

# Are Graduation Rates Really Improving Faster in Camden and Newark, New Jersey?

NEW JERSEY EDUCATION POLICY FORUM  
MARK WEBER

# Are Graduation Rates Really Improving Faster in Camden and Newark, New Jersey?

*Mark Weber*

*PhD Candidate, Graduate School of Education*

*Rutgers, The State University of New Jersey*

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## Summary

In this research brief, I explore the claims made by state and local officials that Newark and Camden schools have seen remarkable gains in graduation rates over the past several years. I find:

- Comparisons of growth in graduation rates between districts like Newark and Camden and the rest of New Jersey's districts are invalid, as many districts have graduation rates that are approaching 100 percent and therefore cannot get any larger.
- The better approach is to compare Newark and Camden to similar districts: those in District Factor Group "A" (DFG-A), which have large populations of students in economic disadvantage and students of color.
- **I find that *all* of New Jersey's DFG-A districts have had rising graduation rates over the past six years – Newark's and Camden's gains are not statistically significantly different from similar districts across the state.**
- One explanation for the rising graduation rates may be the increasing use of "credit recovery" programs. These programs, which often place students at risk of dropping out into on-line learning programs, are controversial as there is little research on their proliferation or outcomes.
- **New Jersey should regulate credit recovery and similar programs to determine whether rising graduation rates truly reflect better instruction in the state's high schools.**

## Background

In the last several years, Newark and Camden have received significant attention in the national media as two test cases of educational "reform." Both districts have large proportions of students of color, students in economic disadvantage, and students who speak English as a second language.

Both cities' schools have been under direct control of by the State of New Jersey: Newark since 1995, and Camden since 2013<sup>1</sup> (although a state-appointed fiscal monitor had control over many of Camden's functions for years prior to the state takeover<sup>2</sup>). In districts under state control, the governor's office appoints a superintendent of schools, and need not consult with the elected advisory board on the appointment.

Newark has begun the process of transitioning back to local control; recently, State Superintendent Christopher Cerf, appointed in 2015 by then-Governor Chris Christie, resigned.<sup>3</sup> But both Cerf and his predecessor, Cami Anderson, implemented a significant series of reforms in Newark over the past several years. Known collectively as "One Newark," the reforms included charter school expansion, merit pay provisions for teachers, and school closings or "turnarounds."<sup>4</sup>

Similarly, Camden has seen a significant expansion of charter schools, as well as school closings and the expansion of "renaissance" schools, which are run by charter management organizations<sup>5</sup>.

## Claims of Growth In Graduation Rates in Newark and Camden

Local district officials, the administration of former governor Chris Christie, journalists, and proponents of "reform" have repeatedly cited increasing graduation rates as evidence of educational success in both Newark and Camden.

In a 2016 article in *EducationNext*<sup>6</sup>, Cerf suggested that a "narrative of failure" regarding Newark's schools was contradicted by rising graduation rates. In a 2017 press release from the Newark Public Schools<sup>7</sup>, Cerf claimed rising graduation rates "... are the result of the hard work this community has done over a number of years to significantly change Newark's schools." A report on the conclusion of Cerf's tenure in *The 74*<sup>8</sup> claims Newark's graduation rates are among the outcomes that "...are attracting national attention."

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<sup>1</sup> [http://www.nj.com/essex/index.ssf/2018/02/chris\\_cerf\\_newark\\_schools\\_local\\_control.html](http://www.nj.com/essex/index.ssf/2018/02/chris_cerf_newark_schools_local_control.html)

<sup>2</sup> <http://www.state.nj.us/education/news/2006/1006cam.htm>

<sup>3</sup> <https://www.nytimes.com/2017/12/26/nyregion/newark-schools-superintendent-cerf.html>

<sup>4</sup> Weber, M. & Baker, B.D. (2017). *NEPC Review: "School District Reform in Newark (National Bureau of Economic Research, October 2017) and Impact of the Newark Education Reforms (Center for Education Policy Research, Harvard University, September 2017)."* Boulder, CO: National Education Policy Center.  
<http://nepc.colorado.edu/thinktank/review-newark-reform>

<sup>5</sup> <http://www.nj.gov/education/renaissance/ar/camden/15/>

<sup>6</sup> <http://educationnext.org/continuing-change-in-newark-cerf-christie-booker-anderson/>

<sup>7</sup> <http://www.nps.k12.nj.us/press-releases/newarks-high-school-graduation-rate-increases-four-percentage-points-2015-16-school-year/>

<sup>8</sup> <https://www.the74million.org/article/analysis-as-chris-cerf-steps-down-as-newark-superintendent-a-look-back-at-a-career-spent-breaking-the-tie-in-favor-of-new-jerseys-children/>

A recent report from the pro-“reform” group Chiefs For Change<sup>9</sup> claims that Camden has seen “*great success*” since coming under state control, and specifically cites rising graduation rates as evidence. A recent article from the Broad Foundation<sup>10</sup> (which was instrumental in creating plans to move Camden towards state control<sup>11</sup>) also cites Camden’s rise in graduation rates as evidence of State Superintendent Paymon Rouhanifard’s leadership. In an editorial suggesting Rouhanifard should be considered for the position of schools chancellor in New York City, *The New York Times* claims: “... *Mr. Rouhanifard has improved graduation rates...*”<sup>12</sup>

## Assessing The Claims

The central issue with these claims is that they lack any context: **In other words, are the graduation rate gains in Camden and Newark *unique*, or do they simply reflect an overall, statewide trend?**

If, in fact, graduation rates have been rising in other New Jersey districts, there is little reason to believe any factors exclusive to Newark or Camden – state control, charter school expansion, leadership style, etc. – are the cause of either city’s gains in those rates. Policy makers should, instead, look for an explanation common to most (if not all) districts.

