



K-8 Model Refinements

Dr. Jennifer Fletcher, ADE

Introduction to the Models



Updated Business Rules

- Only included schools who served grades 3-8.
- Used FY16 data unless the calculation (i.e., growth, B25, T25) required two years in which case we also included FY15 data.
- **FAY data only.**
- **8th grade students who took a HS EOC math assessment were utilized for calculations.**
- All tests needed to have a valid test score in order to be counted.
- All proficiency calculations utilized the adjusted 95% denominator per ESSA if the school tested less than 95% of students.
- If a school did not meet the n count of 20 for ELLs, the school was rated out of 90 points rather than 100.
- **Excluded schools with less than 30 test records (i.e., small schools), alternative schools, AOIs, k-12 schools, and k-2 schools from the analysis.**

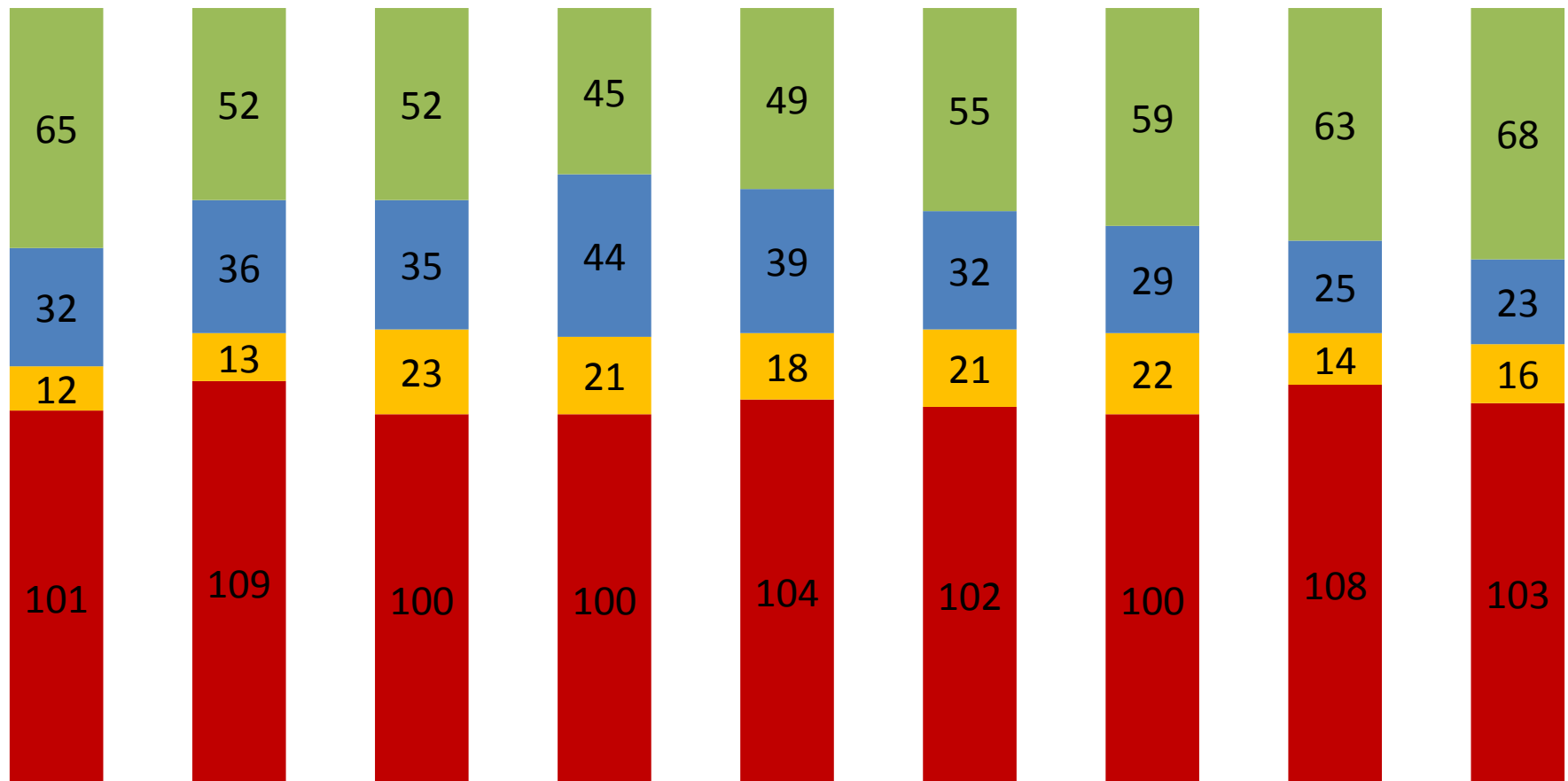
Agenda

- Growth Options
- Refined Models

ELA Band Size



■ Minimally Proficient ■ Partially Proficient ■ Proficient ■ Highly Proficient

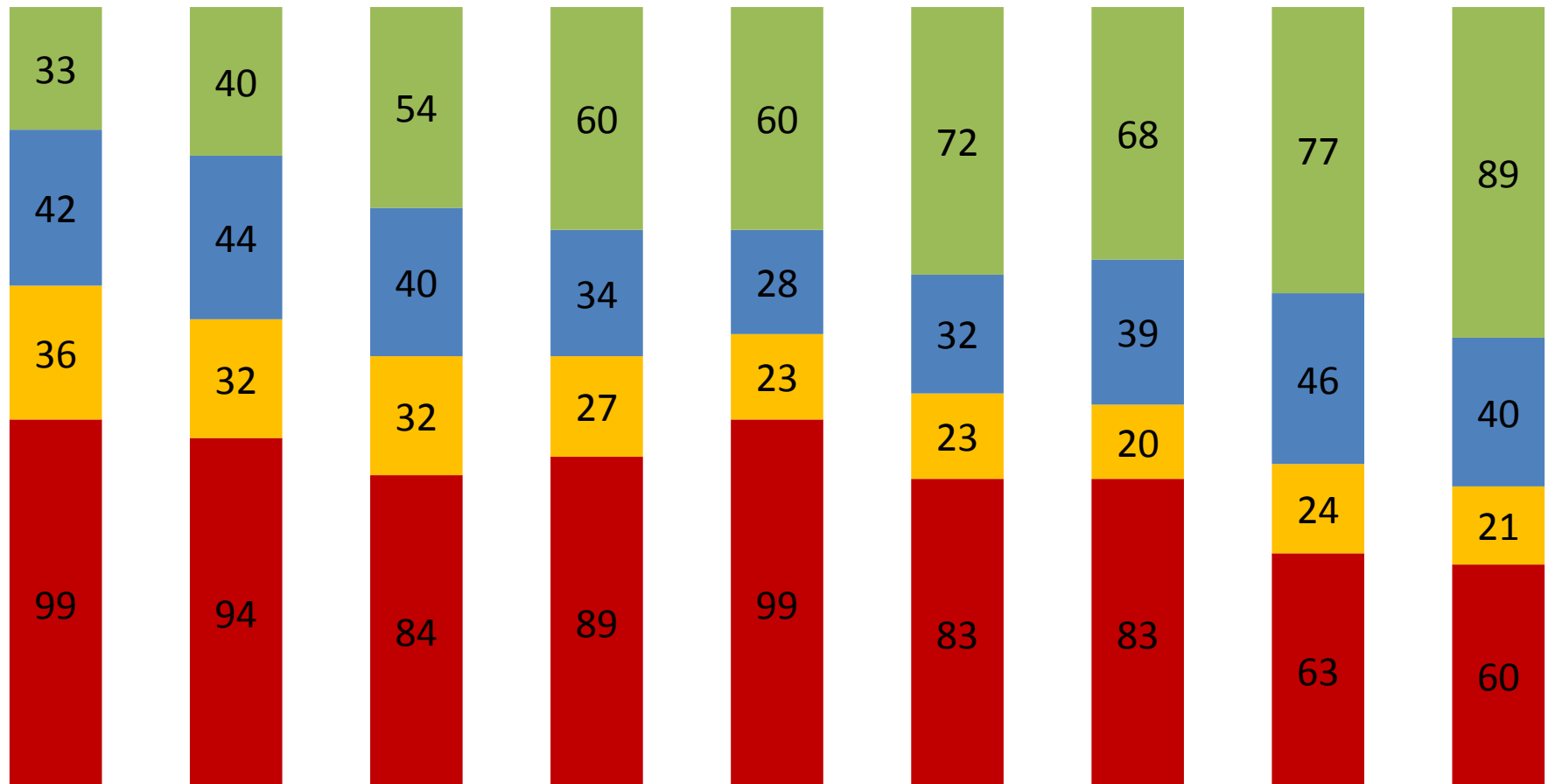


Grade 3 Grade 4 Grade 5 Grade 6 Grade 7 Grade 8 Grade 9 Grade 10 Grade 11

Math Band Size



■ Minimally Proficient ■ Partially Proficient ■ Proficient ■ Highly Proficient



Grade 3 Grade 4 Grade 5 Grade 6 Grade 7 Grade 8 Grade 9 Grade 10 Grade 11

Student Growth Percentile (SGP)

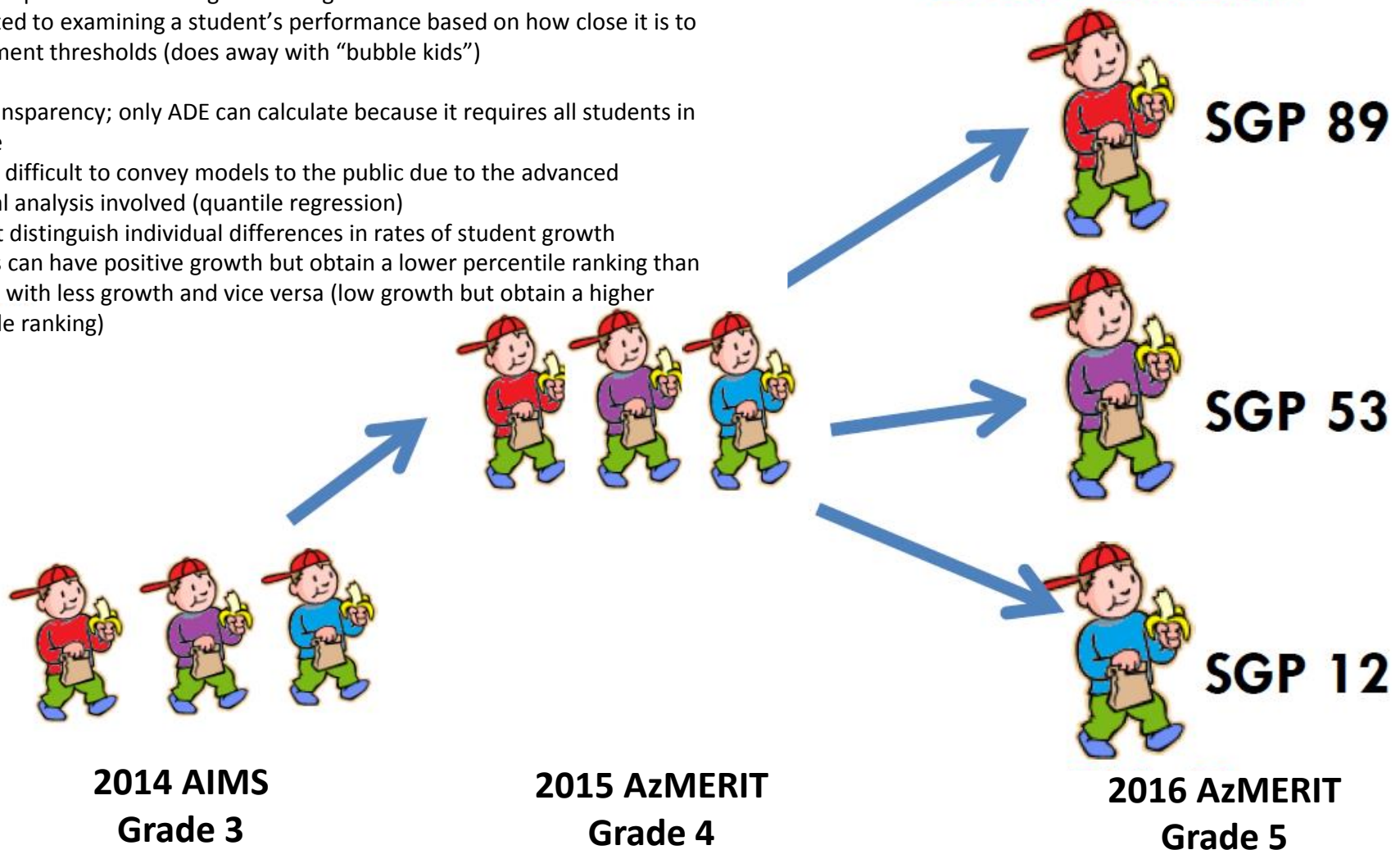


Pros:

- SGPs are valid even when tests are not vertically scaled
- Assess the performance of high achieving students
- Not limited to examining a student's performance based on how close it is to achievement thresholds (does away with "bubble kids")

Cons:

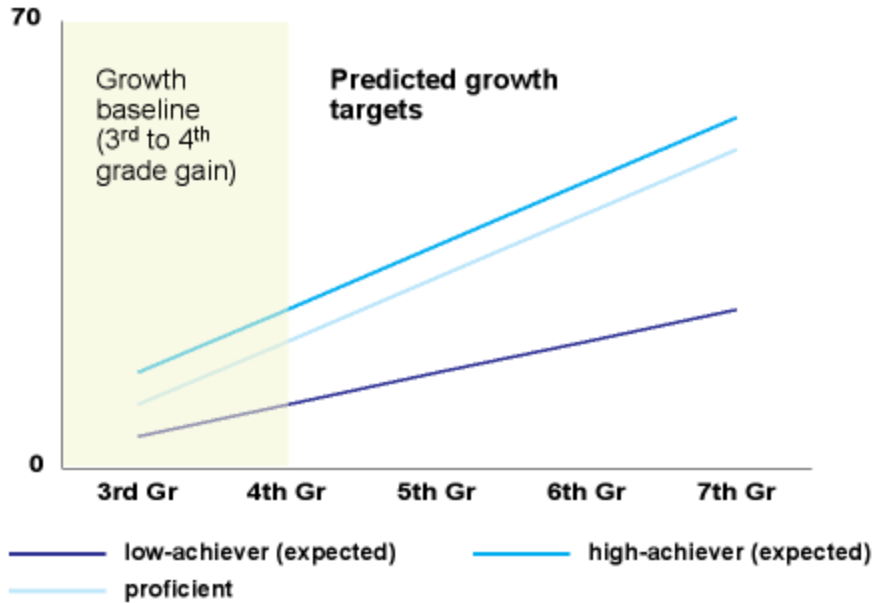
- Lacks transparency; only ADE can calculate because it requires all students in the state
- It can be difficult to convey models to the public due to the advanced statistical analysis involved (quantile regression)
- Does not distinguish individual differences in rates of student growth
- Students can have positive growth but obtain a lower percentile ranking than students with less growth and vice versa (low growth but obtain a higher percentile ranking)



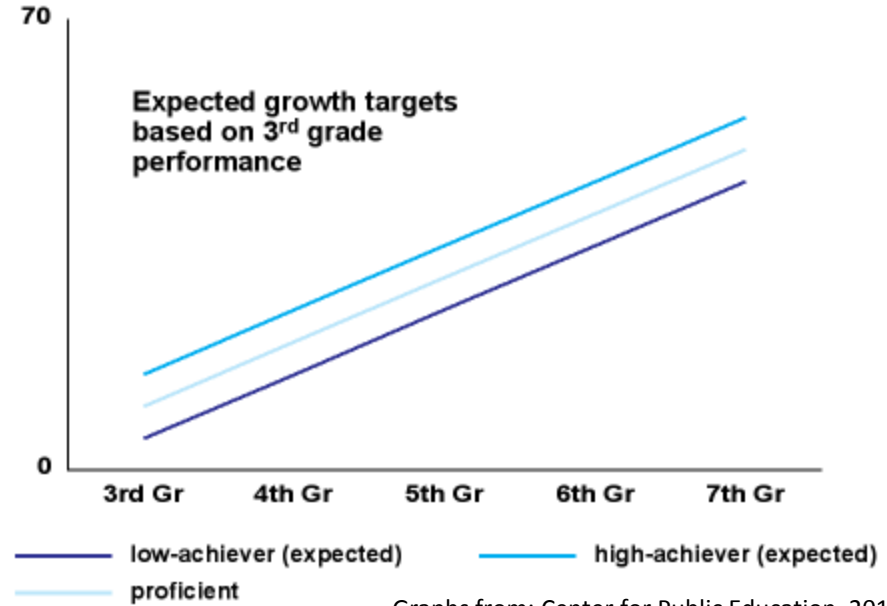
Growth to Target



A **value-added model** sets yearly targets that can predict smaller future growth from low-achievers and widen achievement gaps.



