



MARYLAND EQUITY PROJECT
ADVANCING EDUCATIONAL OPPORTUNITIES

Creating Opportunities or Settling for Inequities?

**Two Decades of Change
in Maryland's Public
Schools**

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About the Maryland Equity Project

The Maryland Equity Project seeks to improve education through research that supports an informed public policy debate on the quality and distribution of educational opportunities. It conducts, synthesizes, and distributes research on key educational questions in Maryland and facilitates collaboration between researchers and policymakers.

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Executive Summary

Having good information on public school enrollment trends is important for making informed public and educational decisions. Knowing which racial/ethnic groups are increasing, for example, can direct policymakers to the kinds of resources and programs that are needed to educate a diverse student population. Understanding how low-income students are distributed across a district can alert educators and policymakers to the social and academic challenges these students face.

As Maryland communities diversify, school districts face challenges and opportunities. We know from national trends that many of the concerns—including racial and economic segregation (Frey, 2001, 2011); a teaching staff that may be inadequately trained to teach a diverse student population (Frankenberg & Siegel-Hawley, 2008); limited financial, human, and organizational resources to address these new challenges; and deteriorating or overcrowded infrastructure—once confined to urban schools are increasingly found in other districts (Building Educational Success Together, 2006; U.S. Government Accountability Office, 1995, 1996). While the magnitude of these concerns may vary across districts, if left un-addressed, they are likely to create situations where educational opportunities are unequally distributed and educational goals are unmet. At the same time, the ongoing demographic change presents an opportunity for communities in Maryland that have been homogeneous to develop high quality schooling for all students in racially and ethnically diverse schools and to create educational opportunities that are not available in urban cities where demographic change occurred decades ago.

This report examines trends in public school enrollment in Maryland over the past two decades. With both a state and district focus, it examines how the racial and socioeconomic composition of public school enrollment is changing and it identifies where these changes are taking place. It includes a number of measures to show how segregation—by both race and income—is also changing. The report describes these trends at the state and district level. It also includes an appendix showing district-by-district trends, which allows the reader to examine the changes taking place in a particular district of interest.

Major findings include the following:

Trends in public school enrollment: Enrollment in Maryland public schools increased 22.8% between 1990 and 2010. However, this growth is not distributed evenly across the state. Growth in enrollment ranged from 2.1 % in Dorchester to 70.1% in Howard (Table 1). Enrollment grew the most in school districts in the central portion of the state, with the exception of Baltimore City. Districts with declining enrollments are in eastern and western Maryland.

Trends in the racial composition of schools: Public school enrollment in Maryland is becoming more diverse—in 2010, 56.4% of public school students were minorities (Figure 1). Latinos are growing at a faster rate than other racial and ethnic groups (Figure 2). Districts showing the greatest change in the racial composition of students are also those districts with growing enrollments, while districts with declining enrollments have the least change in racial composition of students. Population data suggest that these trends will continue (Figure 3).

- Twenty-one districts saw a decline in the percentage of White students (Table 2).
- Those districts showing the greatest change in the racial composition of students include Charles, Howard, Montgomery, Baltimore, Frederick, Prince George’s, Anne Arundel, and Washington.

Trends in the socio-economic composition of schools: Public school enrollment is becoming poorer. The percentage of students from low-income families in Maryland public schools nearly doubled over the past 20 years. In 1990, 22.4% of students were low-income compared to 40.1% in 2010 (Figure 4). District-level change in low-income students ranged from an increase of 4.8 percentage points in Talbot to 34.1 percentage points in Prince George’s County (Table 3). No district saw a decline in the percentage of low-income students.

- Large increases in the proportion of low-income students were also found in Baltimore County and 6 of the 9 districts on the Eastern shore of Maryland.

Trends in the racial concentration of students: We used several measures to gauge the level of racial concentration of students in schools in Maryland. These measures show several trends, all pointing towards increased segregation by race.

- Racially isolated minority schools (i.e., schools that are 90-100% minority) increased from 12.4% of all schools in 1990 to 28.9% in 2010 (Figure 8).
- The number of districts with predominately minority schools (i.e., schools that are 50-90% minority) increased as well. Compared to 1990, when 8 districts had some percentage of schools that were 50-90% minority; there were 17 districts in 2010 with some predominately minority schools (Table 4; Appendix Table 5).
- While schools are becoming more segregated by race, the level of segregation varies by district. Baltimore City, Baltimore, Harford, and Prince George's counties have the most segregated schools. Thirteen other districts have moderate levels of racial segregation (Table 5).
- Changes in the demographic composition of districts have been accompanied by trends toward increases in the racial segregation of schools.

Trends in the economic concentration of students: As the percentage of low-income students increased in Maryland, the concentration of low-income students in schools increased. In 2010, almost half (43.4%) of all schools in Maryland enrolled 50% or more low-income students, compared to 14.2% in 1990. The percentage of Maryland public schools with more than 75% of students from low-income families increased three-fold, from 7.5% of all public schools in 1990 to 21.6% in 2010. At the same time there are fewer schools that enroll mostly middle- and upper-income students (Figure 10).

- Low-income students are most segregated from non-poor students in Harford, Montgomery, and Howard school districts (Table 6).
- Statewide, economic segregation decreased between 1990 and 2010. However, low-income students are more likely to attend schools that predominantly enroll low-income students (57.3% low-income students) while middle- and upper-income students are more likely to attend schools that predominantly enroll economically advantaged students (71.4% non-poor students) (Figure 11).

- District trends tend to mirror state trends (i.e., that low-income students are more likely to attend schools with similarly disadvantaged students than their more economically advantaged peers) with some exceptions. In fourteen districts, the exposure of low-income students to other low-income students decreased, but the exposure of non-poor students to low-income students also decreased, indicating an increase in economic segregation (Appendix Table 8).

Our findings suggest that both racial and socioeconomic diversity is increasing, along with the challenges of segregation; nonetheless, these demographic changes are manageable if Maryland and school districts are proactive in addressing them. Countywide districts provide opportunities that often are not available when districts are smaller and more numerous. We recommend the following:

- Promote racial and socioeconomic integration through student assignment, school site selection, and housing policies that support diversity.
- Use magnet schools and open enrollment to create integrated schools by race and income.
- Increase investments in *quality and research-based* services and programs designed to ensure that all students have the learning opportunities they need to succeed and that support the whole child.
- Direct resources and school improvement efforts on increasing the capacity of schools and districts to serve diverse students.
- Adopt social, economic, and housing policies that address the challenges facing families.

For many years, education reform has been one-dimensional, focusing primarily on school-based approaches to improving achievement, especially among disadvantaged students. It is time to broaden that approach to include non-school policies that impact families and their students. To address the social, economic, and housing issues outside of schools that affect learning will require a fundamental rethinking of the reform strategies that have dominated public discourse over the past half-century. We believe Maryland has the commitment and resources to address these challenges.