Quantitative researchers often refer to changes that affect an entire group under study as *secular*<sup>13</sup> trends. To determine if a district has graduation rate gains that are larger than other, similar districts, we must first examine whether there is a secular, upward trend across the state.

There is, however, a further consideration when analyzing graduation rates: some districts have rates so high they really can’t get any larger. A district with a 95 percent graduation rate, for example, can’t see its rate increase by another 10 percentage points: a 105 percent graduation rate is a logical impossibility. Districts like these are subject to what researchers refer to as a *ceiling effect*: they have reached a limit where further improvement is, for all intents and purposes, impossible. But districts like Newark or Camden, which had much lower graduation rates to begin with, have more room for improvement.

Comparing Newark and Camden to *all* districts in the state on their graduation rates is, therefore, invalid.<sup>14</sup> The better way to evaluate graduation rate changes is compare districts

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<sup>9</sup> <http://chiefsforchange.org/policy-paper/5543/>

<sup>10</sup> <https://www.broadcenter.org/blog/leadership-lessons-paymon-rouhanifard/>

<sup>11</sup> <http://jerseyjazzman.blogspot.com/2012/05/njdoe-coup-detat.html>

<sup>12</sup> <https://www.nytimes.com/2018/01/14/opinion/some-bright-hopes-for-new-yorks-schools.html>

<sup>13</sup> Murnane, R.J. & Willett, J.B. (2011) *Methods Matter*. New York: Oxford University Press. (p. 154)

<sup>14</sup> Yet this is the methodology used here: Margolis, J. (2017) *Moving Up: Progress in Newark’s Schools from 2010 to 2017*. [https://www.chalkbeat.org/wp-content/uploads/2017/10/Newark\\_MarGradyResearch\\_Study.pdf](https://www.chalkbeat.org/wp-content/uploads/2017/10/Newark_MarGradyResearch_Study.pdf) On page 12, the author compares Newark’s graduation rate to the entire rest of the state: “*Excluding the 2017 rate – which is a preliminary number reported by the district – the NPS graduation rate increased by 12 points between 2011 and 2016. During the same period, New Jersey’s graduation rate increased by 7*

with similar student populations and similar room to grow their rates. For this analysis, I restrict comparisons of Newark's and Camden's graduation rate changes to those of districts that are also in District Factor Group (DFG) "A." DFGs were developed by the state<sup>15</sup>, and provide a means of classifying districts with similar socio-economic population characteristics. Both Newark and Camden are DFG-A districts.

## Trends in Graduation Rates

The New Jersey Department of Education (NJDOE) publishes "Adjusted Cohort Graduation Rates" at both the school and district level.<sup>16</sup> This adjusted method was first reported in 2011; comparisons to previous years are not valid, as the earlier calculations used a different method.<sup>17</sup> As of this writing, the last year district-level data was reported was for 2016; therefore, I restrict my analysis to the years 2011 to 2016.<sup>18</sup>

Figure 1 shows the graduation rates for public, district schools in Camden, Newark, all other DFG-A districts, and the rest of the state<sup>19</sup>. As noted above: the rest of the state had little room to improve, as graduation rates were already at 90 percent in 2011. The more relevant comparison for assessing changes in Newark and Camden, therefore, is to other DFG-A districts.

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*percentage points, from 83% to 90%.*" Again, the comparison is invalid: many New Jersey districts *couldn't* increase their rate by 12 percentage points, because their rates were already over 88 percent.