Growth targets based on **simple growth models** expect all students to make one year's growth, but they will not close achievement gaps or move low-achievers to proficient.



Graphs from: Center for Public Education, 2016

Pros:

- Models individual student growth
- Focus is given to all growth and not limited to student achievement of performance thresholds (does away with “bubble kids”)

Cons:

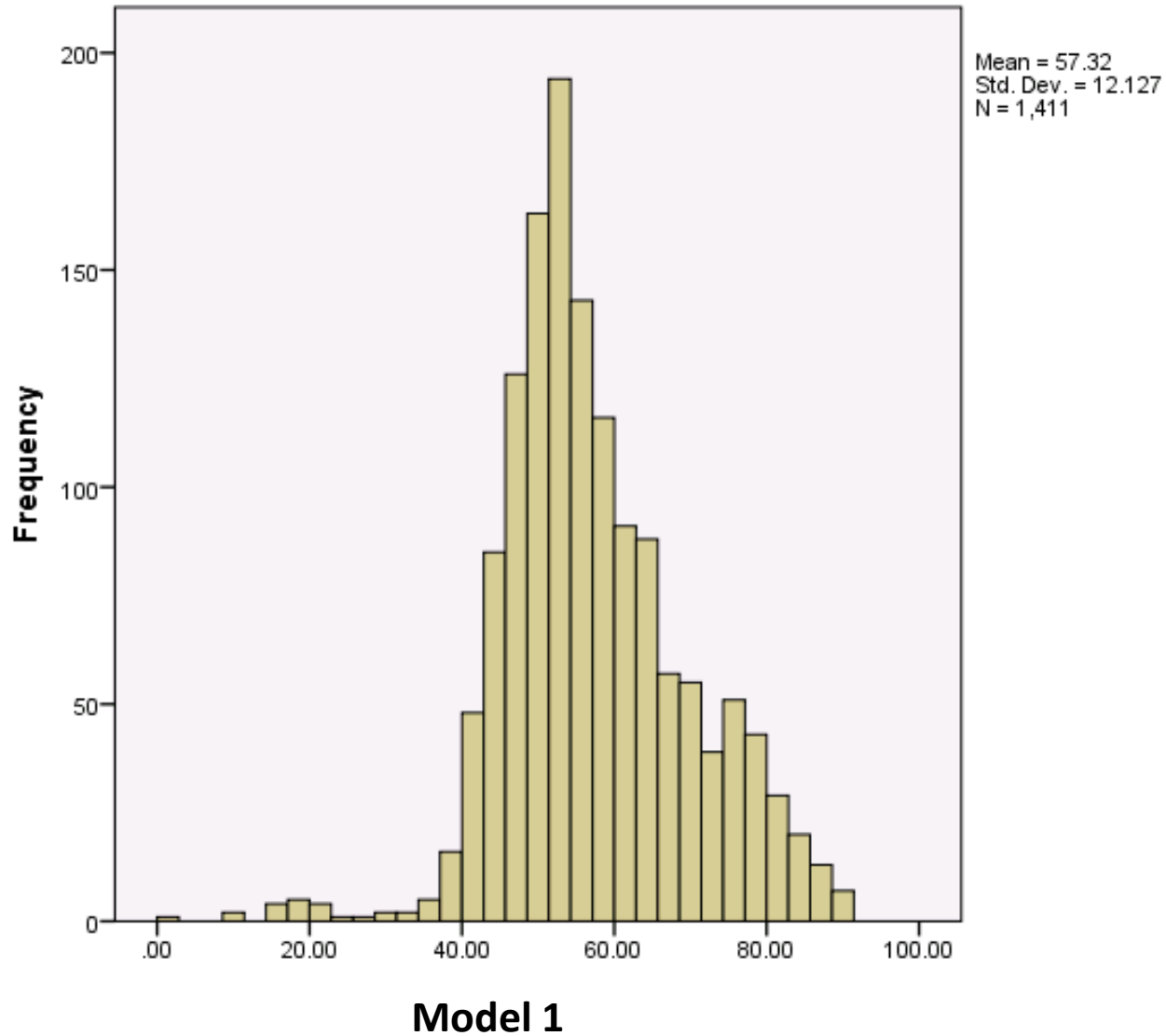
- Requires establishing target(s) for all students and low-achieving subgroups (and subsequently students may have different targets)
- Lacks transparency; requires all students in the state to establish the target
- It can be difficult to convey models to the public due to the advanced statistical analysis involved (regression)
- May result in a “ceiling effect” and not effectively assess the growth of high achieving students

Model 1: Unweighted



Category	Component	Weight	Points/Percent
Proficiency	ELA, Math, and Science Proficiency	40%	40%
Growth	ELA and Math Growth	30%	40%
	Bottom 25% Students' Growth	10%	
ELL	ELL Proficiency on AZELLA	5%	10%
	ELL Growth on AZELLA	5%	
Additional Indicators	Best 2 of: Top 25% Students' AzMERIT Performance (ELA and Math), Decrease in % of grade 3 students below MOWR threshold, Increase in grade 6-8 students taking AzMERIT HS EOC Math	5%	10%
		5%	