Creating Opportunities or Settling for Inequities? Two Decades of Change in Maryland’s Public Schools

Gail L. Sunderman & Justin Dayhoff

Maryland is undergoing a demographic transformation in its public schools. Statewide, the proportion of White students is declining while minority enrollment is increasing with Latino students growing at a faster rate than other racial/ethnic groups. Maryland has outpaced many states in this transformation, with public school enrollment becoming majority-minority in 2005. Nationwide, minority enrollment is projected to surpass White enrollment in the 2014-15 school year (Snyder & Dillow, 2013).¹ At the same time, the proportion of low-income students is increasing, with a corresponding rise in the income-based achievement gap (Reardon, 2011).

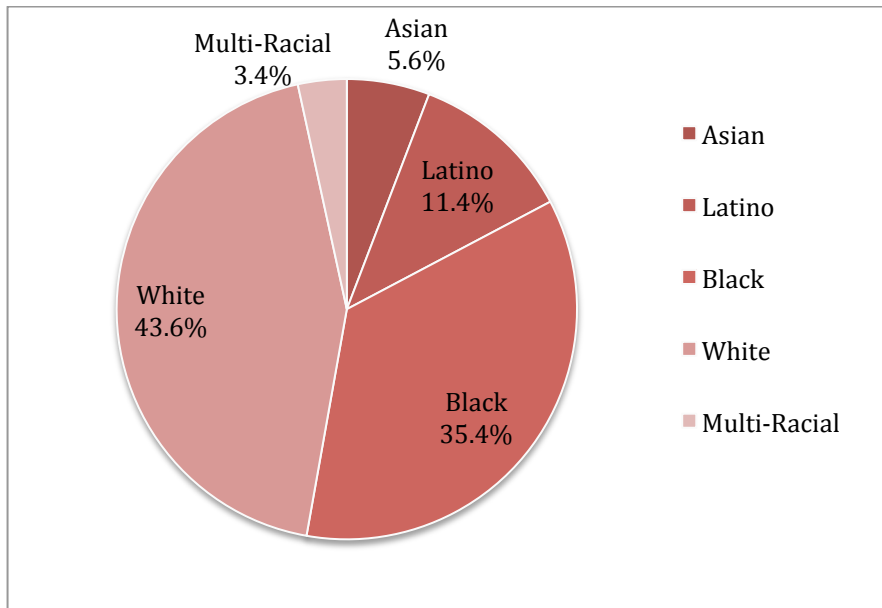
This brief examines enrollment and demographic patterns in Maryland to understand how public school districts in the state are changing and to identify where these changes are taking place. It uses U.S. Census data for 1990, 2000, and 2010—the latest year Census data are available—as well as data collected by the U.S. National Center for Education Statistics (NCES), in particular, the Common Core of Data (CCD), and data from the Maryland State Department of Education’s (MSDE) report card (Maryland State Department of Education, 2014; National Center for Education Statistics, 2014; U.S. Census Bureau, 2014). It tracks trends in enrollment – specifically, changes in the racial composition of schools and changes in student eligibility for free or reduced priced meals (FRPM) in Maryland, with a focus on the state’s 24 school districts. We identify where growth is taking place, how the racial and economic makeup of districts and schools is changing, and whether interracial and interclass contact is increasing or decreasing. This analysis provides a complete picture of public school enrollment in Maryland and allows us to examine patterns over time, particularly at the district level.

¹ See Table 203.50 at: http://nces.ed.gov/programs/digest/d13/tables/dt13_203.50.asp

Statewide Trends in Public School Enrollment in Maryland

Public school enrollment in Maryland is becoming more diverse. In 2010, White students were 43.6% of the total state enrollment, followed by 35.4% Black students and 11.4% Latino students (Figure 1). Compared to the nation, Maryland has a larger proportion of Black students (35.4% versus 16.0% for the nation) and fewer White (43.6% versus 52.5%) and Latino (11.4% versus 23.1%) students. Asian student enrollment more closely mirrors that of the nation, with 5.6% Asian student enrollment in Maryland compared to 4.9% nationally.

Figure 1. Racial composition of Maryland public schools, 2010.



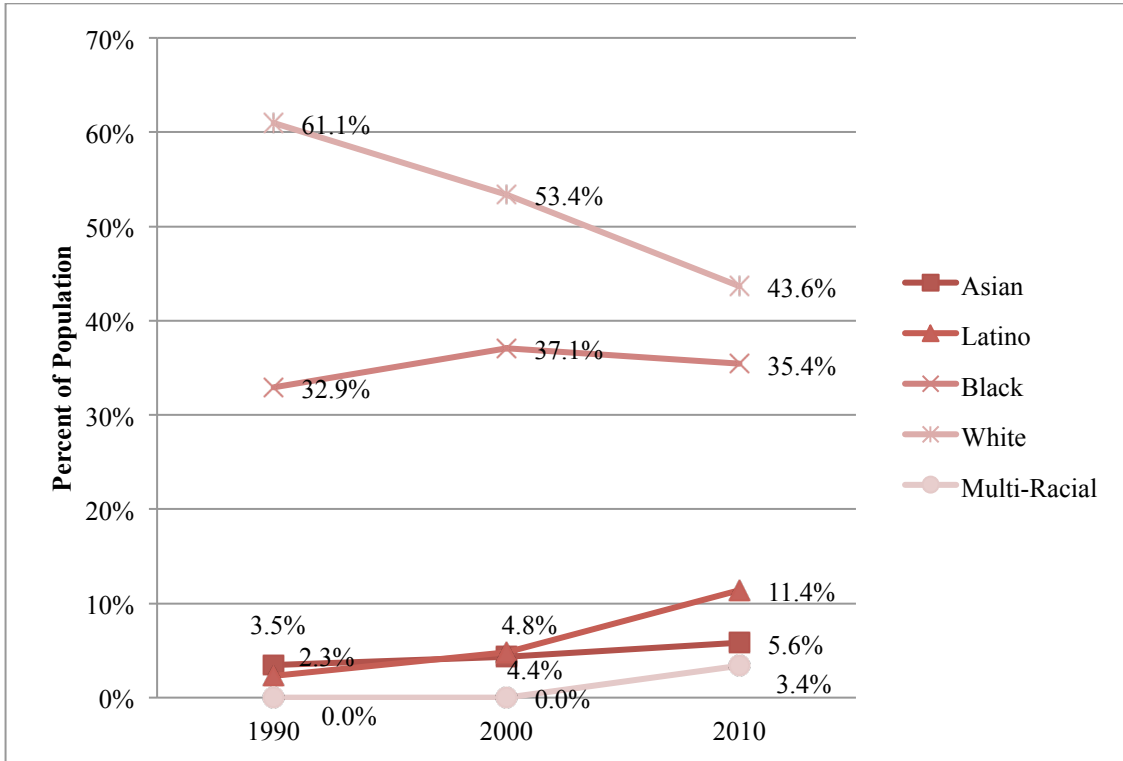
Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Enrollment in Maryland public schools increased from 701,410 in 1990 to 861,592 in 2010, an increase of 22.8%. As shown in Figure 2, Latinos represent the fastest growing segment of public school enrollment.² Latino student enrollment quintupled between 1990 and 2010, growing from 2.3% of total enrollment in 1990 to 11.4% in 2010. The percentage of Black students enrolled in public schools increased from 32.9% to 35.4% while Asian/Pacific Islander's enrollment increased from 3.5% to

² The CCD started reporting race/ethnicity data for "multi-racial" and "other" in 2010.