<sup>15</sup> <http://www.nj.gov/education/finance/rda/dfg.shtml>

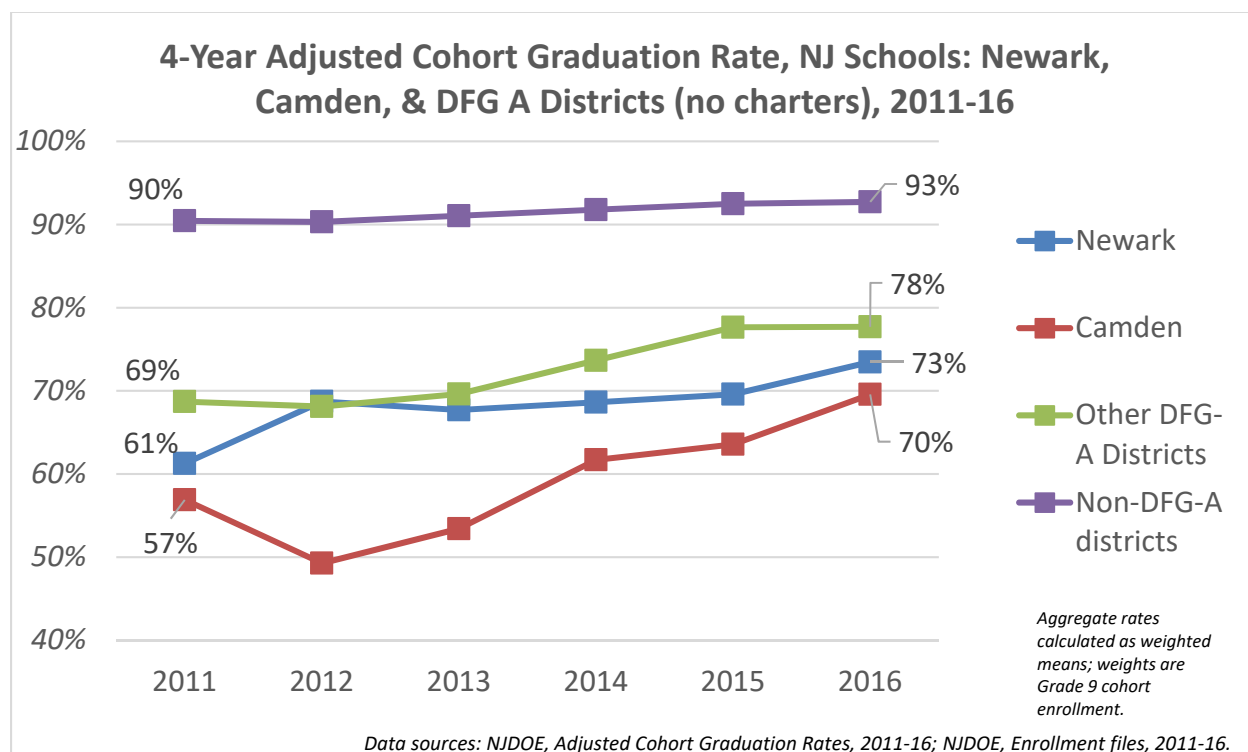
<sup>16</sup> <http://www.nj.gov/education/data/grate/>

<sup>17</sup> <http://www.nj.gov/education/njsmart/download/grad/AnIntroductiontothe4YGAdjustedCohortRate.pdf>

<sup>18</sup> Throughout this report, I use the four-year graduation rate, the one most commonly cited.

<sup>19</sup> See Appendix C for a description of how the aggregate rates for "Other DFG-A Districts" and "Non-DFG-A districts" were calculated.

Figure 1



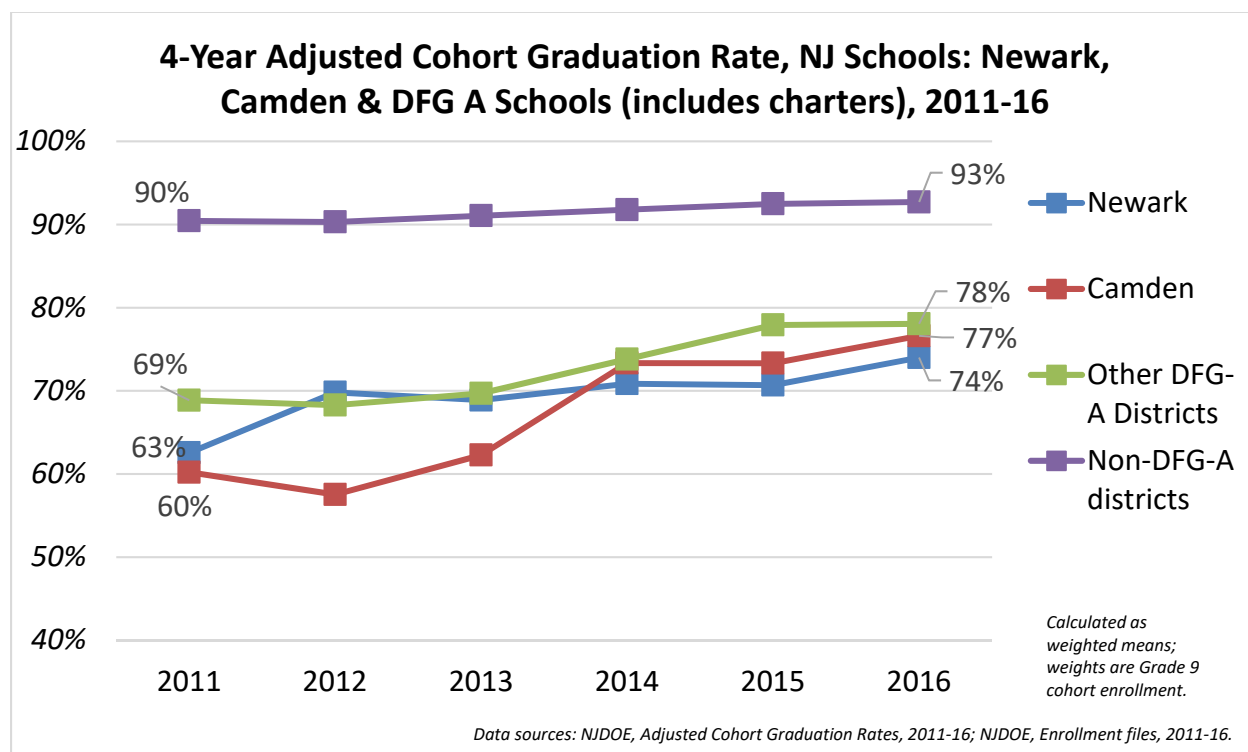
Graduation rates did improve 12 percentage points in Newark from 2011 to 2016; they improved 13 points in Camden. But all other DFG-A districts saw their rates improve by 9 percentage points. **It is clear that much, if not all, of the gain in graduation rates in Newark and Camden are simply mirroring similar rate gains across the state in similar districts.**

Both Camden and Newark have “open enrollment” systems, where families are given options to apply for either charter or district schools within the same application. The expansion of charter schools, therefore, might be understood as part of an overall policy agenda originating from the state superintendents’ offices.<sup>20</sup>

It is instructive, therefore, to look at the aggregate graduation rates for Newark and Camden (and the other DFG-A districts) when combining both public district and charter schools. Appendix C explains the method I use to aggregate these rates, weighting them by freshman class enrollment. Figure 2 shows these aggregated rates.