Model 1

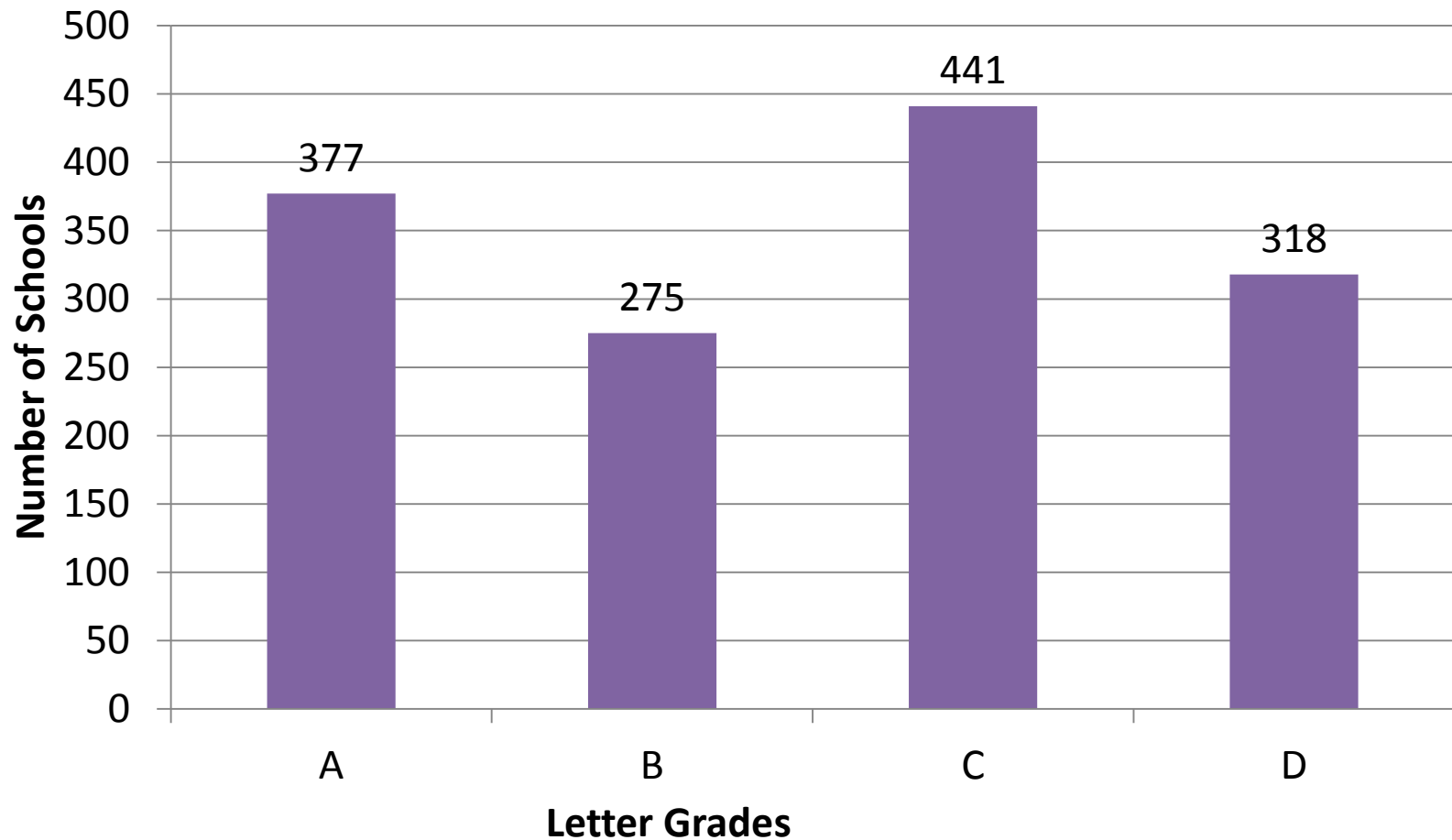


Model 1



70% or higher total points = A, 60-69% = B, 50-59% = C, below 50% = D

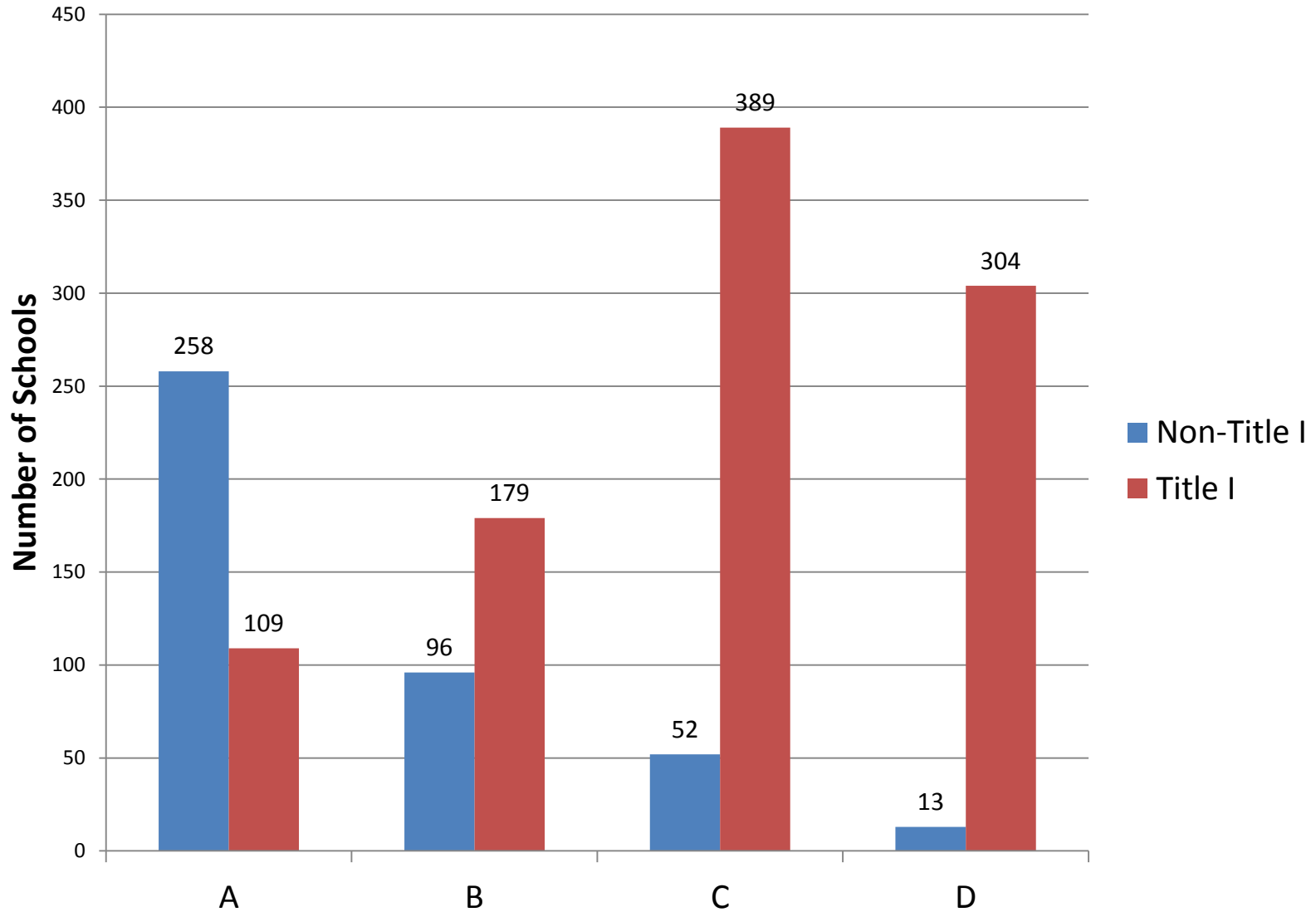
Model 1 Projected Letter Grades



Model 1



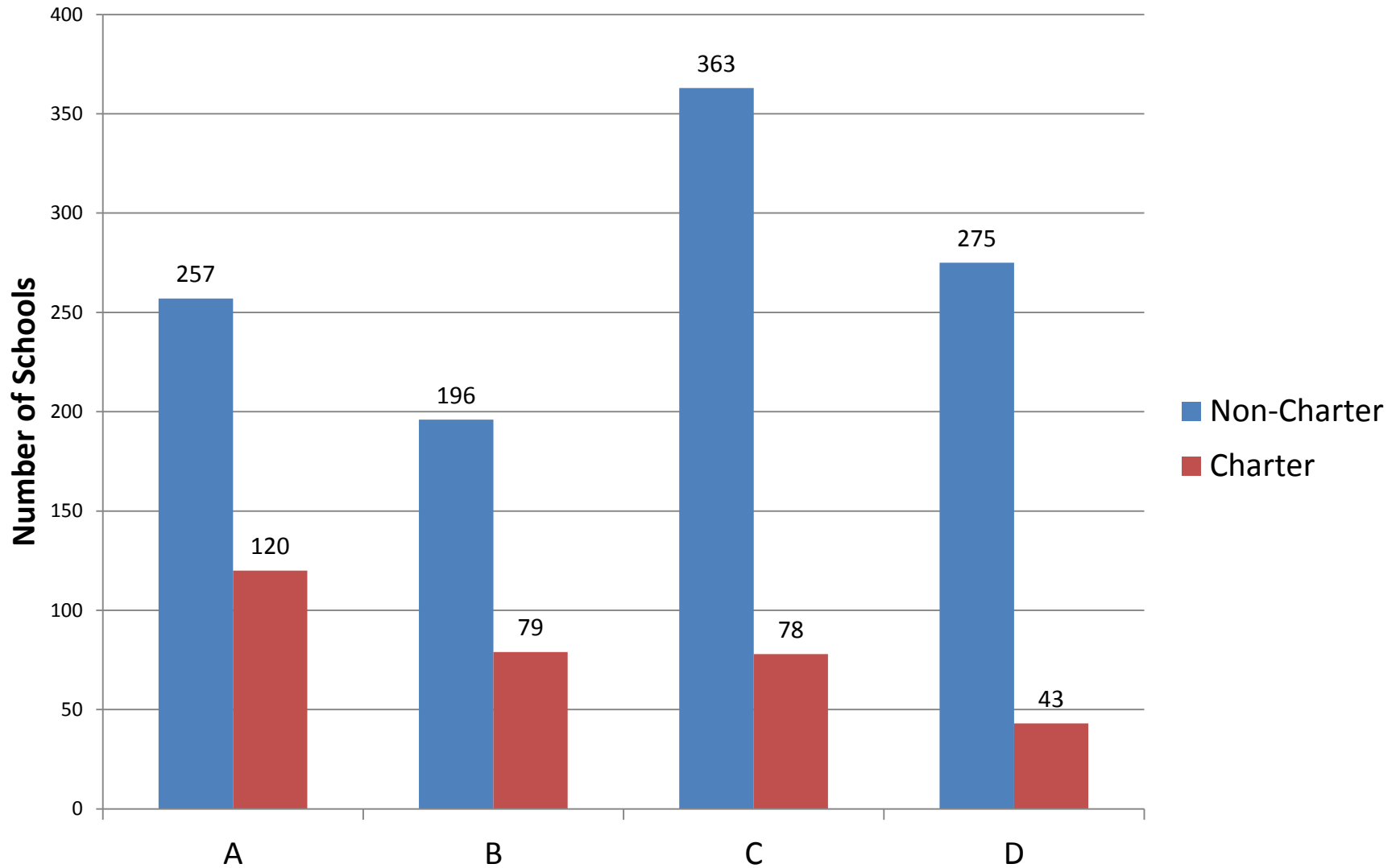
Model 1 Title I vs. Non-Title I



Model 1



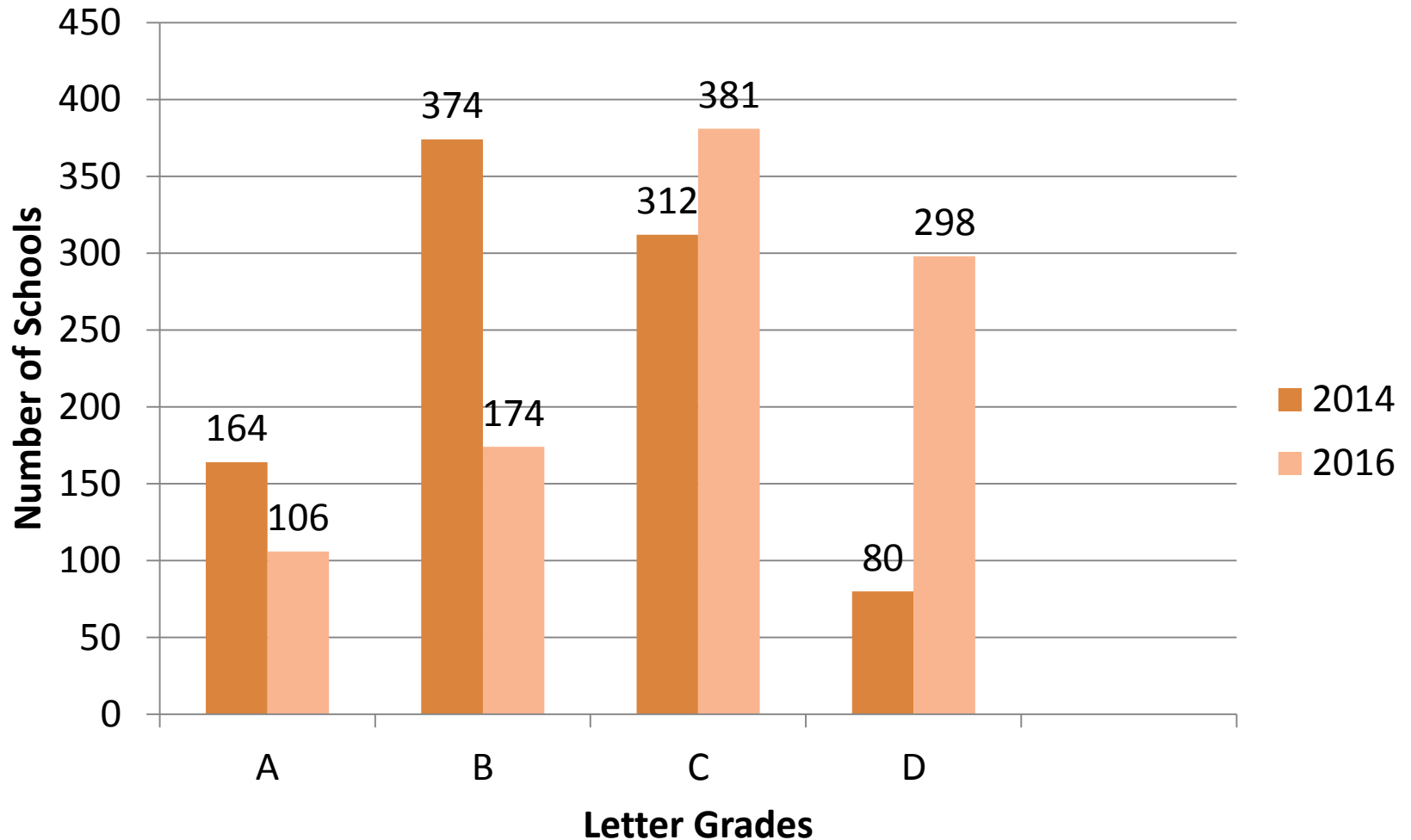
Model 1 Charter vs. Non-Charter



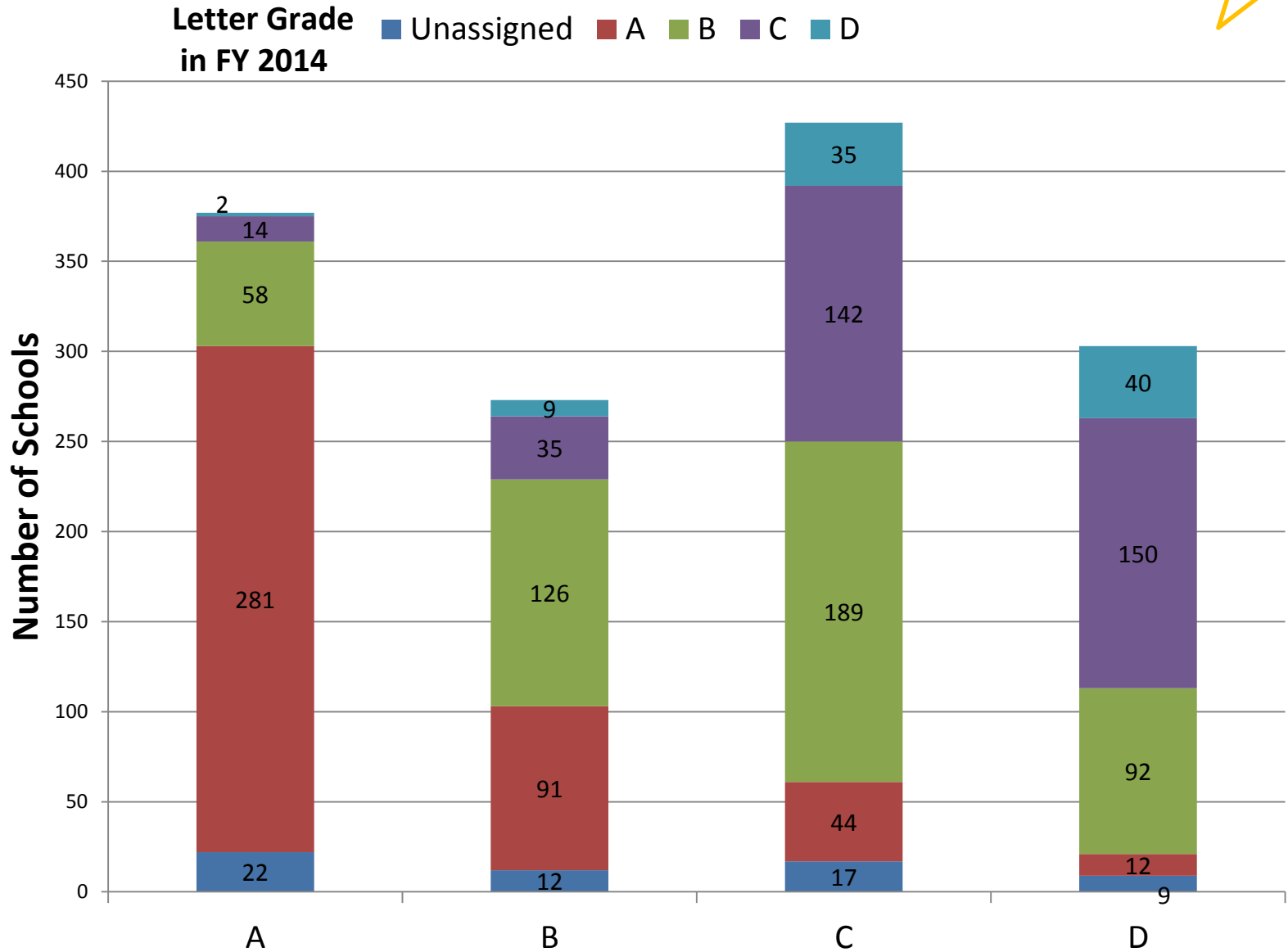
Model 1



Model 1 Title I Schools Only Projected Letter Grade Comparison to FY2014 Letter Grades



Model 1

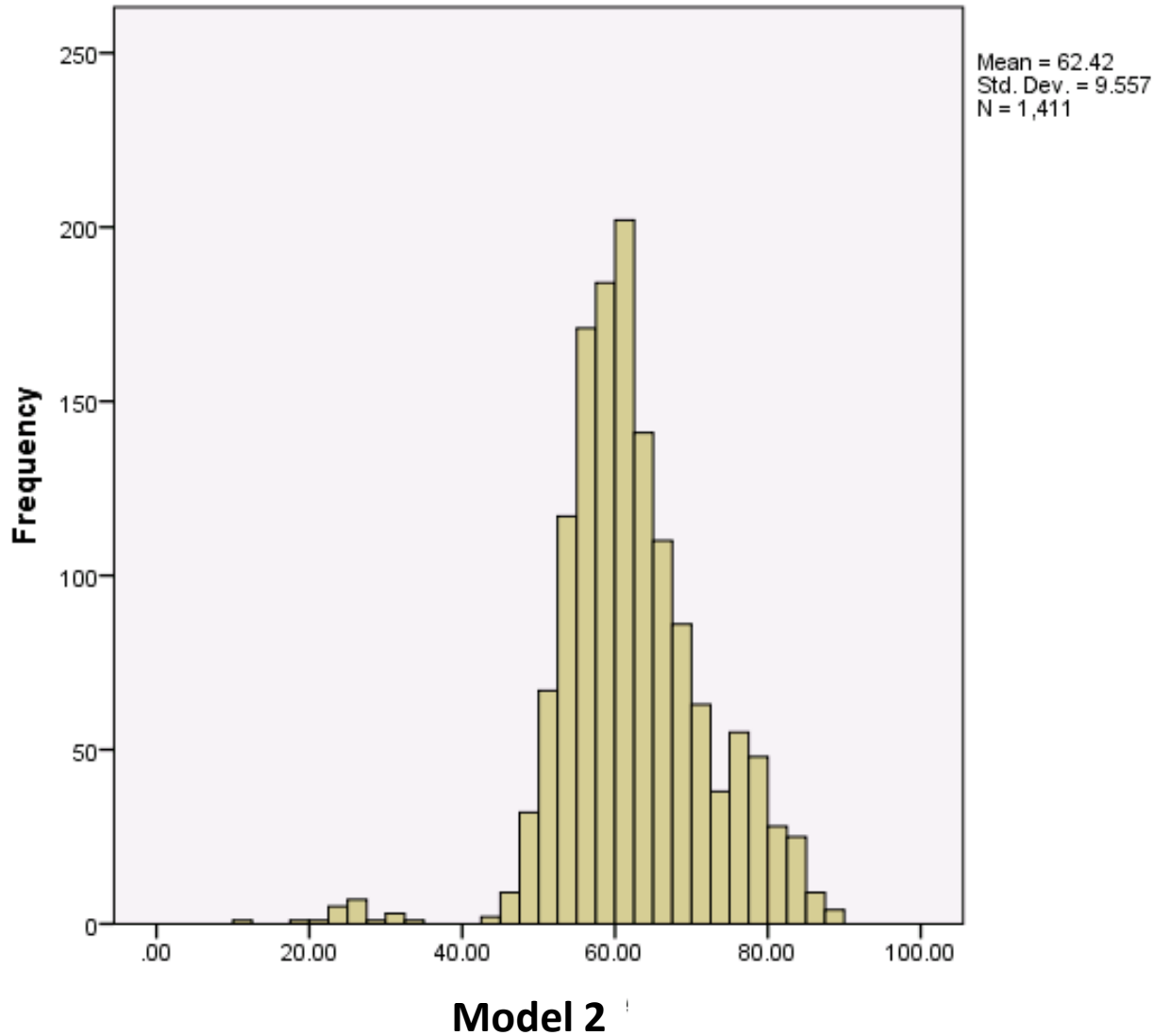


Model 2: Weighted



Category	Component	Weight	Points/Percent
Proficiency	<u>Weighted</u> ELA, Math, and Science Proficiency	40%	40%
Growth	<u>Weighted</u> ELA and Math Growth	30%	40%
	<u>Weighted</u> Bottom 25% Students' Growth	10%	
ELL	ELL Proficiency on AZELLA	5%	10%
	ELL <u>Weighted</u> Growth on AZELLA	5%	
Additional Indicators	Best 2 of: Top 25% Students' AzMERIT Performance (ELA and Math), Decrease in % of grade 3 students below MOWR threshold, Increase in grade 6-8 students taking AzMERIT HS EOC Math	5%	10%
		5%	