5.6% of total enrollment. Conversely, the percentage of White students in public schools declined over the last twenty years, from 61.1% in 1990 to 43.6% in 2010.

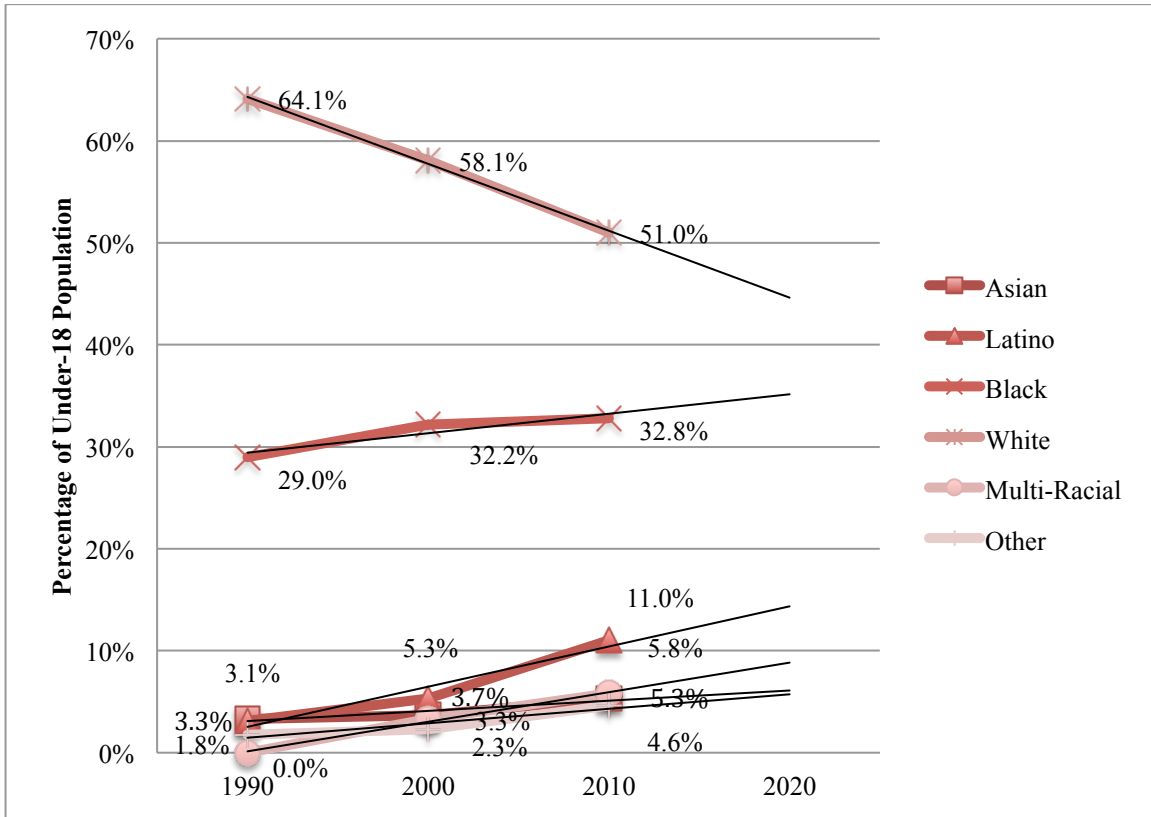
Figure 2. Racial composition of Maryland public schools, 1990-2010.



Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Population data suggest that these trends will continue. Census data for individuals under the age of 18 show a steady decline in the White share of the under-18 population in the state of Maryland and continued growth of the minority share of the under-18 population. As Figure 3 shows, the minority proportion and the White share of the under-18 population was nearly identical in 2010. If these population trends continue at their current rate, White youth will comprise less than 45% of youth under the age of 18 in Maryland by 2020 (U.S. Census Bureau, 2014). Assuming that public school enrollment trends mirror these population trends, White student enrollment will be less than 38% of Maryland public school enrollment in 2020.

Figure 3. Racial composition of Maryland’s under-18 population, 1990-2010, projected to 2020.

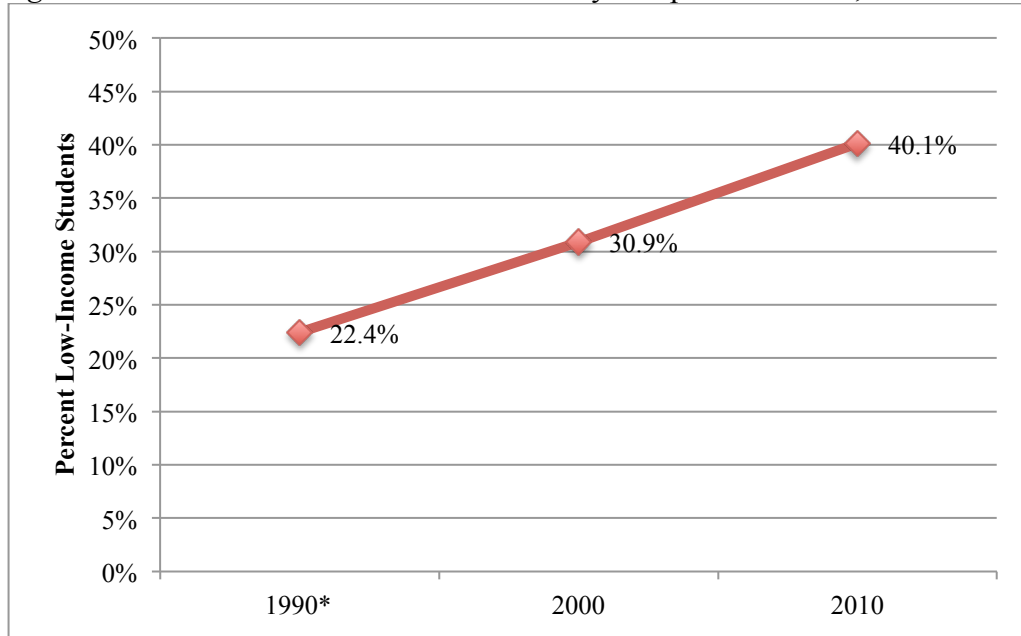


Source: U.S. Census Bureau.