<sup>20</sup> It is worth noting that graduation rates for charter schools often give an incomplete view of that schools’ ability to graduate students, as many students who leave between the beginning of their freshman and end of their senior year may not be counted as part of the school’s denominator when calculating graduation rates. Many charter schools have high cohort attrition rates; see: Weber, M. & Baker, B.D., *ibid*. Whether this affects an *aggregate* graduation rate, combing public district and charter schools, is an open question.

Figure 2



The graduation rate for other DFG-A districts is not greatly affected by including charter schools as there are not many charters enrolling high schools in these districts. Including charters has only a marginal effect on Newark's graduation rates. The overall 2016 graduation rate in Camden, however, does rise an additional 7 percentage points when including charter schools. Yet graduation rates in Newark and Camden still mirror trends in other DFG-A districts, even when including charter schools within those districts.

While Camden and Newark did see a larger overall improvement in graduation rates compared to the other DFG-A districts, that difference may be due to statistical noise. To determine whether each city's graduation rate grew at a statistically significantly greater pace, I use a series of difference-in-differences (DID) models; Appendix A explains the method and reports the regression outputs. **The difference in graduation rate growth between Newark and other DFG-A districts from 2011 to 2016 is not statistically significant.**

I apply these same DID models to Camden. One model compares graduation rate changes; two others further account for changes in student populations. In all models, **the difference in graduation rate growth between Camden and other DFG-A districts from 2011 to 2016 is not statistically significant.**

In recent research on Newark and changes in test score growth, Baker and I note that as student growth percentiles (SGPs) rose in Newark, they also rose in DFG-A districts geographically close to Newark (within Essex County) but not in DFG-A districts throughout the

state.<sup>21</sup> This suggests changes in educational outcomes could be related to factors that have nothing to do with district governance, but might be related to factors common to a geographic region.

In Appendix B, I show the changes in graduation rates for districts within the labor markets of Camden and Newark. Again, I divide the districts into either Newark or Camden, other DFG-A districts, and all other districts. In 2011, Newark's graduation rate was 3 percentage points lower than that of the other districts in the Newark-Union, NJ-PA Metropolitan Division labor market. That gap *increased* to 7 percentage points by 2016. The gap between Camden and the DFG-A districts in the Camden, NJ Metropolitan Division was 5 percentage points in 2011; that *increased* to 6 percentage points by 2016. **When compared to districts that are geographically close, Newark and Camden show graduation rate increases that are *smaller* than demographically similar districts.**

To summarize: **The claim that either Camden or Newark have seen significant increases in graduation rates over the last six years due to specific policies within those districts is contradicted by the fact that *all* similar New Jersey districts also saw increases in their graduation rates.**

## Is “Credit Recovery” Responsible for Higher Graduation Rates?

What is responsible for the rise in graduation rates in New Jersey's DFG-A school districts? While a complete answer is beyond the scope of an analysis of graduation rate data, a clue may be found in the timing of the increases from year-to-year in Newark.

Newark saw a statistically significant increase in its graduation rate, compared to other DFG-A districts, in 2012. The difference evaporated, however, by 2014. We might consider that the cause of the rise for all districts, then, is due to programs or policies implemented earlier by Newark, and then later by other DFG-A districts.

In 2012, State Superintendent Anderson released a report to the Newark Public Schools Advisory Board.<sup>22</sup> The report claims 1,856 high school students attended a “credit recovery” program during the previous summer – approximately 20 percent of the number of Grade 9 to 12 students enrolled in the district in the fall of 2011. There is no conclusive evidence this number is high compared to previous credit recovery enrollments; however, such a large enrollment warrants considering the role of credit recovery in Newark's relatively early rise in graduation rates.

According to a report from the Center for Public Education:

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<sup>21</sup> Weber & Baker (2017). *Ibid.*

<sup>22</sup> <http://www.nps.k12.nj.us/wp-content/uploads/mdocs/October2012.pdf> See p. 11.



*“Credit recovery programs sprung up to help schools graduate more students by giving students who have fallen behind the chance to ‘recover’ credits through a multitude of different strategies, often through various online options.”<sup>23</sup>*

Credit recovery is controversial, in part because the term encompasses a wide range of programs, and in part because the research base on credit recovery programs is thin. A 2016 report from the American Institutes for Research and the University of Chicago Consortium on School Research is one of the few rigorous studies of a credit recovery program (in the Chicago Public Schools).<sup>24</sup> The study found that credit recovery student scores in an end-of-course algebra test were low, and that students in online courses scored significantly lower than students in face-to-face courses.