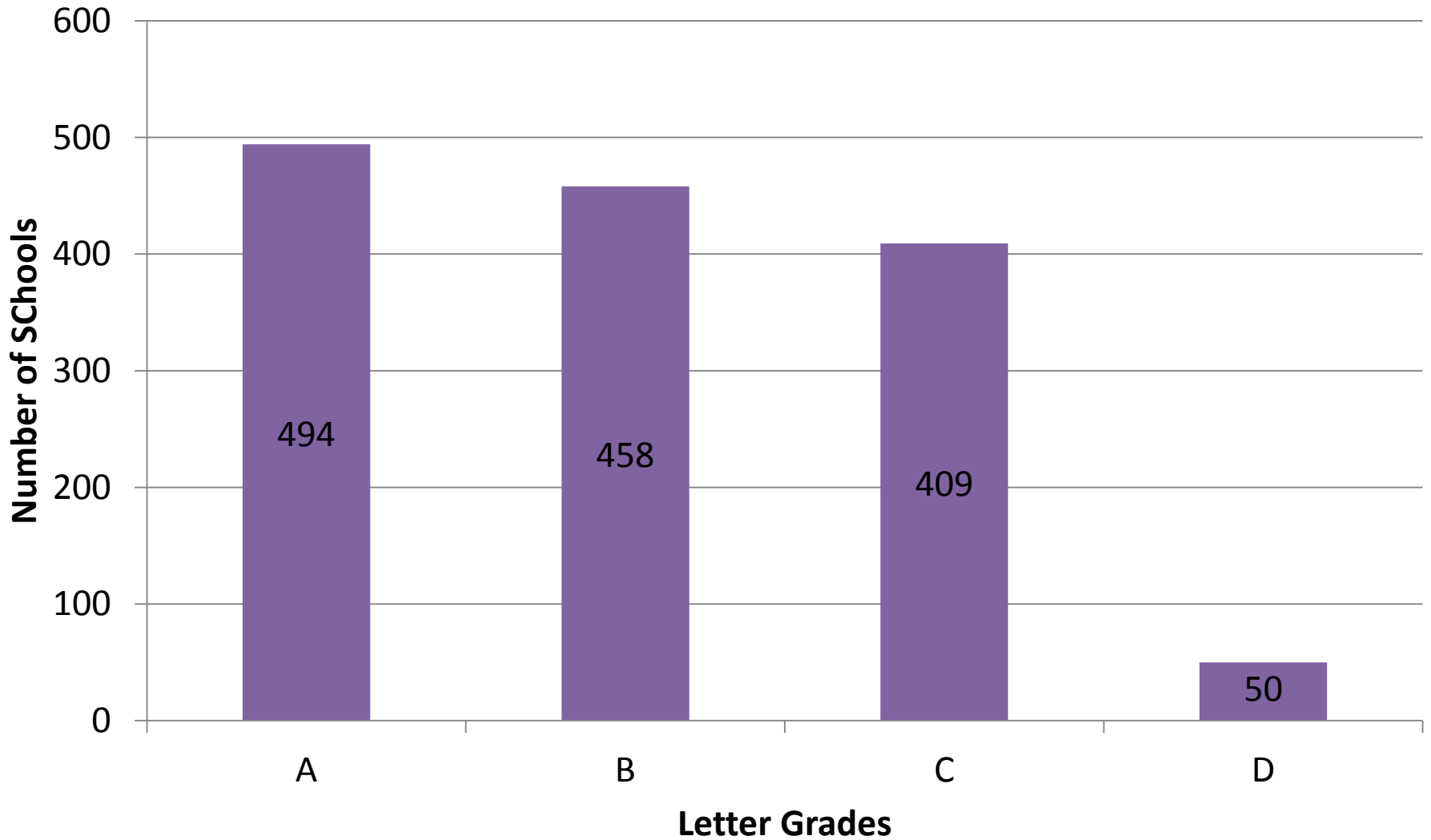
Model 2



Model 2



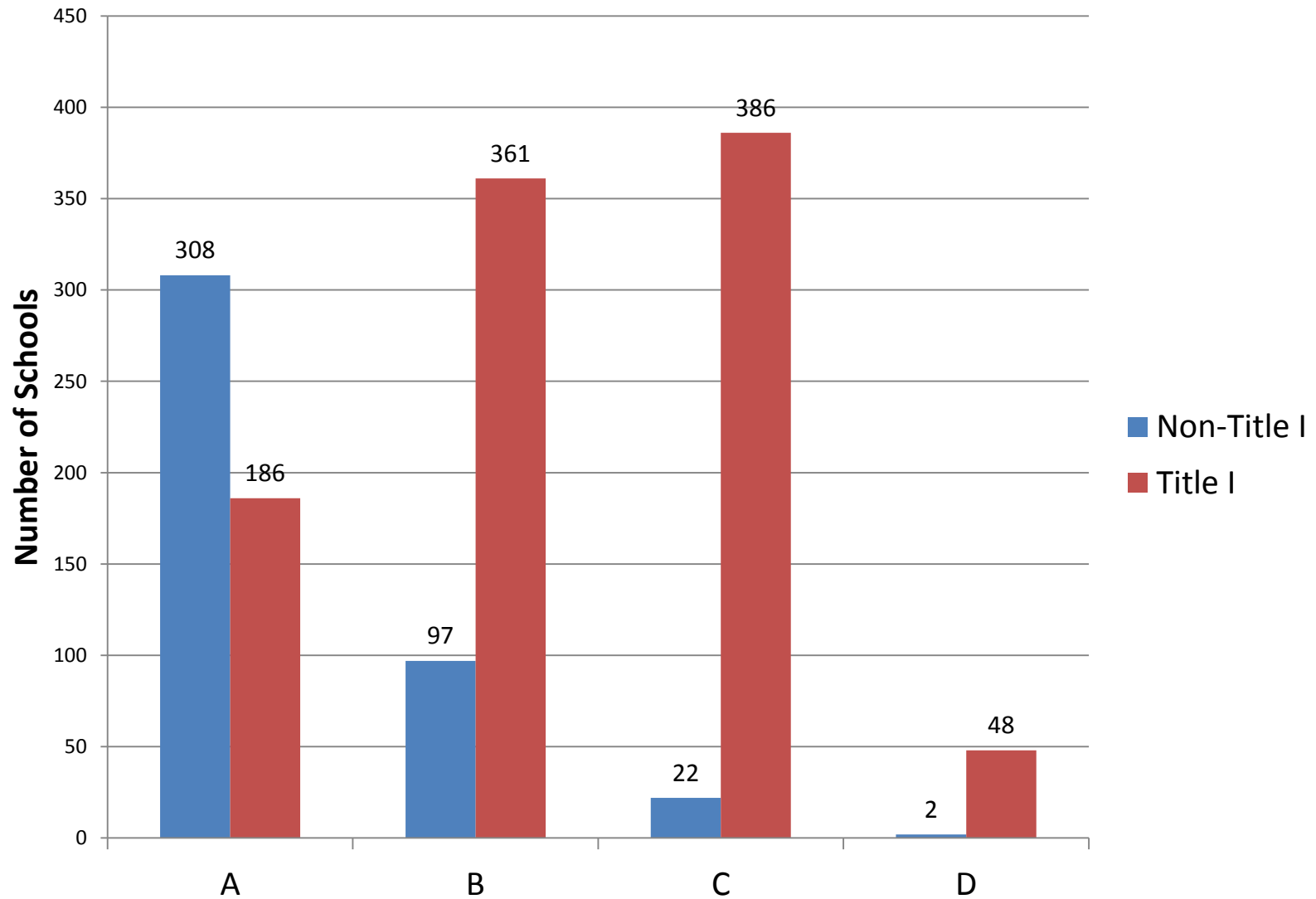
Model 2 Projected Letter Grades



Model 2



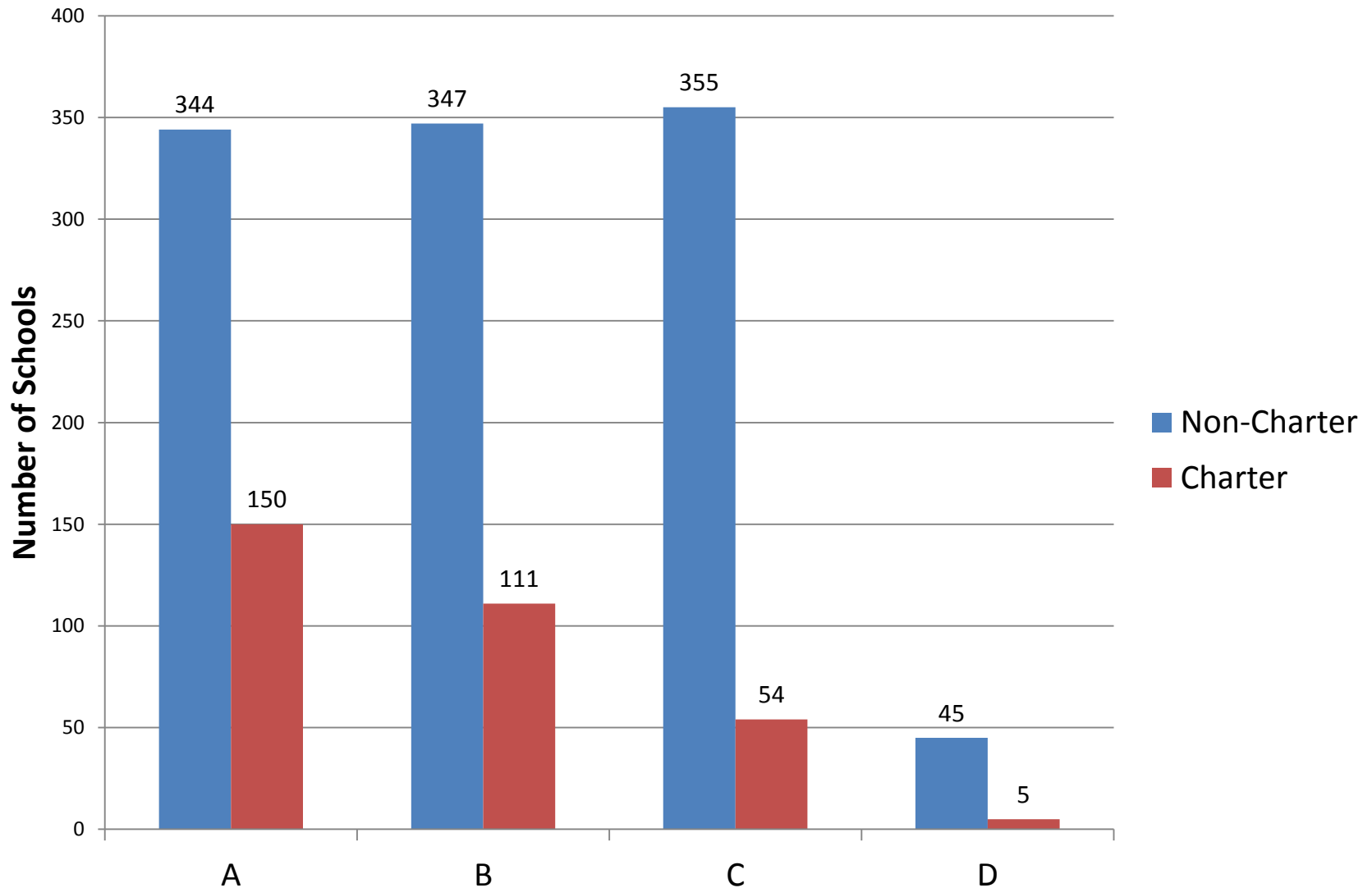
Model 2 Title I vs. Non-Title I



Model 2



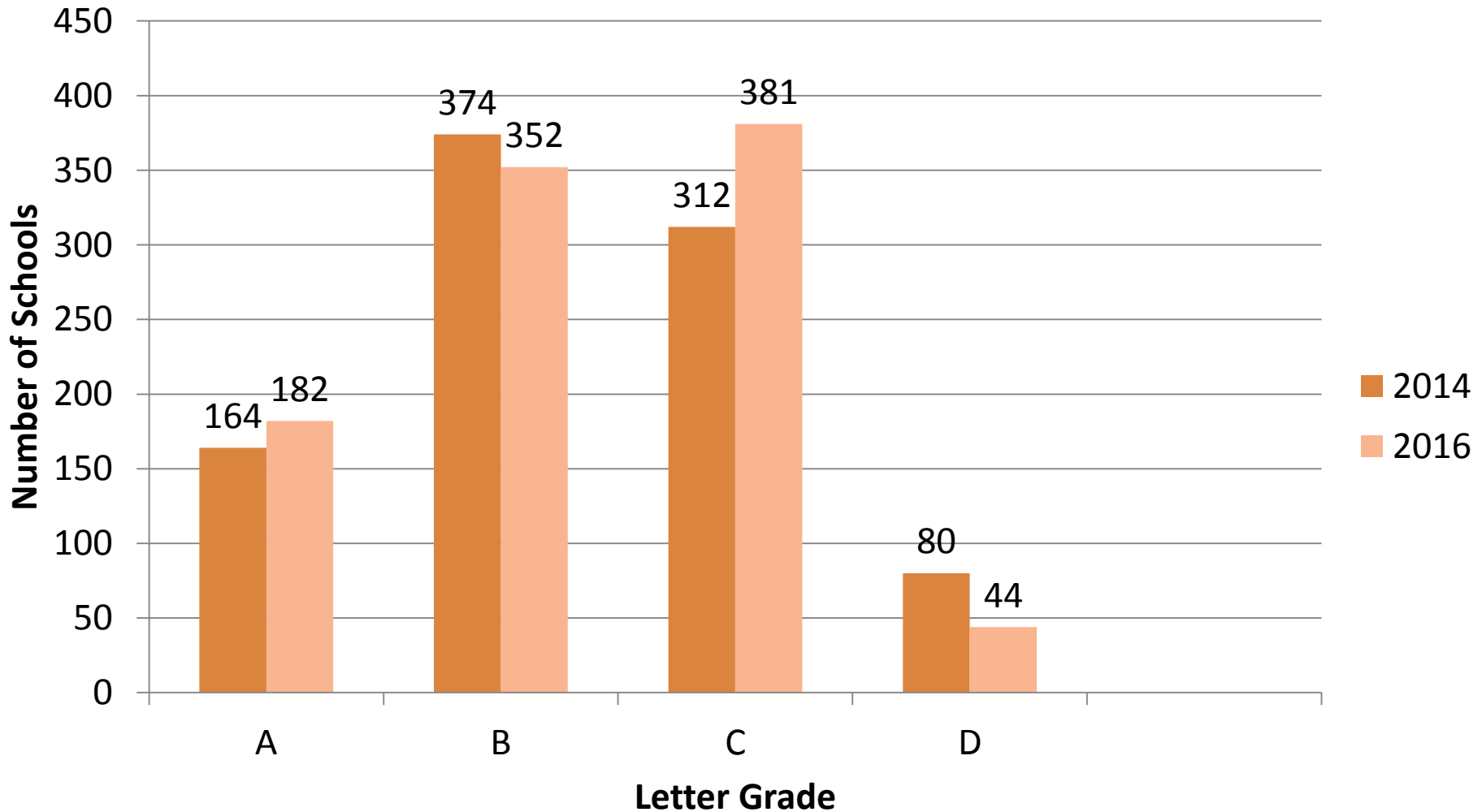
Model 2 Charter vs. Non-Charter



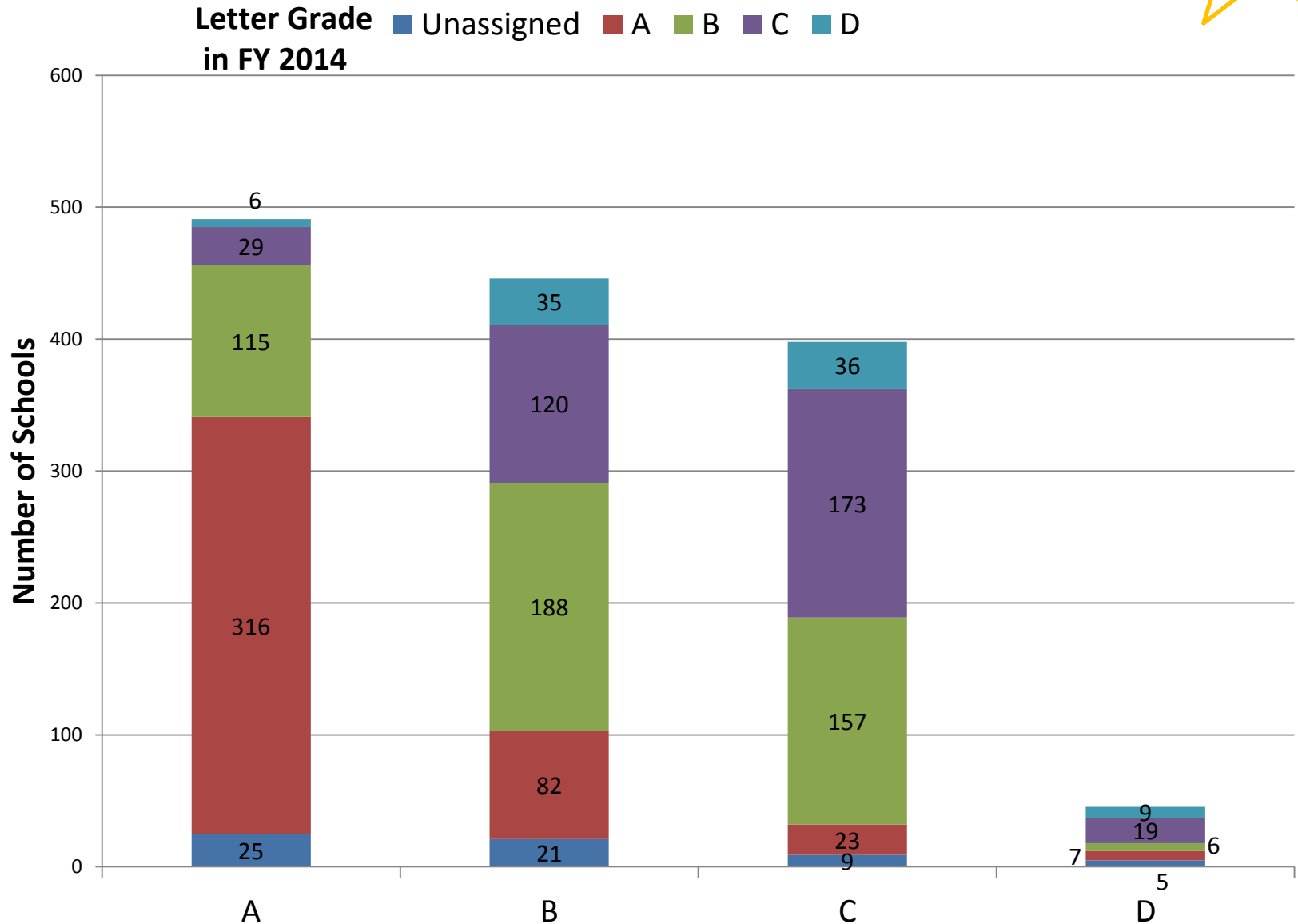
Model 2



**Model 2 Title I Schools Only Projected Letter Grade Comparison to FY2014
Letter Grades**



Model 2





Questions on K-8?



9-12 Model Options

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9-12 Model Options



Business Rules

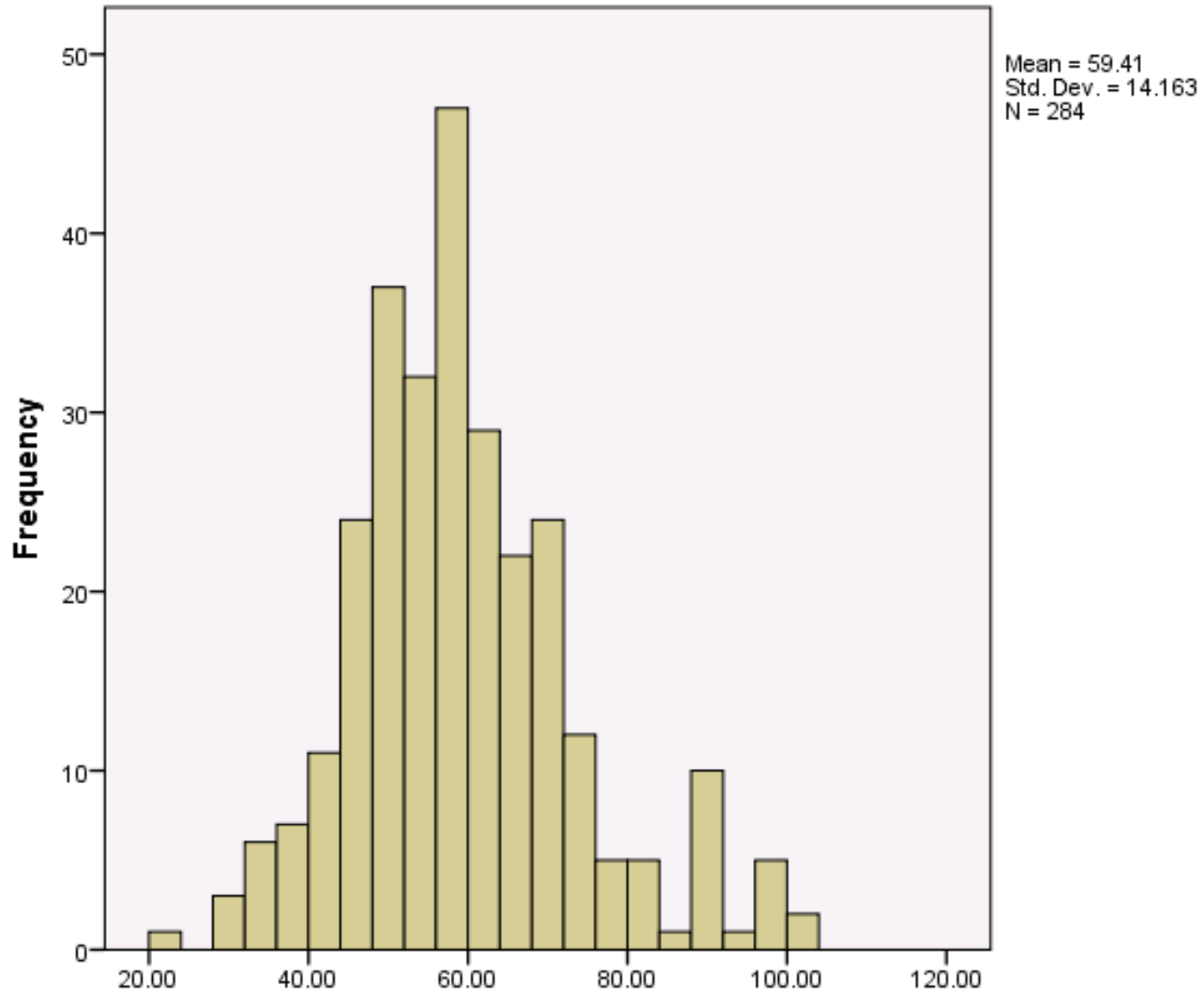
- Only included schools who served grades 9-12.
- Used FY16 data unless the calculation (i.e., growth) required two years in which case we also included FY15 data.
- Proficiency calculations included only students enrolled in grade 11.
- 8th grade students who took a HS EOC math assessment were utilized for growth calculations.