In addition to increasing racial diversity, socio-economic changes are occurring as well. Public school enrollment is becoming poorer (Figure 4). The percentage of students from low-income households enrolled in Maryland public schools nearly doubled over the past 20 years. In 1990, 22.4% of students were from low-income families compared to 40.1% in 2010.³

³ Eligibility for free and reduced price meals (FRPM) is used to measure the number of students from low-income households. Data for 1990 are estimated using the average proportion of free meal participants compared to the average proportion of free and reduced price meal participants for 2000, 2007, and 2010 since the 1990 data contains only the number of free meal participants.

Figure 4. Percent low-income students in Maryland public schools, 1990-2010.



Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.
*See footnote 3.

District Trends in Public School Enrollment

While public school enrollment across the state increased 22.8% over the last twenty years, changes in enrollment at the district level varied by county and region.⁴ Growth in enrollment ranged from 2.1% in Dorchester to 70.1% in Howard counties (Table 1). Enrollment grew the most for school systems in the central portion of the state, with the exception of Baltimore City (Figure 5).⁵ School districts with the largest enrollment increase between 1990 and 2010 include Howard (70.1%), Calvert (61.4%), Frederick (57.4%), and Charles (51.1%). In contrast, Baltimore City's enrollment shrank 20.3% from 1990 to 2010. Other districts with declining enrollment are in the eastern and western regions of the state and include Kent (-16.7%), Somerset (-12.7%), Garrett (-12.6%) and Allegany (-9.8%).

⁴ See Appendix Table 1 for demographic characteristics and enrollment data by school district.

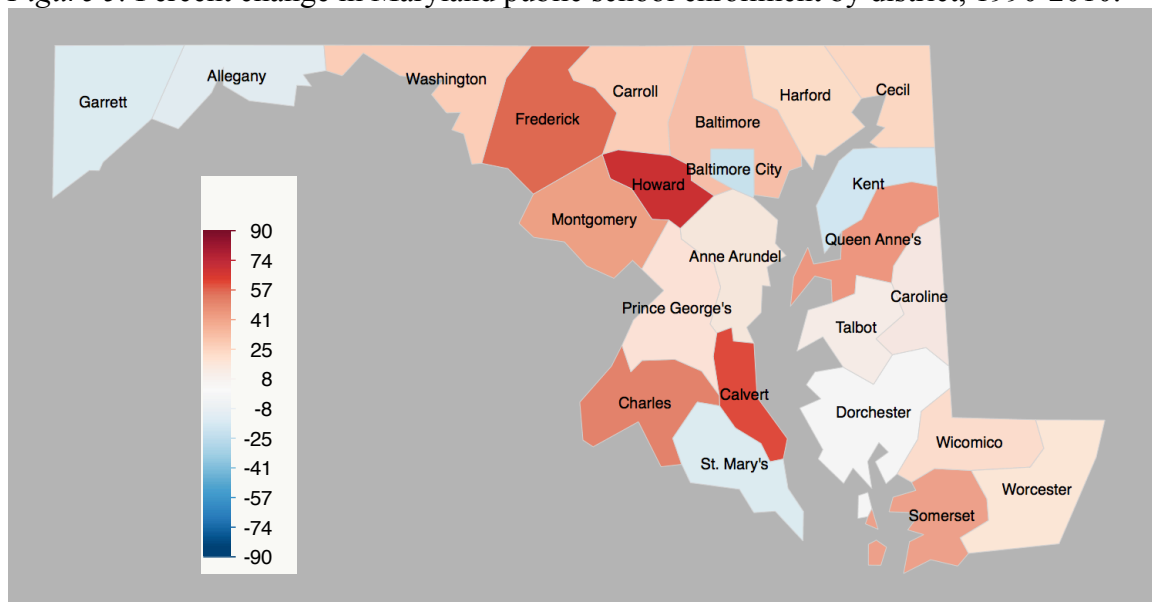
⁵ Central school districts include Baltimore City, Anne Arundel, Baltimore, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Prince George's, St. Mary's, and Washington. Eastern school districts include Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester. Western school districts include Allegany and Garrett.

Table 1. Change in Maryland Public School Enrollment by District, 1990-2010

District	1990	2010	Change in Enrollment 1990-2010	Percent (%) Change 1990-2010
Baltimore City	10,6109	84,594	-21,515	-20.3
Kent	2,591	2,159	-432	-16.7
Somerset	3,330	2,906	-424	-12.7
Garrett	4,808	4,200	-608	-12.6
Allegany	9,916	8,948	-968	-9.8
Dorchester	4,525	4,621	96	2.1
Talbot	4,068	4,504	436	10.7
Caroline	4,790	5,503	713	14.9
Anne Arundel	65,051	75,453	10,402	16.0
Worcester	5,703	6,687	984	17.3
Prince George's	107,179	126,606	19,427	18.1
Wicomico	11,908	14,382	2,474	20.8
Harford	31,468	38,394	6,926	22.0
Cecil	12,868	15,923	3,055	23.7
Washington	17,483	22,206	4,723	27.0
Carroll	21,478	27,292	5,814	27.1
Baltimore	86,102	113,466	27,364	31.8
St. Mary's	12,206	17,243	5,037	41.3
Montgomery	100,836	143,995	43,159	42.8
Queen Anne's	5,368	7,781	2,413	45.0
Charles	17,760	26,836	9,076	51.1
Frederick	25,502	40,132	14,630	57.4
Calvert	10,398	16,781	6,383	61.4
Howard	29,963	50,980	21,017	70.1
State Total	701,410	861,592	160,182	22.8

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Figure 5. Percent change in Maryland public school enrollment by district, 1990-2010.