NJDOE has not published any comprehensive review of the various types of credit recovery programs established in New Jersey school districts. Both Camden and Newark, however, have promoted their credit recovery programs in recent years.<sup>25</sup>

## Conclusions and Recommendations

Both Camden and Newark have seen their graduation rates rise in the last six years; their gains, however, are part of an *overall* trend for all DFG-A districts in New Jersey. The gains in graduation rates from 2011 to 2016 in either city are not statistically significantly different from the gains found in similar districts across the state.

While this analysis cannot provide an explanation for the gains in DFG-A graduation rates, the timing of the gains in Newark and elsewhere suggest credit recovery programs may be at least one cause for the gains. Little, however, is known about these programs, and whether they reflect true instructional improvements.

Based on the findings of this research brief, I recommend:

- State and local officials who are proponents of the “reforms” in Camden and Newark should acknowledge that graduation rates have been rising throughout the state in DFG-A districts, and that gains in these cities are part of an overall trend.
- NJDOE should improve the monitoring of and reporting on credit recovery programs, particularly when districts see quick gains in graduation rates within a district.

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<sup>23</sup> <http://www.centerforpubliceducation.org/Main-Menu/Staffingstudents/Credit-recovery-programs/Credit-recovery-programs-full-report.html>

<sup>24</sup> <https://consortium.uchicago.edu/publications/back-track-study-using-online-courses-credit-recovery>

<sup>25</sup> For example: <http://content.nps.k12.nj.us/summerprograms/wp-content/uploads/sites/115/2017/04/2017-NPS-Summer-Program-Guide.pdf>  
<https://www.camdenenrollment.org/blog/20-ways-to-learn-and-have-fun-this-summer>

- The NJ State Board of Education should codify standards for credit recovery programs and authorize their regulation by the NJDOE.

## Appendix A: Difference-In-Difference Modeling of Graduation Rate Changes

In this section, I explain the methodology for testing the statistical significance of graduation rate gains in Camden and Newark relative to the rest of the state. *Difference-in-differences* models are a standard econometric technique used to account for overall or *secular* trends in a study population. In a DID model, the dependent variable – in this case, graduation rates – is explained by three factors:

1. The year-to-year changes in all of the study population's rates.
2. The starting point of the district of interest (Camden or Newark).
3. The *interaction term*: how much greater or smaller the year-to-year changes were in the district of interest compared to the rest of the study population.

The first model I employ simply uses these three factors:

$$\begin{aligned} \text{GraduationRate}_{it} &= \beta_0 + \beta_1 \text{Year}_t + \beta_2 \text{DistrictOfInterest} + \beta_3 \text{Year}_t * \text{DistrictOfInterest} \\ &+ \varepsilon_{it} \end{aligned}$$

In this model, the coefficient of *Year\*DistrictOfInterest* gives the year-to-year difference of either Newark or Camden in graduation rate changes compared to the other DFG-A districts. The coefficient's standard error (clustered by district) tells us whether the change is statistically significant (I apply the  $p < 0.05$  and  $p < 0.01$  standards, common in the social sciences). 2011 is the baseline year.

The advantage of a DID methodology is that it can incorporate other variables to make the model more refined. In my second model, I add two covariates that describe student populations: the percentage of a district's high school students who are Limited English Proficient (LEP), and the percentage who are classified as having a special education need.<sup>26</sup>

$$\begin{aligned} \text{GraduationRate}_{it} &= \beta_0 + \beta_1 \text{Year}_t + \beta_2 \text{DistrictOfInterest} + \beta_3 \text{Year}_t * \text{DistrictOfInterest} \\ &+ \beta_4 \text{LEP}_{it} + \beta_5 \text{SpecialEducation}_i + \varepsilon_{it} \end{aligned}$$

The special education rate is a five-year weighted average for the schools reporting graduation rates within the district. The variable does not vary over time; in addition, it is not uniformly reported by NJDOE, one year of data was not available, and the figures were not reported in

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<sup>26</sup> I choose to omit the percentage of students who are eligible for free or reduced-price lunch from this model for two reasons. First, because the study population is limited to DFG-A districts, there is much less variability in this measure than if the study population was all New Jersey districts. Second, there is reason to believe FRPL percentage has become somewhat unreliable in New Jersey urban districts, due to universal enrollment in free lunch programs. I explore this issue further in upcoming research.

the same format every year.<sup>27</sup> Because of these concerns, I include one additional model, without the special education percentage included.

$$\begin{aligned} \text{GraduationRate}_{it} &= \beta_0 + \beta_1 \text{Year}_t + \beta_2 \text{DistrictOfInterest} + \beta_3 \text{Year}_t * \text{DistrictOfInterest} \\ &+ \beta_4 \text{LEP}_{it} + \varepsilon_{it} \end{aligned}$$

Table 1 shows the regression output with Newark as the district of interest; in Table 2, the district of interest is Camden. In both cases, the 2016 interaction term is not statistically significant. It is worth noting that the 2012 interaction term for Newark shows a statistically significant gain in that year. The gain is gone, however, by 2014.

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<sup>27</sup> Special education percentages for 2011-2013 were provided by Dr. Danielle Farrie, Education Law Center; my thanks to Dr. Farrie for allowing me access to the data, which was provided by NJDOE under an Open Public Records Request. Special education percentages for 2015-2016 were downloaded directly from the NJDOE data website, using data from the school performance reports: <https://rc.doe.state.nj.us/PerformanceReports.aspx> No data were available for the 2014 year. Special education percentages are calculated for the district by weighted mean of only those schools reporting a Grade 9 to Grade 12 enrollment; weights are grade 9 enrollment.