- All tests needed to have a valid test score in order to be counted.
- If a school did not meet the n count of 20 for ELLs, the school was rated out of 90 points rather than 100.
- Excluded schools with less than 30 test records (i.e., small schools), alternative schools, AOIs, and k-12 schools from the analysis.

Model 1: Weighted, CCRI Variation 1



Category	Component	Weight	Points/Percent
Proficiency	ELA, Math, and Science Proficiency	40%	40%
Growth	ELA and Math Growth	20%	20%
ELL	ELL Proficiency on AZELLA	5%	10%
	ELL Growth on AZELLA	5%	
College and Career Ready	Student needed to meet at least 1 College- or Career- Ready indicator to acquire a point	15%	15%
Graduation Rate	4-year	10%	15%
	5-year	3%	
	6-year	2%	
	7-year	2%	

Model 1

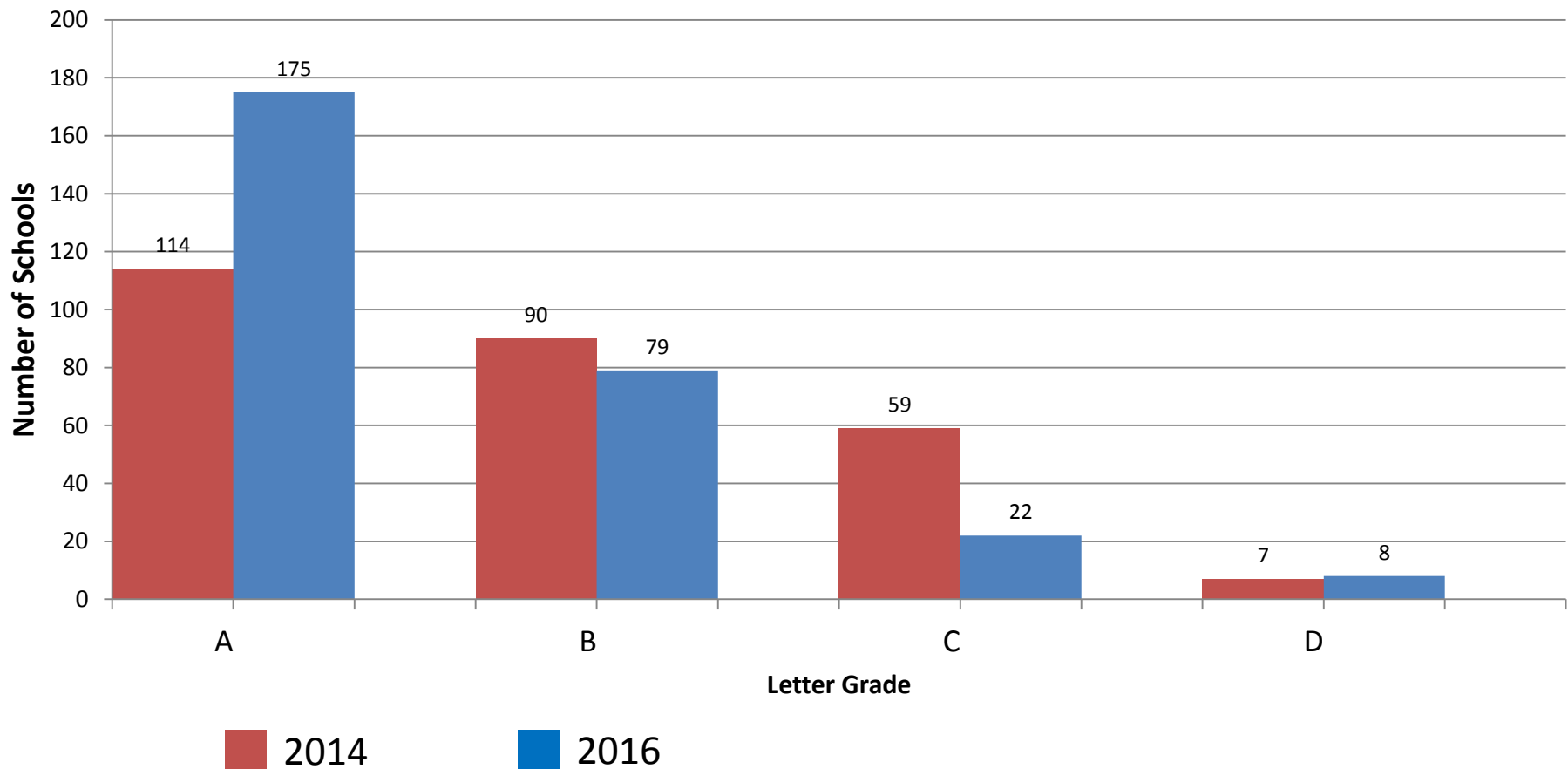


Model 1: School Level Distribution of Letter Grades



70% or higher total points = A, 60-69% = B, 50-59% = C, below 50% = D

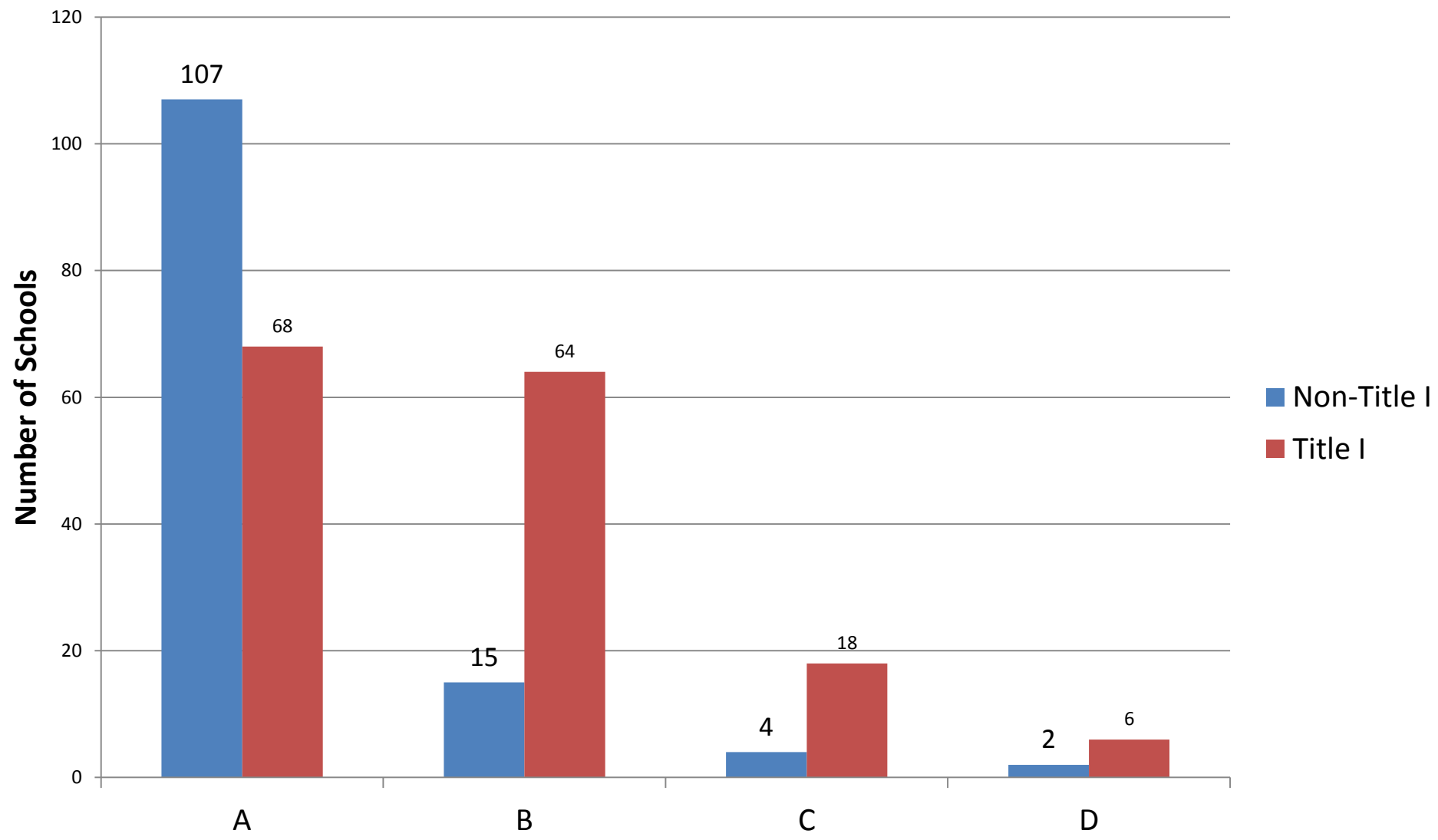
Projected Letter Grades by Number of Schools (FY14 and FY16)