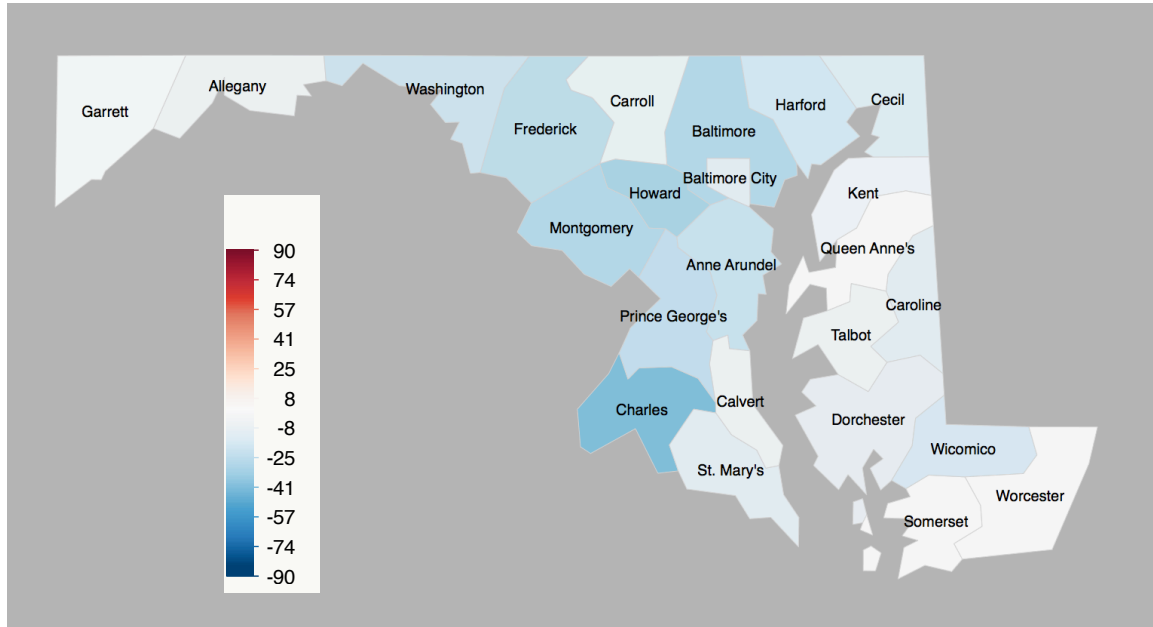


Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Changes in Racial Composition

School districts also varied in how the racial composition of schools changed between 1990 and 2010. The map of Maryland below shows changes in the share of White students enrolled in public schools by county (figure 6). We used the relative decline in White student enrollment because it is an indicator of a school system transitioning from a homogeneous to a diverse student population. The districts in the central portion of the state show the greatest change in proportion of White students, while the districts in eastern and western Maryland show the least. For the most part, districts with the largest enrollment growth were those where the White share of enrollment declined and the minority share increased. The exceptions are Calvert and Queen Anne's counties, which saw growing student populations but little or no change in the White share of the student population.

Figure 6. Average percentage point change in white student enrollment by district, 1990-2010.



Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

The White share of student enrollment declined in 21 districts between 1990 and 2010 (Table 2).⁶ However, the magnitude of the change varied across the state. For comparison purposes, the White share of enrollment declined 17.4 percentage points

⁶ See Appendix Table 2 for average school-level change by district in percentage of White students.

across the entire state between 1990 and 2010. The decline in the share of White students was greater than 25 percentage points in 4 districts (Charles: -40.6 percentage points; Howard: -30.6 percentage points; Montgomery: -26.9 percentage points; and Baltimore County: -26.4 percentage points) and greater than the state average of -17.4 percentage points in 4 additional districts (Frederick: -24.3; Prince George's: -22.1; Anne Arundel: -20.3; and Washington: -19.4 percentage points). Across the state, all but three districts had lower percentages of White students in 2010 than in 2000. In those three districts, the increase in the White share of enrollment was less than 3 percentage points (approximately 1 percentage point in Queen Anne's and Somerset; and 2.3 percentage points in Worcester).

Table 2. Average Percentage Point Change in the Racial Composition of Schools by District, 1990-2010

District	White	Black	Latino	Asian
Charles	-40.6	29.5	4.3	1.7
Howard	-30.6	6.6	7.2	10.3
Montgomery	-26.9	4.1	16.3	2.3
Baltimore	-26.4	16.5	4.6	2.5
Frederick	-24.3	5.0	10.1	3.5
Prince George's	-22.1	3.6	17.4	-1.2
Anne Arundel	-20.3	5.7	7.9	1.7
Washington	-19.4	7.2	5.3	0.9
Harford	-16.8	6.9	3.8	1.4
Wicomico	-15.8	2.9	5.7	1.7
Cecil	-12.7	3.7	3.9	0.4
Baltimore City	-10.3	5.8	3.6	0.5
Caroline	-9.6	-3.2	7.8	0.2
St. Mary's	-9.6	2.1	3.5	1.4
Dorchester	-8.1	-2.0	4.6	0.6
Carroll	-7.6	1.6	2.9	1.2
Allegany	-5.7	1.6	1.1	0.2
Calvert	-5.7	-3.7	3.6	1.1
Talbot	-4.9	-8.4	8.2	1.1
Kent	-4.3	-4.0	3.7	-0.4
Garrett	-1.4	0.2	0.4	0.3
Queen Anne's	0.7	-7.8	3.3	0.9
Somerset	1.0	-13.2	6.1	0.6
Worcester	2.3	-11.1	4.3	0.8
State Total	-17.4	2.5	9.1	2.2

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

As the White share of public school enrollment decreased across the state, the total minority share increased by a percentage point change equal to the percentage point decline in white enrollment. For example, statewide, minority student enrollment

increased 17.4 percentage points, from 39% in 1990 to 56.4% of total enrollment in 2010. However, as state trends suggest, the extent to which the minority share of enrollment is attributed to Black, Latino, or Asian student enrollment differs across the state. While the share of Black student enrollment increased 2.5 percentage points in Maryland, some districts saw greater gains in the Black share of enrollment while others saw the share of Black students decline. Increases in the Latino share of enrollment, which grew by 9.1 percentage points statewide, were found in all districts in the state, but varied in magnitude.

The largest increase in the proportion of Black student enrollment was in two districts—Charles and Baltimore counties (Table 2). Charles had the largest percentage point increase in Black students from 1990-2010 (29.5 percentage points) followed by Baltimore County (16.5 percentage points). The increase in the proportion of Black students in 14 other districts ranged from 0.2 to 7.2 percentage points. Eight districts had a decrease in the proportion of Black students (Calvert, Caroline, Dorchester, Kent, Queen Anne’s, Somerset, Talbot, and Worcester); seven of those districts are the eastern-most counties in the state (the exception is Calvert).