Table 1

**Regression Table: Newark Schools Graduation Rate vs. Other DFG-A Schools (includes charters)**

	<u>Model #1</u>			<u>Model #2</u>			<u>Model #3</u>		
	Newark*Year Interaction			Newark*Year Interaction & All Covariates			Newark*Year Interaction & Time-Varying Covariates		
	<i>Coeff.</i>	<i>S.E.</i>	<i>p</i>	<i>Coeff.</i>	<i>S.E.</i>	<i>p</i>	<i>Coeff.</i>	<i>S.E.</i>	<i>p</i>
LEP pct.				-0.545	0.262	0.044*	-0.392	0.231	0.099
SpecEd pct.				-0.620	0.342	0.078			
2012	-0.009	0.014	0.540	-0.007	0.015	0.629	-0.008	0.015	0.606
2013	0.009	0.021	0.689	0.005	0.023	0.831	0.006	0.022	0.772
2014	0.054	0.025	0.034*	0.057	0.026	0.037*	0.058	0.026	0.034*
2015	0.093	0.020	0.000**	0.097	0.022	0.000**	0.097	0.021	0.000**
2016	0.096	0.023	0.000**	0.102	0.025	0.000**	0.102	0.025	0.000**
Newark	-0.058	0.031	0.000**	-0.080	0.032	0.017*	-0.077	0.032	0.022*
<b>Interaction - Newark:</b>									
<b>*2012</b>	<b>0.081</b>	<b>0.014</b>	<b>0.000**</b>	<b>0.083</b>	<b>0.015</b>	<b>0.000**</b>	<b>0.083</b>	<b>0.015</b>	<b>0.000**</b>
<b>*2013</b>	<b>0.055</b>	<b>0.023</b>	<b>0.021*</b>	<b>0.059</b>	<b>0.024</b>	<b>0.019*</b>	<b>0.058</b>	<b>0.023</b>	<b>0.017*</b>
<b>*2014</b>	<b>0.029</b>	<b>0.026</b>	<b>0.277</b>	<b>0.022</b>	<b>0.027</b>	<b>0.416</b>	<b>0.024</b>	<b>0.027</b>	<b>0.376</b>
<b>*2015</b>	<b>-0.011</b>	<b>0.021</b>	<b>0.592</b>	<b>-0.016</b>	<b>0.024</b>	<b>0.518</b>	<b>-0.014</b>	<b>0.023</b>	<b>0.549</b>
<b>*2016</b>	<b>0.018</b>	<b>0.026</b>	<b>0.491</b>	<b>0.010</b>	<b>0.033</b>	<b>0.757</b>	<b>0.014</b>	<b>0.030</b>	<b>0.643</b>
Constant	0.684	0.026	0.000**	0.834	0.070	0.000**	0.720	0.033	0.000**
<i>N</i>	200			200			200		
<i>N-cluster</i>	38			38			38		
<i>R-sq.</i>	0.200			0.306			0.244		

All regressions use analytic weights; weighting by total students enrolled in the freshman year of the graduating class.

All charter schools located in DFG-A districts are included; charters in Newark are part of the "One Newark" group.

Standard errors in all models clustered by district.

\*  $p < 0.05$ ; \*\*  $p < 0.01$

Table 2

Regression Table: Camden Schools Graduation Rate vs. Other DFG-A Schools (includes charters)

	<u>Model #1</u>			<u>Model #2</u>			<u>Model #3</u>		
	Camden *Year Interaction			Camden *Year Interaction & All Covariates			Camden*Year Interaction & Time-Varying Covariates		
	<i>Coeff.</i>	<i>S.E.</i>	<i>p</i>	<i>Coeff.</i>	<i>S.E.</i>	<i>p</i>	<i>Coeff.</i>	<i>S.E.</i>	<i>p</i>
LEP pct.				-0.400	0.247	0.113	-0.293	0.231	0.213
SpecEd pct.				-0.515	0.330	0.128			
2012	0.007	0.016	0.655	0.009	0.017	0.605	0.009	0.017	0.614
2013	0.018	0.020	0.391	0.016	0.022	0.474	0.016	0.021	0.443
2014	0.055	0.022	0.016*	0.058	0.023	0.017*	0.058	0.023	0.016*
2015	0.088	0.018	0.000**	0.091	0.019	0.000**	0.090	0.019	0.000**
2016	0.095	0.021	0.000**	0.099	0.022	0.000**	0.100	0.022	0.000**
Camden	-0.076	0.051	0.000**	-0.038	0.054	0.477	-0.080	0.051	0.123
<b>Interaction - Camden:</b>									
<b>*2012</b>	<b>-0.034</b>	<b>0.063</b>	<b>0.593</b>	<b>-0.045</b>	<b>0.052</b>	<b>0.393</b>	<b>-0.037</b>	<b>0.061</b>	<b>0.545</b>
<b>*2013</b>	<b>0.003</b>	<b>0.065</b>	<b>0.963</b>	<b>-0.004</b>	<b>0.053</b>	<b>0.938</b>	<b>0.005</b>	<b>0.063</b>	<b>0.939</b>
<b>*2014</b>	<b>0.076</b>	<b>0.067</b>	<b>0.265</b>	<b>0.050</b>	<b>0.051</b>	<b>0.331</b>	<b>0.071</b>	<b>0.066</b>	<b>0.284</b>
<b>*2015</b>	<b>0.043</b>	<b>0.059</b>	<b>0.470</b>	<b>0.025</b>	<b>0.046</b>	<b>0.584</b>	<b>0.042</b>	<b>0.059</b>	<b>0.479</b>
<b>*2016</b>	<b>0.069</b>	<b>0.034</b>	<b>0.053</b>	<b>0.042</b>	<b>0.028</b>	<b>0.138</b>	<b>0.063</b>	<b>0.034</b>	<b>0.073</b>
Constant	0.678	0.025	0.000**	0.794	0.062	0.000**	0.703	0.034	0.000**
<i>N</i>	200			200			200		
<i>N-cluster</i>	38			38			38		
<i>R-sq.</i>	0.195			0.261			0.223		