Model 1: School Level Distribution of Letter Grades by Title I and Non-Title I



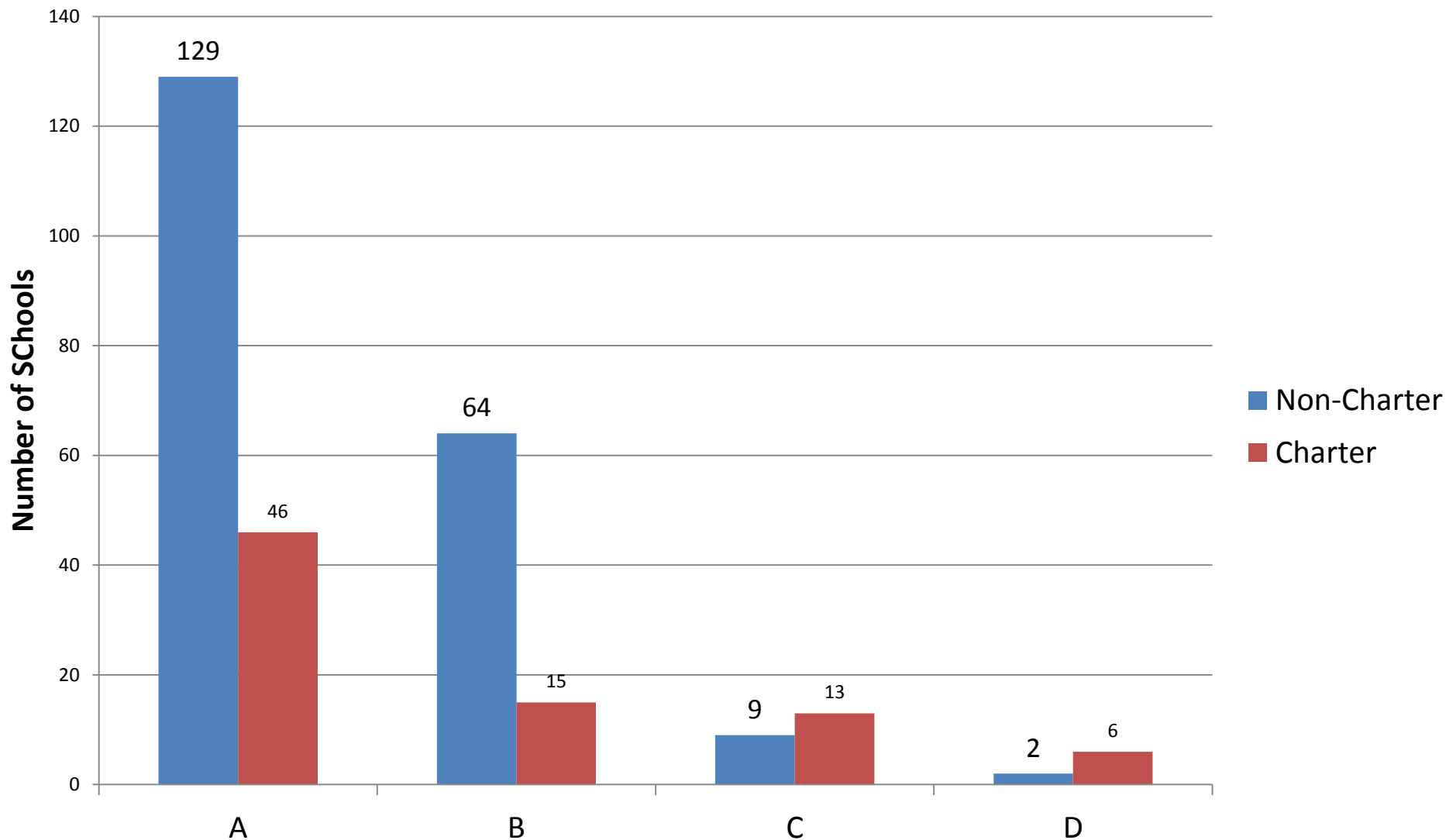
Model 1 Title I vs. Non-Title I



Model 1: School Level Distribution of Letter Grades by Charter and Non-Charter Schools



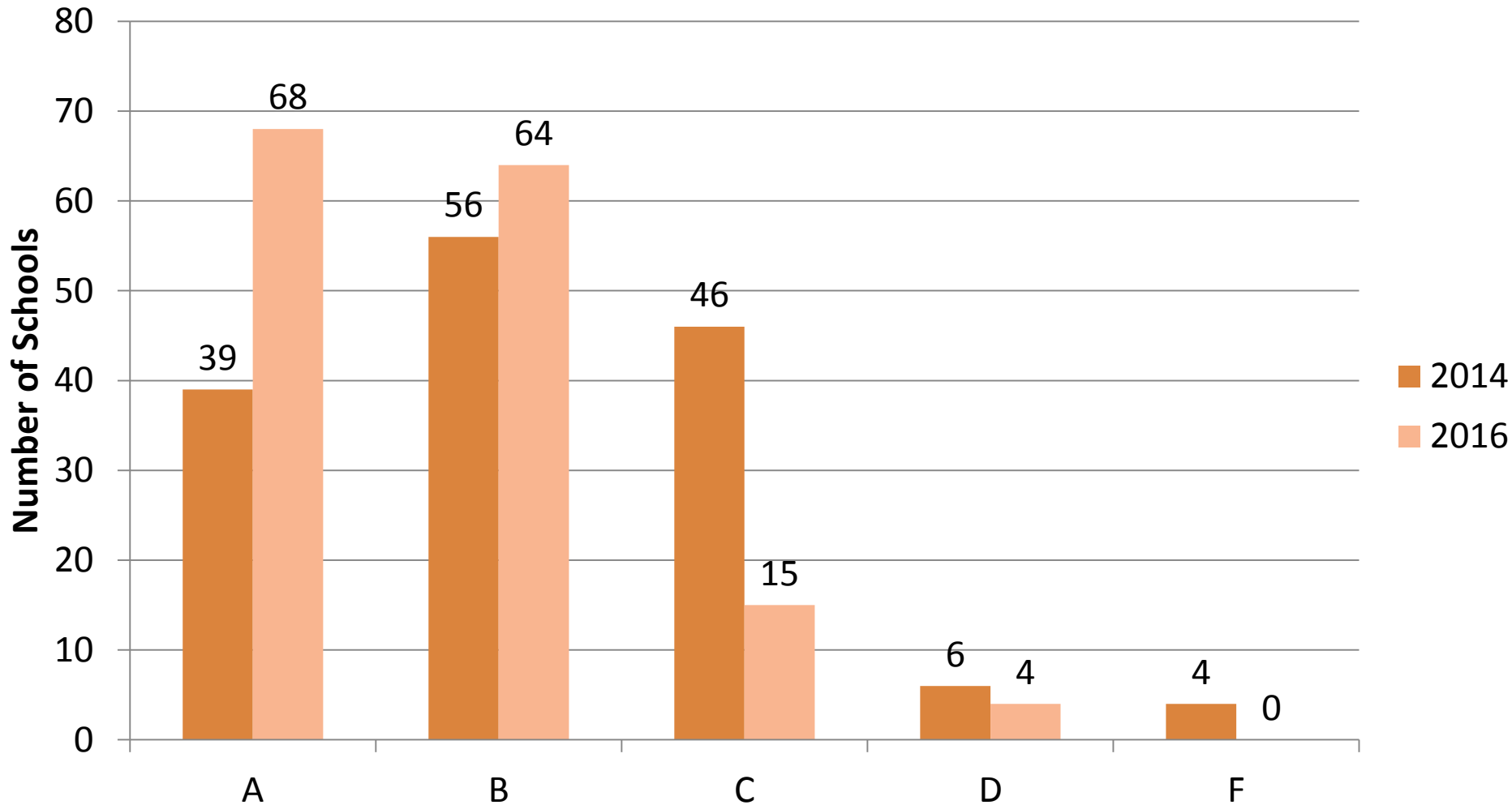
Model 1 Charter vs. Non-Charter



Model 1



Model 2 Title I Schools Only Projected Letter Grade Comparison to FY2014 Letter Grades

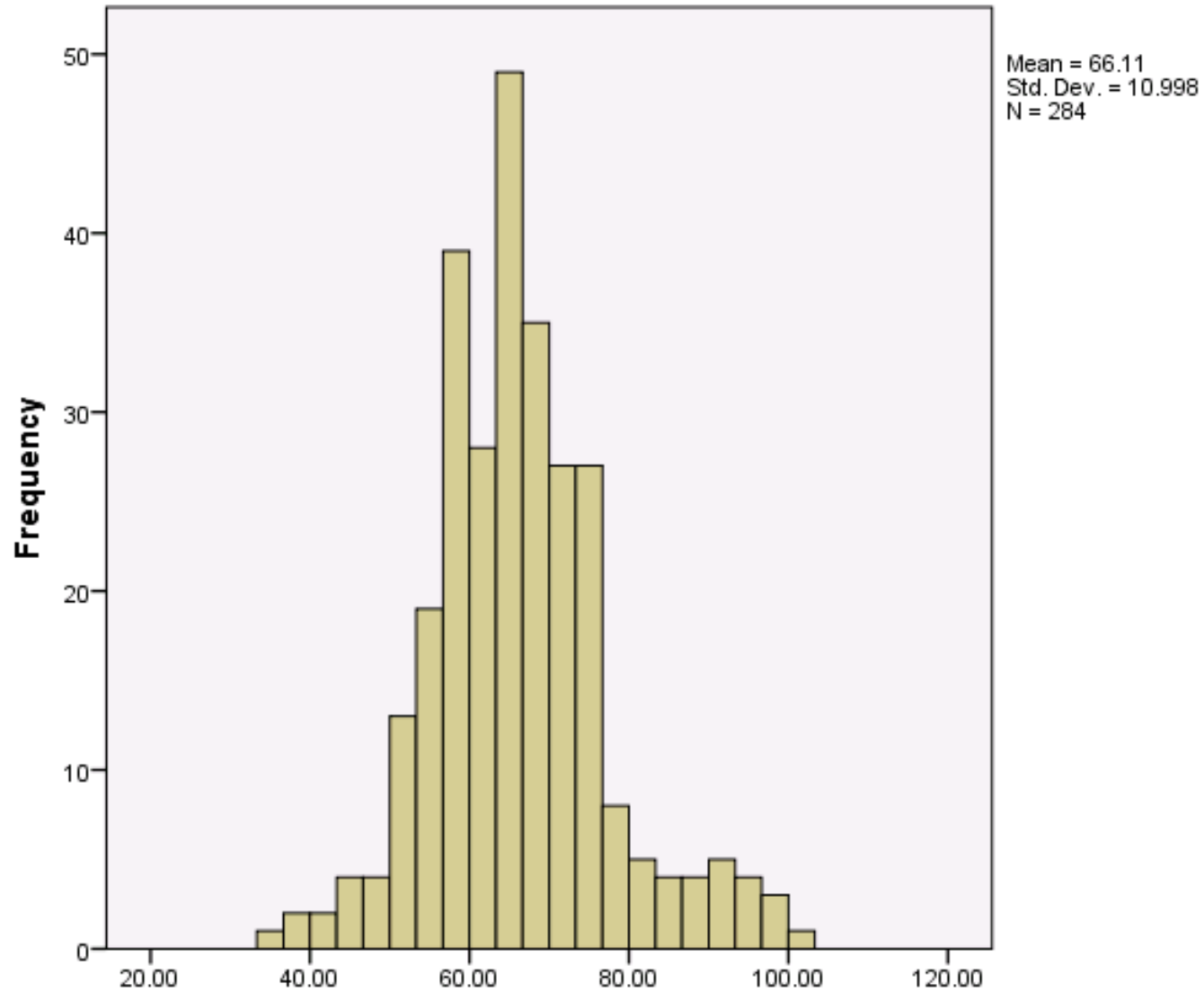


Model 2: Weighted, CCRI Variation 2



Category	Component	Weight	Points/Percent
Proficiency	ELA, Math, and Science Proficiency	40%	40%
Growth	ELA and Math Growth	20%	20%
ELL	ELL Proficiency on AZELLA	5%	10%
	ELL Growth on AZELLA	5%	
College and Career Ready	Student needed to meet at least 1 College- or Career- Ready indicator to acquire a point; student could acquire 2 points if both College- and Career-Ready	15%	15%
Graduation Rate	4-year	10%	15%
	5-year	3%	
	6-year	2%	
	7-year	2%	