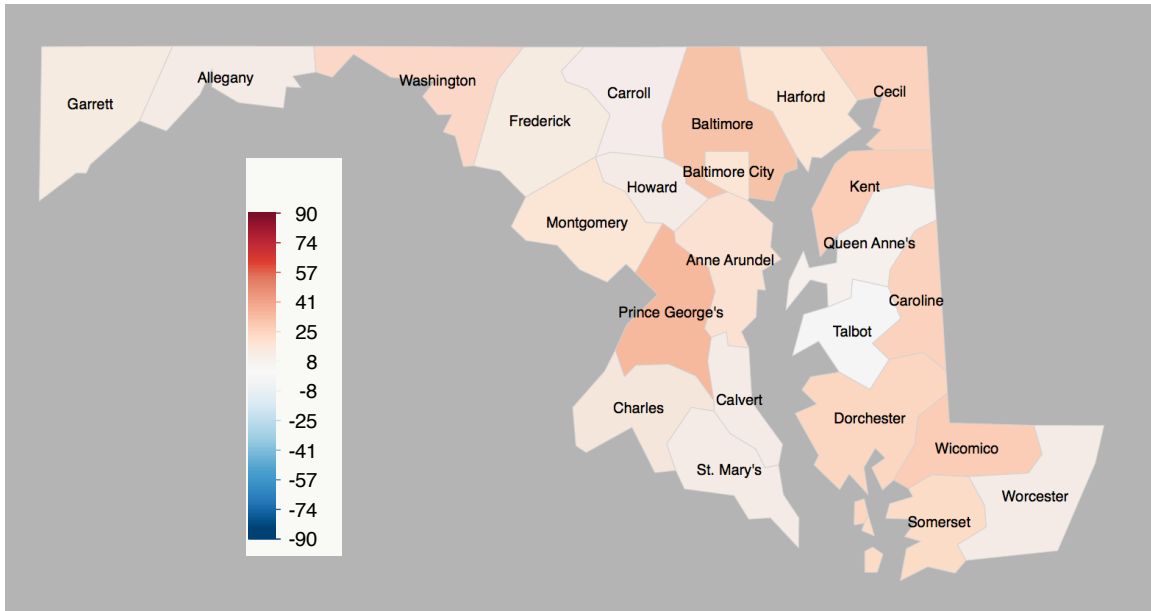
In other districts, the decline in the White share of enrollment was offset by increases in the Latino share. Statewide, the Latino share of enrollment increased 9.1 percentage points. While all districts saw increases in the percentages of Latino students, the largest gains were in Prince George’s (17.4 percentage points), Montgomery (16.3 percentage points) and Frederick (10.1 percentage points). Finally, Howard saw the largest increase in the Asian share of enrollment (10.3 percentage points), followed by Frederick (3.5 percentage points), Baltimore County (2.4 percentage points), and Montgomery (2.3 percentage points) school districts.

Changes in Student Poverty⁷

Although the change in the racial composition of schools was most prominent in the central corridor of Maryland, regional patterns in the change in the low-income composition of schools were less evident (Figure 7). As previously noted, the statewide percentage of low-income students increased 17.7 percentage points, from 22.4% in 1990 to 40.1% in 2010. District-level change ranged from an increase of 4.8 percentage points in Talbot to 34.1 percentage points in Prince George's (Table 3). The proportion of low-income students increased more than 10 percentage points in 23 of the 24 school districts. Prince George's (34.1 percentage points) and Baltimore County school districts (31.0 percentage points) saw the largest changes in the proportion of low-income students. Six of the nine districts on the Eastern shore saw the proportion of low-income students increase, including Wicomico (27.5 percentage points), Kent (26.4 percentage points), Caroline (25.6 percentage points), Cecil (24.6 percentage points), Dorchester (23.6 percentage points), and Somerset (21.9 percentage points). Washington (22.4 percentage points) and Anna Arundel (19.2 percentage points) in central Maryland saw increases in the percentage of low-income student that were larger than the state average.

⁷ We use the proportion of students eligible for free and reduced price meals as our measure of poverty throughout this report. Students from families with an earned income up to 1.85 times the federal poverty threshold are eligible for free and reduced price meals from the U.S. Department of Agriculture's Food and Nutrition Services.

Figure 7. Average percentage point change in low-income public school students by district, 1990-2010.



Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Table 3. Average Percentage Point Change in Low-Income Students, by District 1990-2010

District	1990 percent	2010 Percent	Percentage Point Change
Talbot	30.4	35.2	4.8
Queen Anne's	12.5	22.6	10.1
Carroll	5.1	15.7	10.6
Worcester	29.4	40.9	11.5
St. Mary's	16.7	28.8	12.1
Howard	3.8	16.1	12.3
Calvert	9.0	21.4	12.4
Allegany	36.1	48.9	12.8
Garrett	35.2	48.9	13.7
Frederick	8.7	22.8	14.1
Charles	13.0	28.4	15.4
Montgomery	13.4	30.6	17.2
Harford	10.0	27.4	17.4
Baltimore City	66.5	84.0	17.5
Anne Arundel	8.7	27.9	19.2
Somerset	43.7	65.6	21.9
Washington	21.5	43.9	22.4
Dorchester	35.9	59.5	23.6
Cecil	13.1	37.7	24.6
Caroline	26.9	52.5	25.6
Kent	23.2	49.6	26.4
Wicomico	24.5	52.0	27.5
Baltimore	11.3	42.3	31.0
Prince George's	20.3	54.4	34.1
State Total	22.4	40.1	17.7

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Trends in the Racial Concentration of Students

As Maryland school districts become more diverse, it is important to examine whether schools are becoming more or less integrated by race and income. There is a substantial body of research showing the educational and social benefits of attending racially and economically diverse schools for all students (Mickelson & Bottia, 2010; Mickelson, Bottis, & Lambert, 2013). In addition, many of the problems associated with poor academic achievement can be linked to schools that are segregated by race and income (Orfield & Lee, 2005). For example, in Maryland, the statewide average dropout rate was 16.3% in the 2010-2011 school year. However, the dropout rate in schools with 90-100% minority students was 23.4% compared to 6.9% in schools with 0-10% minority students, a 16.5 percentage point difference (Maryland State Department of Education, 2014). The gap is even larger for on-time graduation rates in Maryland. The statewide average graduation rate for Maryland schools was 75.5% in the 2010-2011 school year. The graduation rate in schools with 90-100% minority students was 60.9% compared to 90.9% in schools with 0-10% minority students, a 30 percentage point difference (Maryland State Department of Education, 2014; National Center for Education Statistics, 2014).