All regressions use analytic weights; weighting by total students enrolled in the freshman year of the graduating class.

All charter schools located in DFG-A districts are included; charters in Newark are part of the "One Newark" group.

Standard errors in all models clustered by district.

\*  $p < 0.05$ ; \*\*  $p < 0.01$

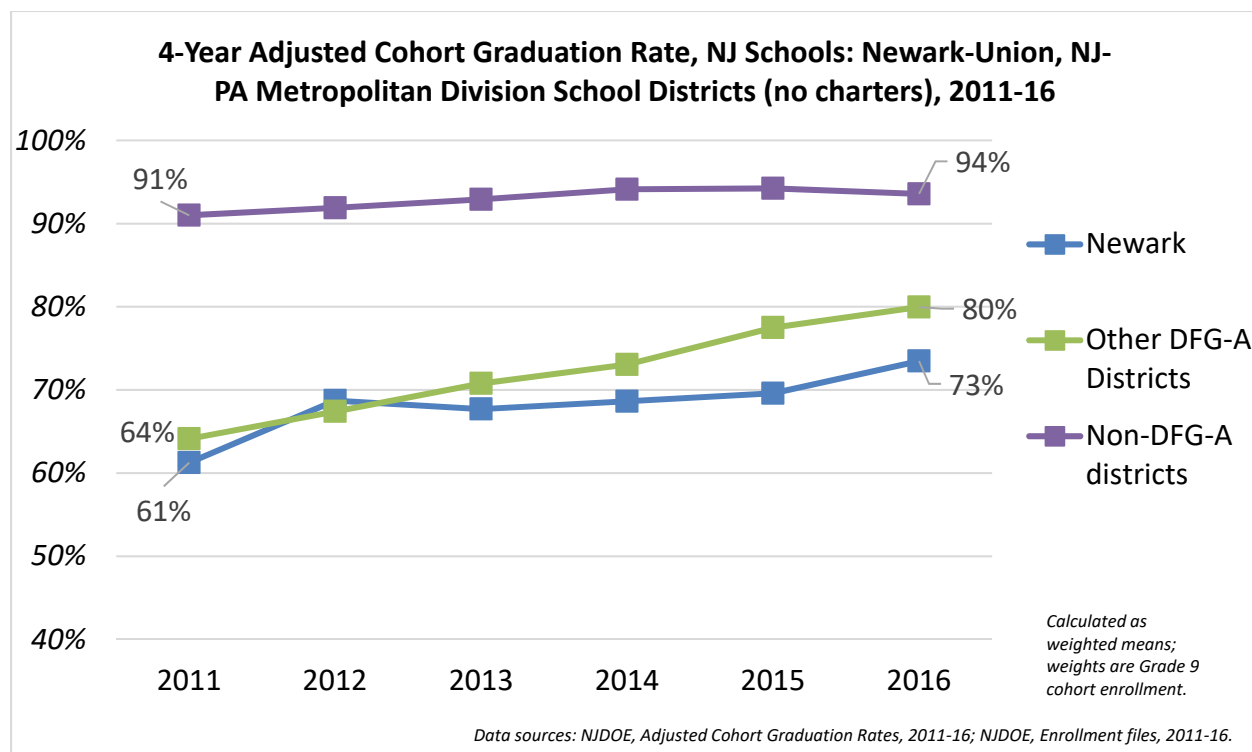
## Appendix B: Graduation Rate Comparisons Within Labor Markets

As I explain above, there is some evidence that geographic region explains changes in educational outcomes in New Jersey. It is useful, therefore, to compare changes in graduation rates only for those districts that are both demographically similar to Camden and Newark, *and* are within the same region.

To select districts that are close to either city, I choose all districts in New Jersey within the same labor market as either Newark or Camden. My data source for linking NJ school districts to a particular labor market is the School Funding Fairness Data System<sup>28</sup>, using 2015 as the reference year. I weight the aggregate graduation rates as I do for the statewide comparisons (see Appendix C).

Figure 3 shows the graduation rates for Newark, all other DFG-A districts within the same labor market, and all non-DFG-A districts in the same labor market.<sup>29</sup> The upward trend for the other DFG-A districts within Newark's labor market is steeper than for Newark alone.