Model 2

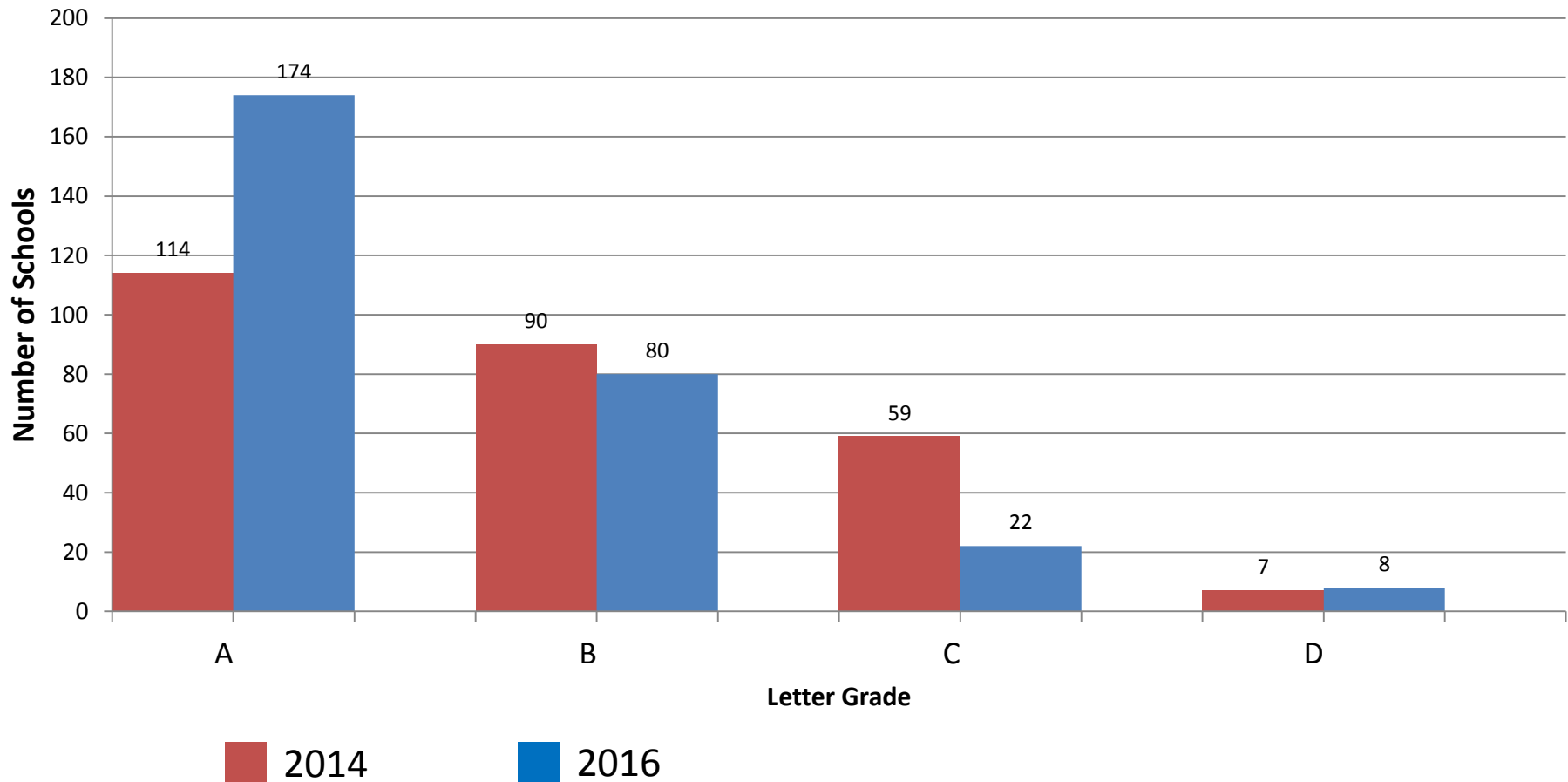


Model 2: School Level Distribution of Letter Grades



70% or higher total points = A, 60-69% = B, 50-59% = C, below 50% = D

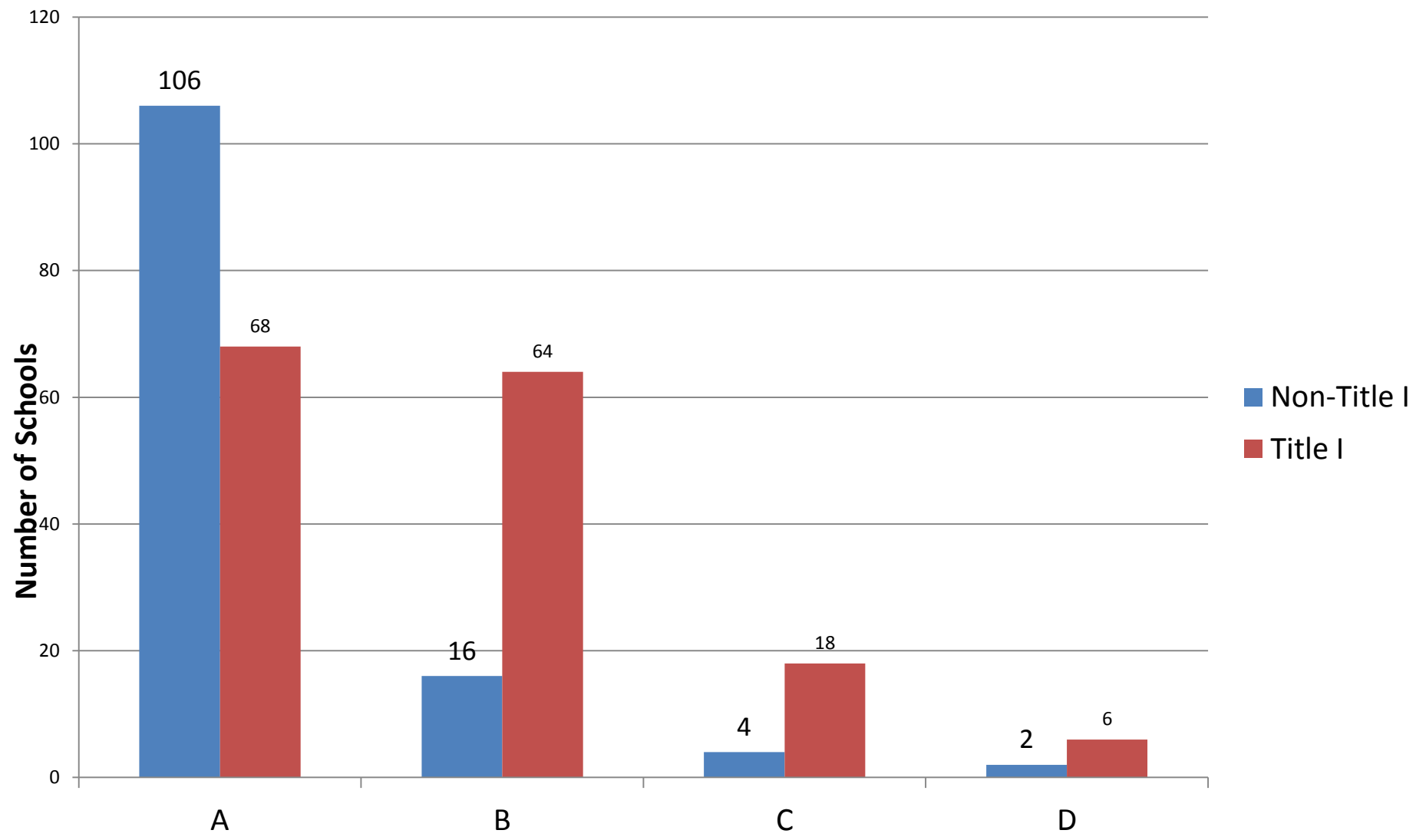
Projected Letter Grades by Number of Schools (FY14 and FY16)



Model 2: School Level Distribution of Letter Grades by Title I and Non-Title I



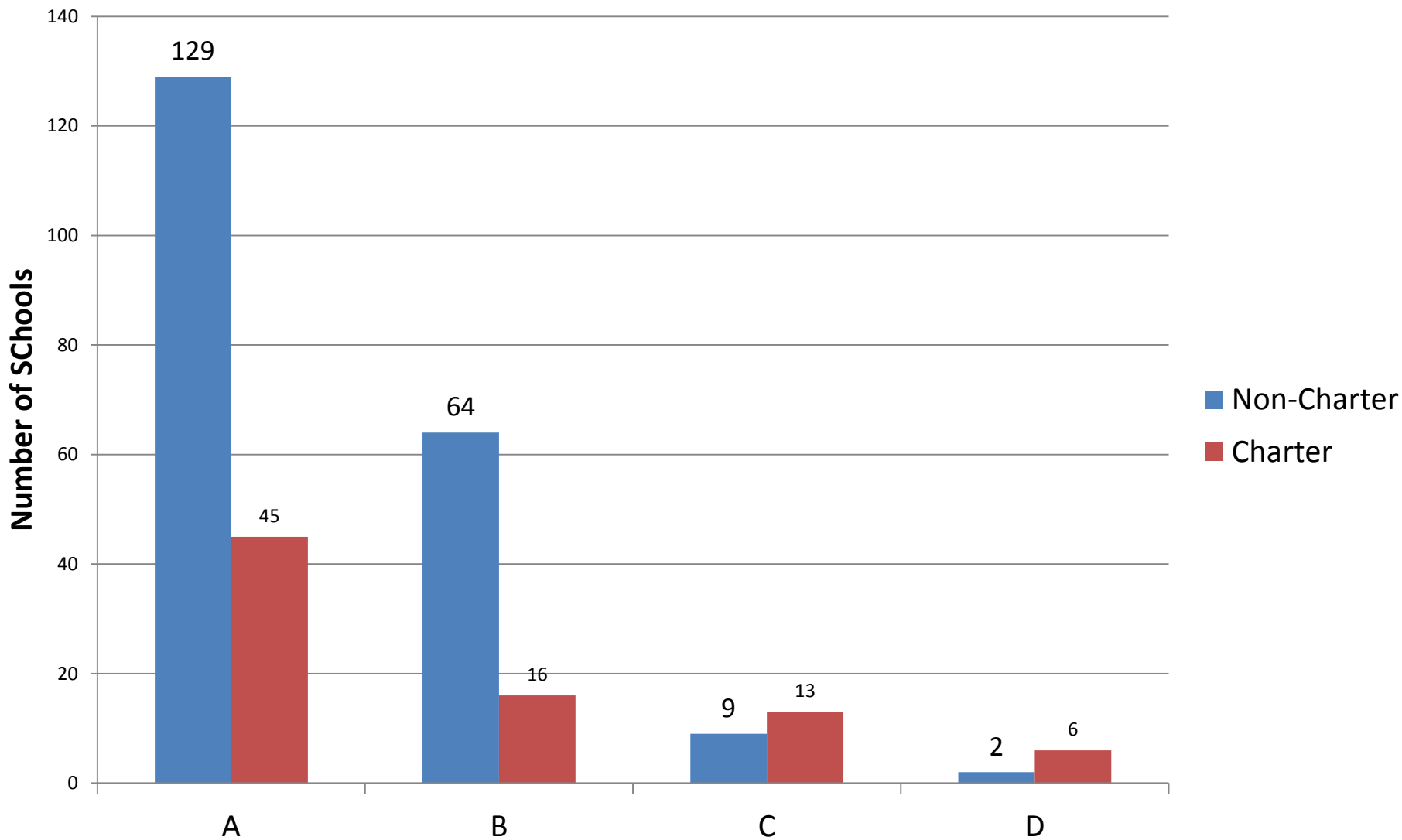
Model 2 Title I vs. Non-Title I



Model 2: School Level Distribution of Letter Grades by Charter and Non-Charter Schools



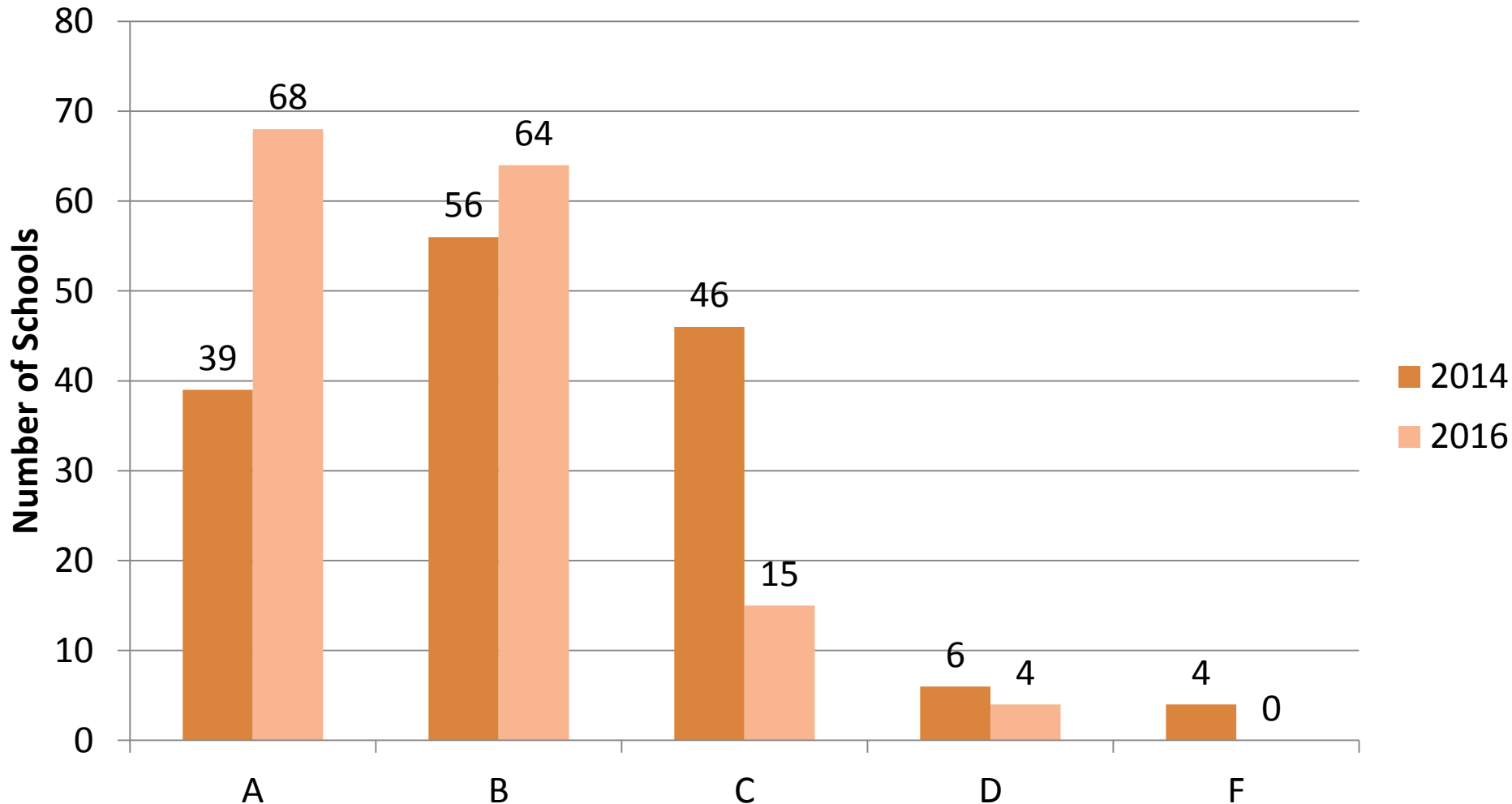
Model 2 Charter vs. Non-Charter



Model 2



Model 2 Title I Schools Only Projected Letter Grade Comparison to FY2014 Letter Grades



