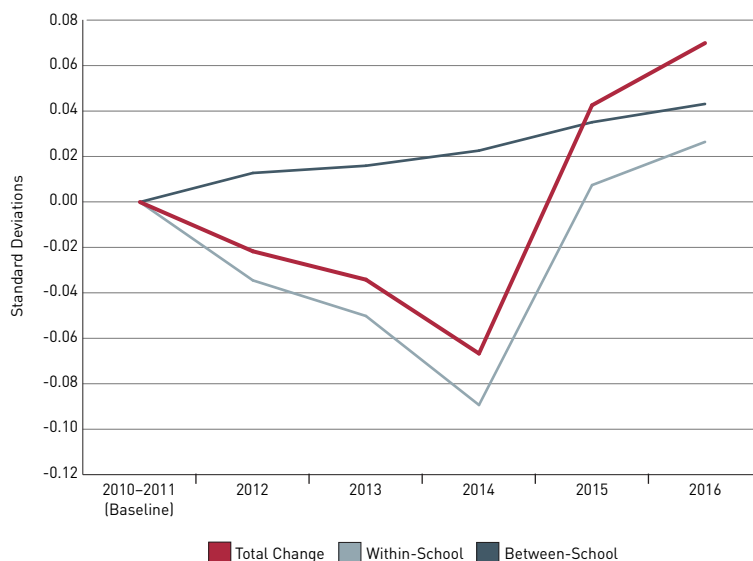
The trend in achievement growth did not follow a straight line, however. Newark's average growth declined in the initial reform years (in both the charter and district schools), before improving during the 2014–2015 and 2015–2016 school years, ultimately surpassing the starting point in English. Sixty-two percent of the improvement in English was due to shifting enrollment from lower- to higher-growth district and charter schools, while 38% of the improvement was due to within-school improvement. In math, between-school shifts in enrollment offset what would have been a decline in achievement growth within the average school.

Figure 1 summarizes our findings with regard to English achievement growth in Grades 4–8. The red line reports the total change in Newark students' average achievement growth

since the two school years prior to reform (2009–2010 and 2010–2011) to the most recent year for which data were available (2015–2016). The first years of the reform were tumultuous and Newark's achievement growth reflected that fact, with average achievement growth in English declining by approximately .07 standard deviations by the end of the 2013–2014 school year. The decline occurred in both charter and district schools. However, achievement growth improved by .14 standard deviations over the next two years, so that by the spring of the 2015–2016 academic year, Newark students were gaining roughly .07 standard deviations more per year than in the baseline years. In English, the Newark advantage in achievement growth relative to the rest of the state was sizeable in 2016, equivalent to the impact of being assigned to an experienced versus novice teacher.

Sixty-two percent of the gain in achievement growth in English was due to students leaving less effective schools and moving to more effective schools, while 38 percent was due to the improvement in achievement growth within specific schools. The redistribution of students began in the first year of the reforms (2011–2012) and continued at a similar pace throughout the period we studied. As reflected by the darker grey line in Figure 1, there has been a steady upward trend in the proportion of students attending schools with higher achievement growth. Even while the typical school was seeing declines in achievement growth through the 2013–2014 academic year (the lighter grey line), students were shifting to schools with higher achievement growth as some

Figure 1. Change in Newark's Student Achievement Growth in English Relative to Similar NJ Students and Schools Since 2010–2011