Figure 3

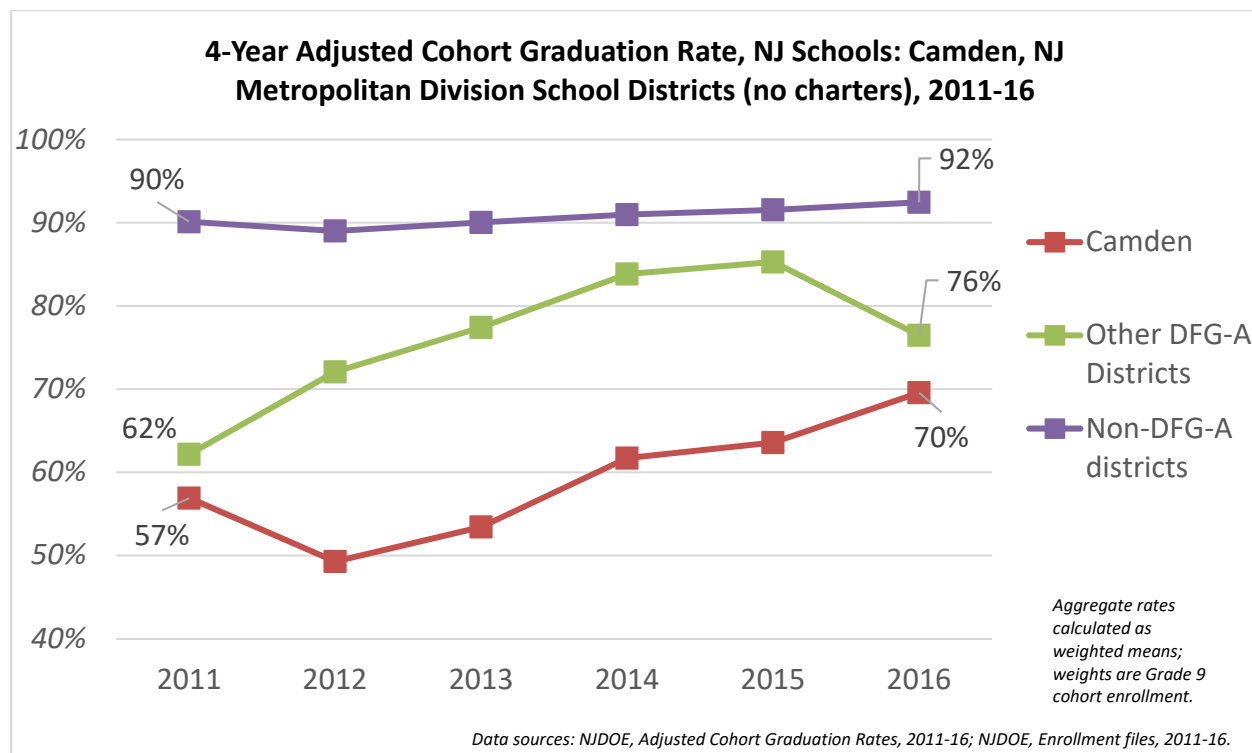


<sup>28</sup> Baker, B.D., Srikanth, A., Weber, M.A. (2016). *Rutgers Graduate School of Education/Education Law Center: School Funding Fairness Data System*. Retrieved from: <http://www.schoolfundingfairness.org/data-download>

<sup>29</sup> The other DFG-A districts are: Dover Town (Morris), East Orange (Essex), Elizabeth City (Union), Irvington Township (Essex), and City Of Orange Township (Essex).

Figure 4 shows the same data for Camden.<sup>30</sup> Again, the other DFG-A district within Camden’s labor market saw a steeper upward trend in its graduation rate through most of the period from 2011 to 2016.

Figure 4



## Appendix C: Data and Weighting

Combining the graduation rates of a district and its charter schools, or all of the districts in DFG-A (aside from Newark and Camden), requires using a *weighted mean*. If the rates aren’t weighted, the graduation rate of a small district or charter school will count just as much as the rate of a large district when those rates are aggregated. There were several possibilities for weighting the graduation rates: by the district’s high schools’ total enrollment, by the fall enrollment of the district’s graduating class in their senior year, or by the fall enrollment of the graduating class in their freshman year. I chose the last option as it is the closest approximation of the denominator in the graduation rate calculation.

All data in this report is from the New Jersey Department of Education:

- Graduation rates (4-year): <http://www.nj.gov/education/data/grate/>
- Enrollment: <http://www.nj.gov/education/data/enr/>

<sup>30</sup> There is only one other DFG-A district within Camden’s labor market: Paulsboro Boro (Gloucester).



- School Performance Reports: <https://rc.doe.state.nj.us/PerformanceReports.aspx>
- District Factor Groups: <http://www.nj.gov/education/finance/rda/dfg.shtml>

For graduation rates, I use the data file that is the most current reporting of graduation rates for that year; for example, the 2013 rate is from the 2016 file.

All statistical analysis was performed on Stata statistical software. Graphs were created in Microsoft Excel.

## About the author

Mark Weber is a PhD candidate in Education Theory, Organization, and Policy at The Graduate School of Education, Rutgers, The State University of New Jersey. He works as a music educator in Warren Township, NJ.

This research brief was produced with no financial support. Data used in this report are all publicly available through cited sources. This analysis is solely the product of the author; all opinions and summaries are the author's alone and do not reflect the views of his employers, Rutgers, or any other party.

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