Model 3: Weighted, CCRI Variation 3



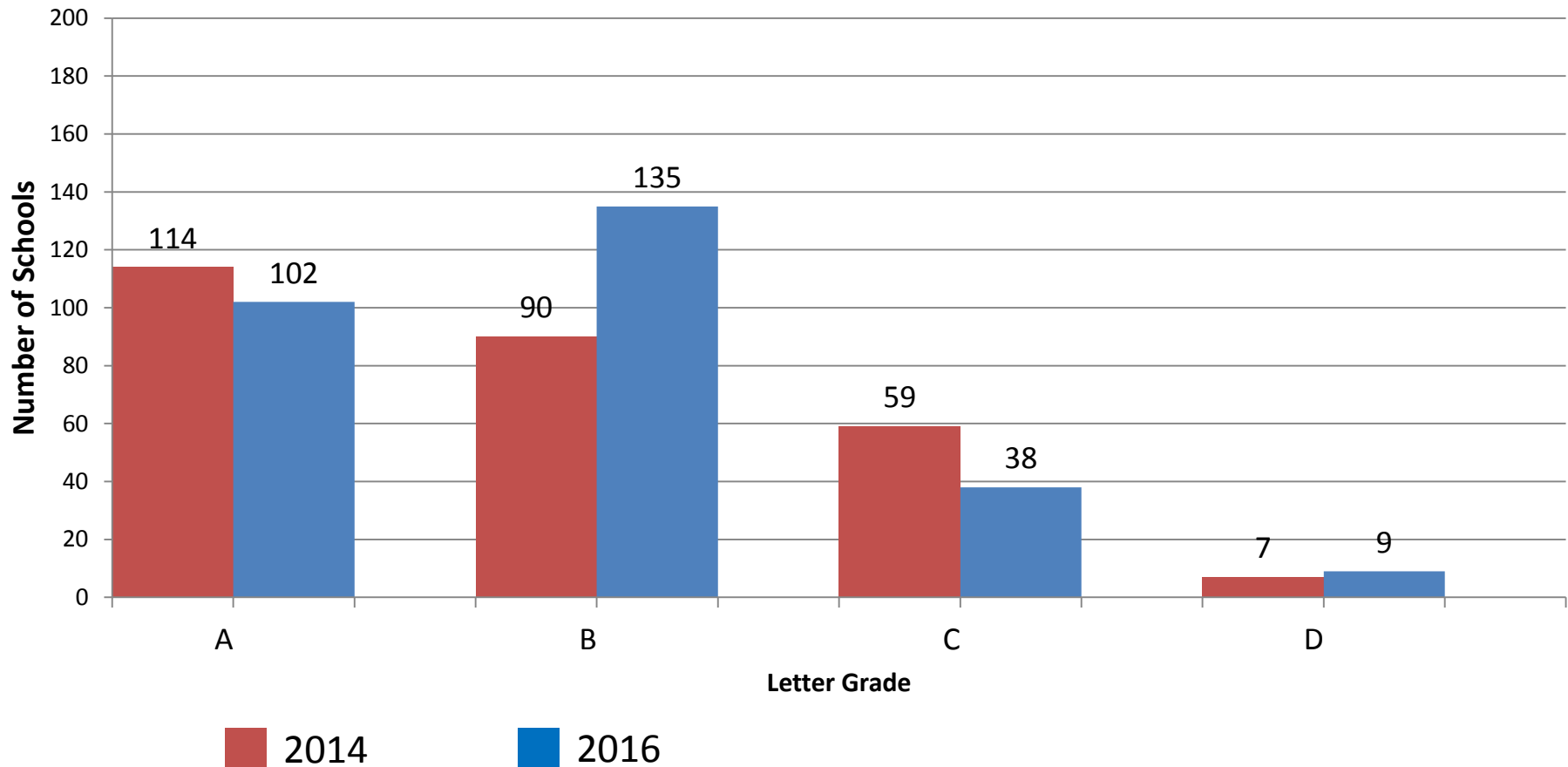
Category	Component	Weight	Points/Percent
Proficiency	ELA, Math, and Science Proficiency	40%	40%
Growth	ELA and Math Growth	20%	20%
ELL	ELL Proficiency on AZELLA	5%	10%
	ELL Growth on AZELLA	5%	
College and Career Ready	School-level calculation: (College-Ready/Total # of Graduates) + (Career-Ready/Total # of Graduates)	15%	15%
Graduation Rate	4-year	10%	15%
	5-year	3%	
	6-year	2%	
	7-year	2%	

Model 3: School Level Distribution of Letter Grades

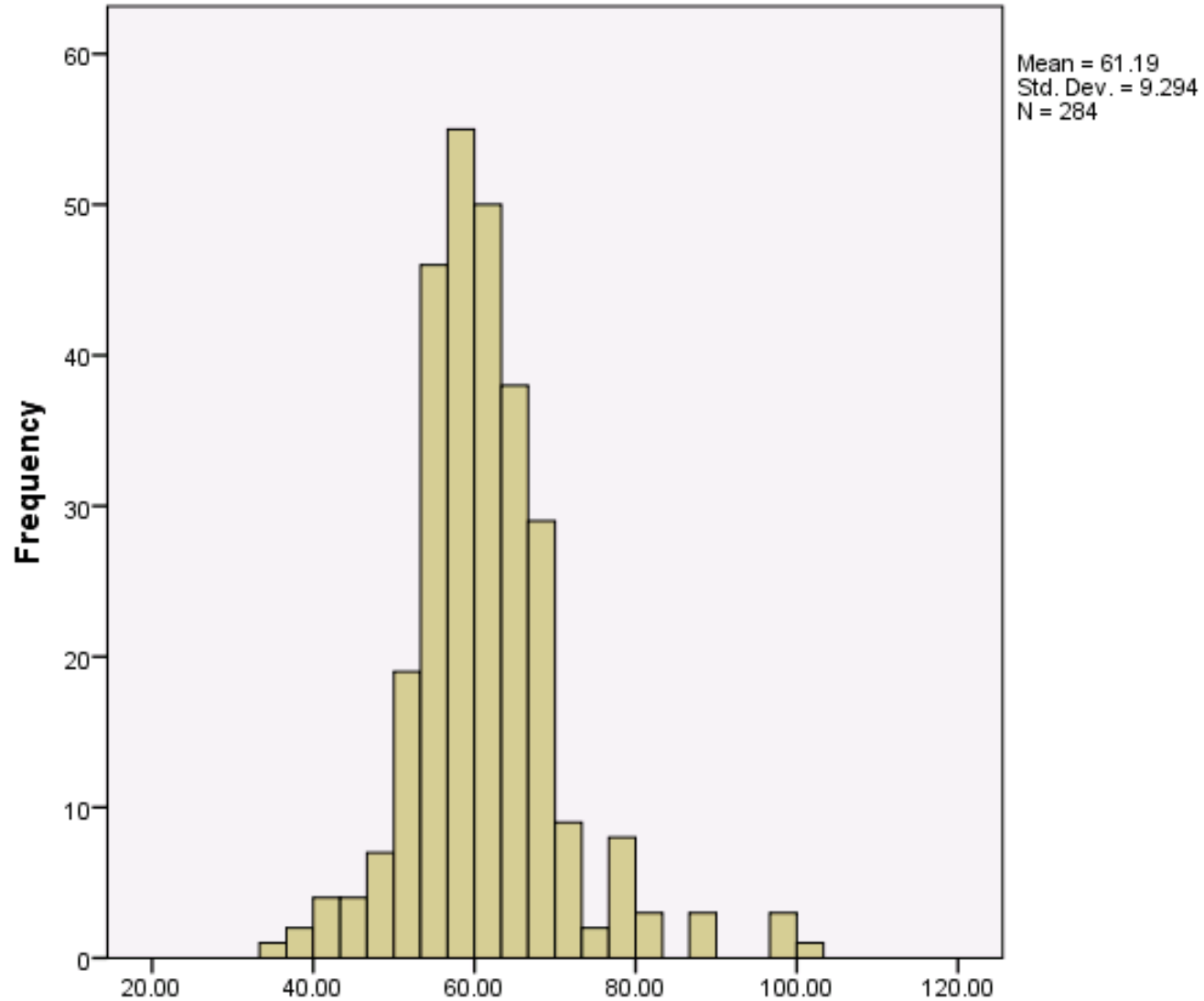


70% or higher total points = A, 60-69% = B, 50-59% = C, below 50% = D

Projected Letter Grades by Number of Schools (FY14 and FY16)



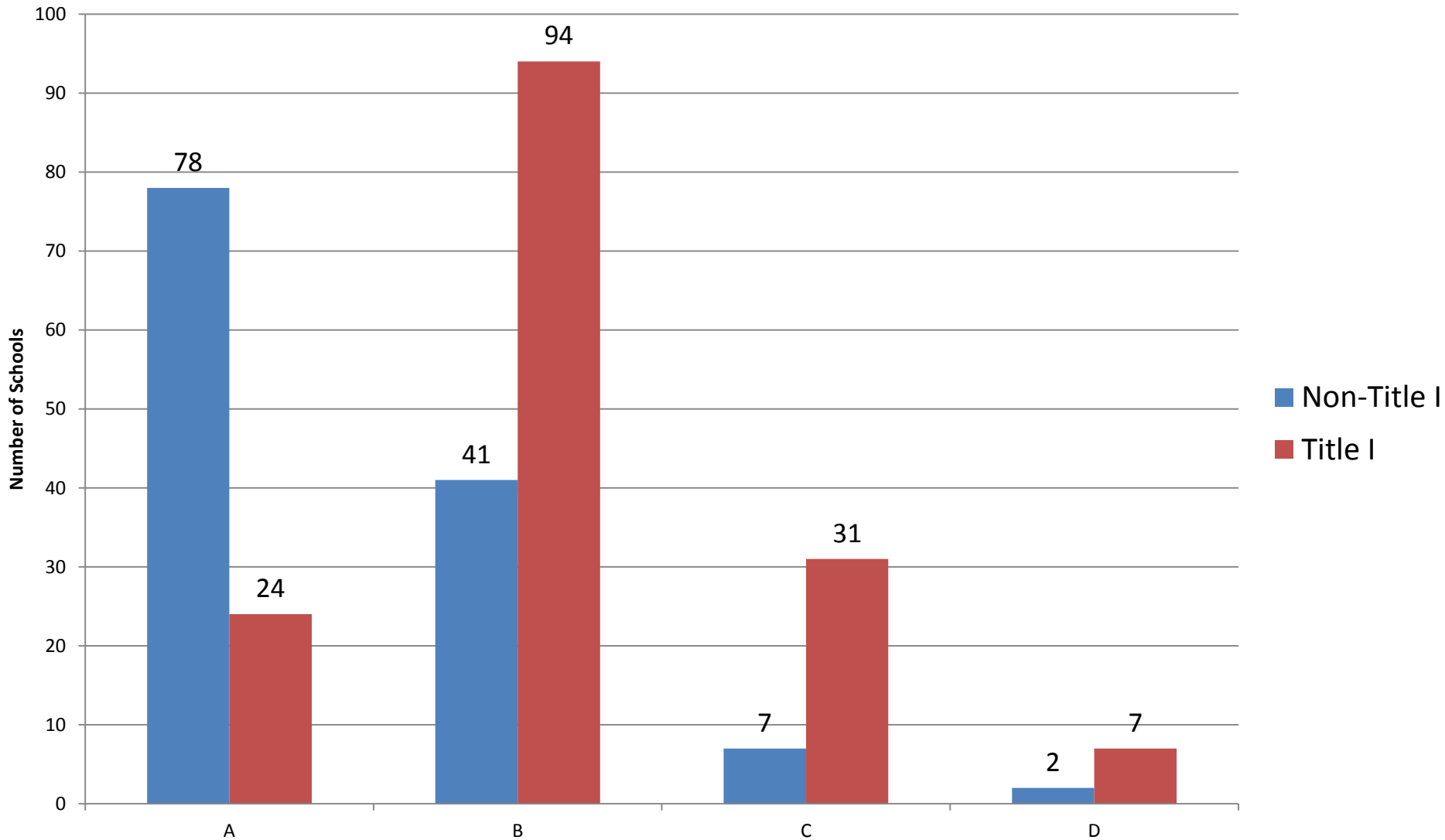
Model 3



Model 3: School Level Distribution of Letter Grades by Title I and Non-Title I



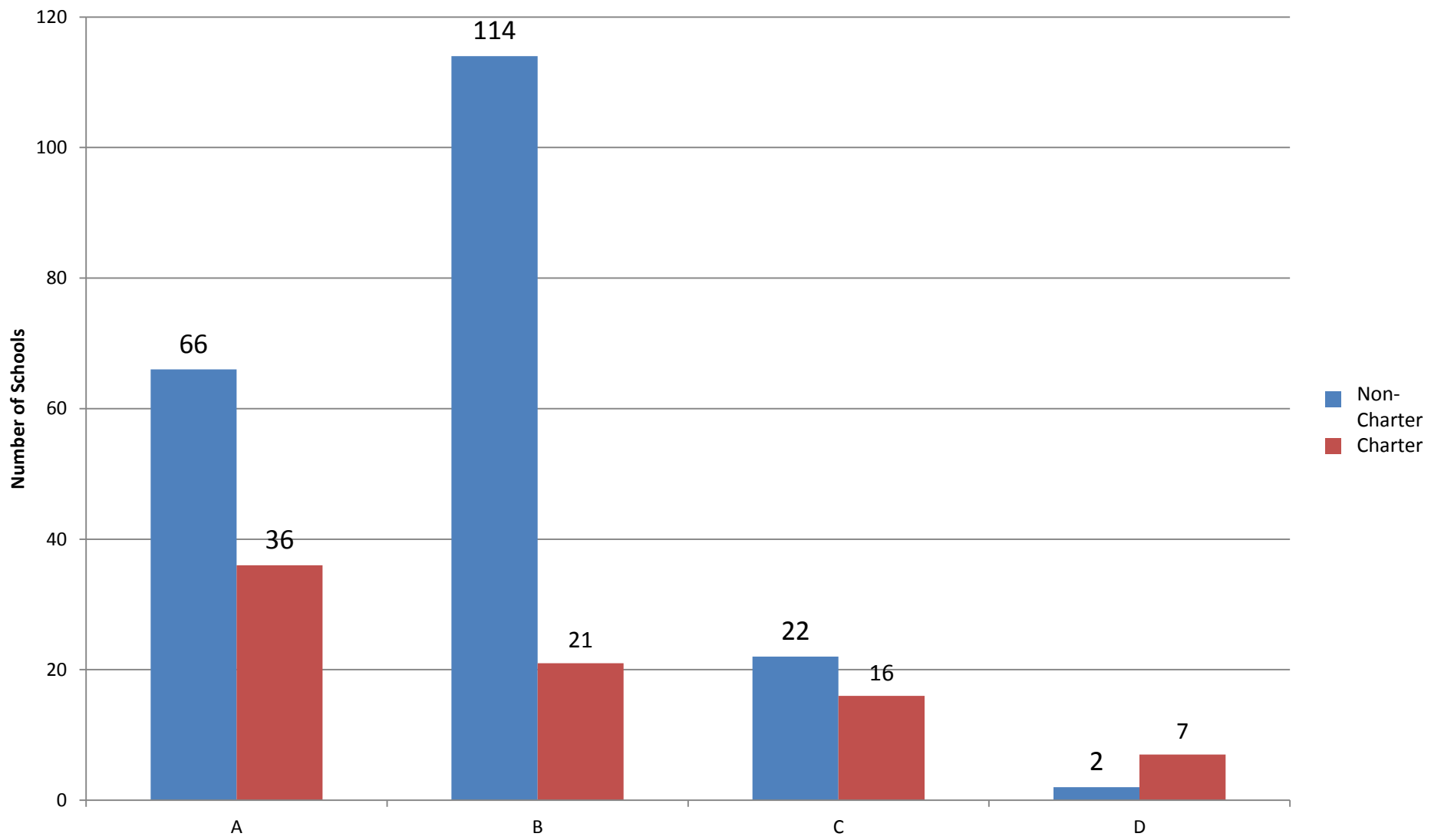
Model 3 Title I vs. Non-Title I



Model 3: School Level Distribution of Letter Grades by Charter and Non-Charter Schools



Model 3 Charter vs. Non-Charter



Model 3



Model 2 Title I Schools Only Projected Letter Grade Comparison to FY2014 Letter Grades