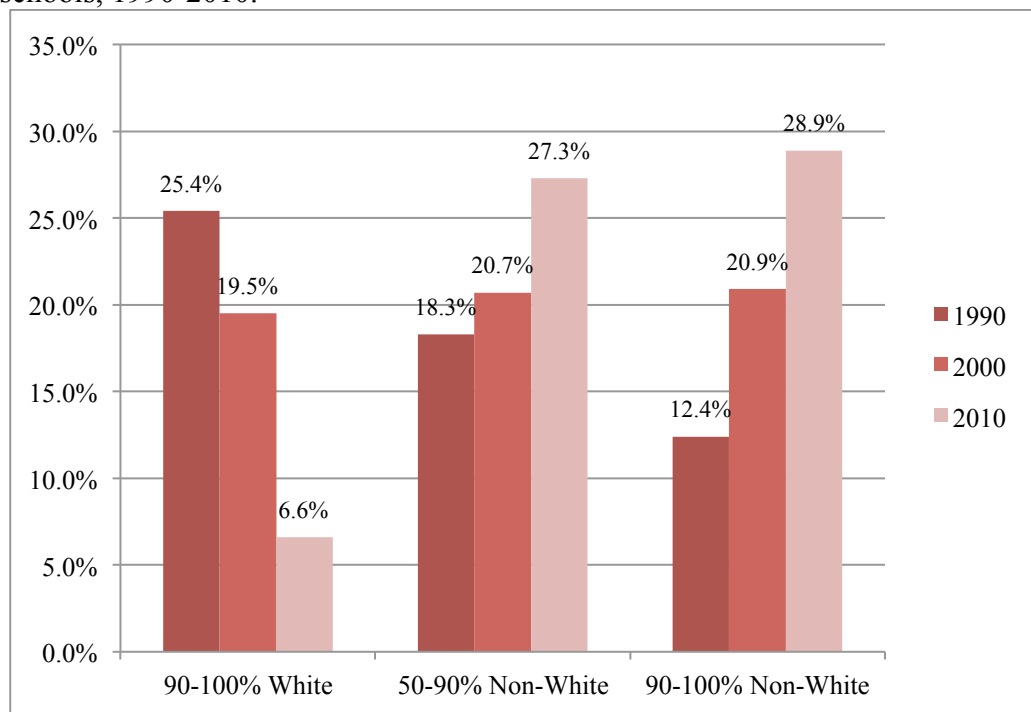
Racial Concentration of Students

School-level concentration of students by race is commonly used to measure segregation (Reardon, 2006). To measure the racial concentration of schools, we calculated the percentage of schools within each district that are racially isolated White (90-100% White), predominately minority (50-90% minority), and racially isolated minority (90-100% minority). Schools where students are segregated by race are often associated with gaps in access to educational opportunities and low achievement. In addition, highly segregated schools are more likely to have high concentrations of low-income students. Studies have found a strong relationship between schools with concentrated poverty and low achievement (Reardon, 2011; Schwartz, 2013).

The concentration of students by race shifted as school enrollment in Maryland diversified (Figure 8). Across the state, the percentage of racially isolated White schools

declined substantially, from 25.4% of schools in 1990 to 6.6% in 2010 (see also Appendix Table 3). At the same time, the percentage of racially isolated minority schools (90% - 100% minority enrollment) more than doubled between 1990 and 2010, increasing from 12.4% of schools to 28.9% (see also Appendix Table 4). In total, 35.5% of public schools in the state were racially isolated White or non-White in 2010, about the same as in 1990 when 37.8% were racially isolated. However, the make-up of these racially isolated schools changed from predominately White to predominately non-White. There was also an increase in the percentage of schools that enrolled 50-90% minority students. About a quarter (27.3%) of Maryland's schools fell into this category in 2010 compared to less than a fifth in 1990 (see also Appendix Table 5).

Figure 8. Percentage of students by school-level racial concentration, Maryland public schools, 1990-2010.



Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Racially isolated, minority schools are concentrated in Baltimore City and Prince George's County, where 80.1% and 87.7% of schools respectively were 90-100% minority in 2010 (Table 4). In both of these districts, these are racially isolated Black schools. Other districts with racially isolated minority schools include Baltimore County (19.6%), Montgomery (18.2%), Anna Arundel (4.1%) and Charles (2.8%). Except for

Baltimore City, average White enrollment in these districts declined 20 percentage points or more between 1990 and 2010.

Racially isolated White schools are in districts with predominately White student enrollment and include Garrett (100% of schools are predominately White), Allegany (66.7%), and Carroll (45.7%). Districts with more than a fifth of schools that were racially isolated White schools include Cecil (21.4%) and Washington (23.9%).

Finally, the number of districts with predominately minority schools increased as well. Compared to 1990, when 8 districts had some percentage of schools that were predominately minority, there were 17 districts in 2010 with predominately minority schools (Appendix Table 5). Districts with half or more of their schools falling in this category include Charles (69.4%), Montgomery (56.2%), Wicomico (56.0%), Dorchester (54.6%), and Somerset (50.0%).

Table 4. Percentage of District Schools by Racial Composition and District, 2010

District	90-100% White (%)	50-90% Non-White (%)	90-100% Non-White (%)
Allegany	66.7	0.0	0.0
Anne Arundel	1.6	29.3	4.1
Baltimore City	0.0	17.3	80.1
Baltimore	3.0	30.4	19.6
Calvert	0.0	4.0	0.0
Caroline	0.0	0.0	0.0
Carroll	45.7	0.0	0.0
Cecil	21.4	0.0	0.0
Charles	0.0	69.4	2.8
Dorchester	0.0	54.6	0.0
Frederick	14.8	18.0	0.0
Garrett	100.0	0.0	0.0
Harford	13.2	34.0	0.0
Howard	0.0	48.6	0.0
Kent	0.0	14.3	0.0
Montgomery	0.0	56.2	18.2
Prince George's	0.0	12.3	87.7
Queen Anne's	0.0	0.0	0.0
Somerset	12.5	50.0	0.0
St. Mary's	8.0	24.0	0.0
Talbot	0.0	0.0	0.0
Washington	23.9	4.4	0.0
Wicomico	0.0	56.0	0.0
Worcester	0.0	30.8	0.0
State Total	6.6	27.3	28.9

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

To determine how well schools are integrated given the overall district enrollment, we examined the extent to which the racial composition of schools is evenly distributed when compared to the district racial composition. We use a dissimilarity index to measure the relative separation or integration of students across schools within a district. A dissimilarity index measures how evenly students are distributed across schools compared to the district's student composition. It is the ratio of the percent of students that would have to move to different schools in order to produce a distribution that matches the district's racial composition to the percent of students that would have to make the same move if the district were perfectly segregated (Massey & Denton, 1988, 1993; Reardon, 2006). For example, an index value near 0.0 would indicate that students of two races are evenly distributed given their proportion of enrollment; an index of 0.430 would mean that 43% of students would need to move to even out enrollment.⁸ A dissimilarity index above 0.600 indicates high segregation (above 0.800 is extreme) while a value below 0.300 indicates low segregation.