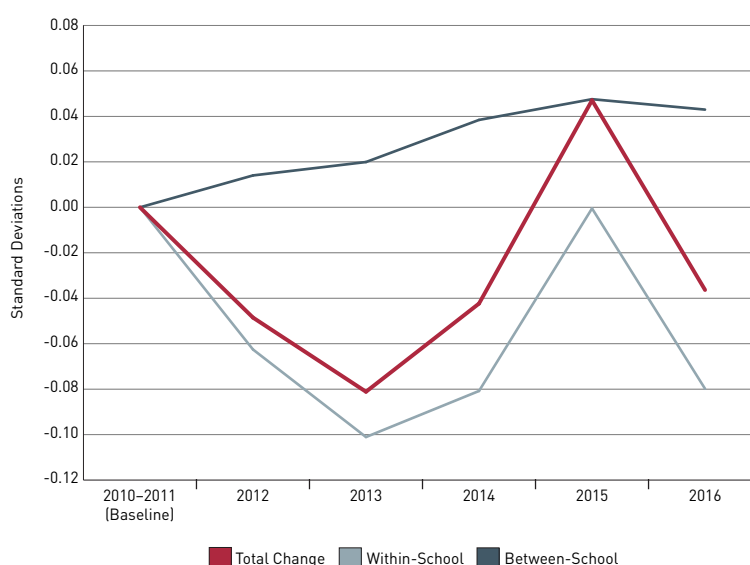


Note. This figure decomposes the change in value-added in Newark district and charter schools relative to similar schools in New Jersey. The change is reported relative to the two baseline academic years of 2009–2010 and 2010–2011. The units are student-level standard deviation units. For comparison, a .08 difference in value-added is roughly equivalent to being assigned an experienced teacher rather than a novice teacher. During the baseline years, overall English achievement growth in Newark was an insignificant .017 standard deviations above the state average overall (reflecting a statistically insignificant -.014 shortfall in district schools and a .215 standard deviation advantage in charter schools).

of the least effective district schools were closed and enrollment at higher-performing district and charter schools increased (the darker grey line).

Figure 2 reports similar analyses for Newark's math achievement growth, which was significantly above the state in the two baseline years, largely because of the high rate of achievement growth witnessed by students in the charter sector. On net, by the end of five years, there was no statistically significant change in math achievement growth in Newark relative to similar schools in New Jersey. Despite an increase in the 2014–2015 academic year, in 2015–2016 the average achievement growth in math in Newark was a statistically insignificant .04 standard deviations below the baseline years. Within the average school, math achievement growth declined by .08 standard deviations by 2012–2013. The decline occurred within charter schools and within district schools. However, as with English, that decline within the typical school was offset by a steady movement of students toward the higher achievement growth schools.

Figure 2. Change in Newark's Student Achievement Growth in Math Relative to Similar NJ Students and Schools Since 2010–2011



Note. This figure decomposes the change in value-added in Newark district and charter schools relative to similar schools in New Jersey. The units are student-level standard deviation units. For comparison, a .08 difference in value-added is roughly equivalent to being assigned an experienced teacher rather than a novice teacher. During the baseline years, overall math achievement growth in Newark was .068 standard deviations above the state average overall (reflecting a statistically insignificant .028 advantage in district schools and a .319 standard deviation growth advantage in charter schools).

below the baseline years. Within the average school, math achievement growth declined by .08 standard deviations by 2012–2013. The decline occurred within charter schools and within district schools. However, as with English, that decline within the typical school was offset by a steady movement of students toward the higher achievement growth schools.

The Role of the Opt-Out Movement

One factor complicating our evaluation of the Newark reforms is the fact that the uptick in achievement growth in Newark during the 2014–2015 academic year coincided with a rise in the number of New Jersey students opting out of state tests in protest. Although we could not distinguish between those actively opting out and those missing scores for another reason, the proportion of Newark students with missing test scores spiked from 8% to 20% between spring of 2014 and 2015, at the same time that the state transitioned from the NJ ASK to the PARCC exam. (Elsewhere in New Jersey, the proportion of students with missing test scores doubled, from 6% to 12%.)

We investigated the potential role of the opt-out movement by comparing the change in achievement growth in schools in New Jersey between the spring of 2014 and 2015 against the change in the proportion of students in each school with missing test scores. In both Newark and the rest of New Jersey, there was little relationship between the change in average student growth and the change in the proportion of students with missing scores at the school level. (If anything, the schools with the largest increases in the proportion of students with missing test scores saw declines in achievement growth.) Thus, we did not find evidence that the gains in 2014–2015 were caused by the proportion of students opting out.

Implications for Other U.S. Cities

One of our main findings is that between-school reallocation of students was an important driver of improved results in Newark. The strategy of closing or repurposing the least effective schools, opening new district and charter schools, and giving families greater choice produced gains in English and offset what would have been a relative decline in achievement growth in math. However, other cities considering Newark-style reforms should consider two facts: First, the reallocation of students was not entirely driven by the introduction of school choice, as the school closures forced some parents to move schools involuntarily. Closing schools is politically difficult and parents are often opposed. Second, Newark started the reform process with an unusually effective set of charter schools nearby. Only Boston has a comparably effective set of charter schools serving its students. Other cities should consider these factors when designing their own strategies.

For a more detailed discussion of our methods and findings (including technical details), see:

Chin, M., Kane, T. J., Kozakowski, W., Schueler, B. E., & Staiger, D. O. (2017, September). *School district reform in Newark: Within- and between-school changes in student achievement growth in Newark* [Working Paper No. w23922]. Cambridge, MA: National Bureau of Economic Research.