Table 5 summarizes the dissimilarity between White student enrollments and Black, Latino, and Asian student enrollments by district. This table shows the level of segregation within districts. Baltimore City, Baltimore, Harford, and Prince George's school districts have the most segregated schools (above 0.500) on one or more of the three comparisons. The level of segregation in thirteen districts is moderate, between 0.300 and 0.500.⁹ The least segregated districts include Calvert, Carroll, Charles, Queen Anne's, Somerset, Talbot, and Wicomico. This measure also shows that Black students

⁸ Note that this is not 43% of all students. This measure takes into account that, from a state of perfect segregation, different districts would need to move different numbers of students to achieve integration depending on their racial composition. Consider for example a district (District A) that was 50% Black and 50% White. If it were perfectly segregated, half the schools would be all White, and half all Black. Integration would mean that all of the schools were half White and half Black. This means that half of the White students and half of the Black students (or only half of the students in the district) would need to move in order to achieve perfect integration from a state of maximum segregation. If on the other hand, a district (District B) were 90% Black and 10% White and was perfectly segregated, then only 10% of the Black students and 90% of the White students would need to move (or 18% of all students). We would consider District A and District B to be equally segregated if they both had dissimilarity values of .43, but it would mean slightly different things in each case—it would mean that 43% of the 50% of possible students would need to move to achieve integration in District A, but 43% of the 18% of possible students would need to move to achieve integration in District B.

⁹ These include Allegany, Anne Arundel, Caroline, Dorchester, Frederick, Garrett, Howard, Kent, Montgomery, St. Mary's, Washington, and Worcester counties.

are the most segregated from White students in 15 districts, Latino students from White students in 6 districts, and Asian students are the most segregated from White students in 8 districts (for each comparison, the dissimilarity index is above .300).

Table 5. Differential Distribution of Two Racial Groups Across Districts, 2010

District	Dissimilarity Index		
	Black and White	Latino and White	Asian and White
Allegany	0.305	0.197	0.440
Anne Arundel	0.426	0.297	0.242
Baltimore City	0.647	0.625	0.587
Baltimore	0.511	0.257	0.343
Calvert	0.175	0.145	0.178
Caroline	0.245	0.317	0.202
Carroll	0.224	0.171	0.192
Cecil	0.425	0.290	0.335
Charles	0.280	0.153	0.237
Dorchester	0.320	0.193	0.298
Frederick	0.455	0.315	0.340
Garrett	0.416	0.334	0.383
Harford	0.538	0.210	0.200
Howard	0.380	0.268	0.283
Kent	0.161	0.228	0.498
Montgomery	0.328	0.345	0.253
Prince George's	0.467	0.533	0.351
Queen Anne's	0.152	0.218	0.251
Somerset	0.233	0.260	0.236
St. Mary's	0.379	0.223	0.306
Talbot	0.158	0.236	0.263
Washington	0.380	0.244	0.269
Wicomico	0.290	0.194	0.220
Worcester	0.377	0.171	0.099

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Racial Exposure

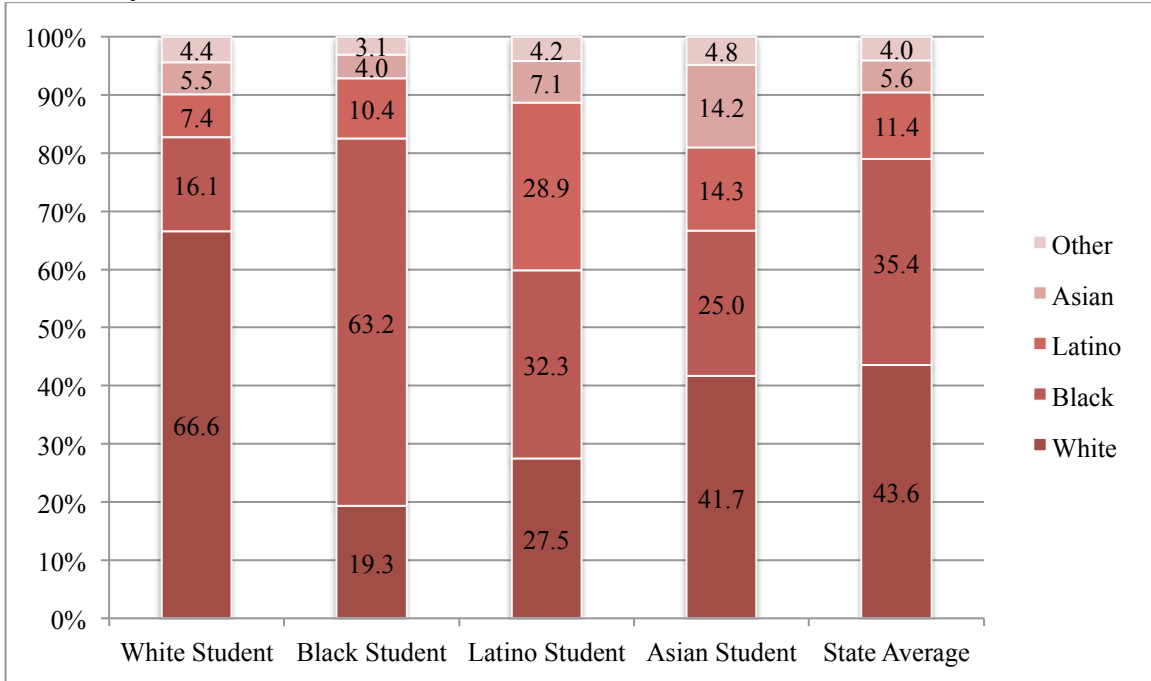
Another way to examine the racial distribution of students across schools within a district is the exposure index.¹⁰ The exposure index describes the distribution of groups of students among schools in a slightly different way than the dissimilarity index. It is useful for describing the racial composition of a school attended by the average student of a given race. The exposure index depends on the relative size of the two groups being compared and provides a measure of the average exposure of one group to another group

¹⁰ While these measures of segregation (dissimilarity index and exposure index) tell us something about how segregated or integrated schools may be, they have significant limitations. Most importantly, they do not allow us to draw conclusions about the causes of segregation or the likely impact on students.

(Reardon, 2006). If the exposure index of Black students to White students is .65, it would mean that the average, or typical, Black student in a district attends a school that is 65% White. In this report we examine the exposure of White students to other White students, and of White students to Black, Latino, and Asian students. We calculate exposure indices at the school-level and average these for each district and the state.

Figure 9 shows the exposure index for different groups of students—the racial composition of a school attended by the typical student by race in the state of Maryland. This figure demonstrates, graphically, the very different types of student-bodies that students are exposed to based solely on their race. For example, the typical White student in Maryland attends a school that is 66.6% White, 16.1% Black, 7.4% Latino, 5.5% Asian, and 4.4% other races. In contrast, a typical Black student in Maryland attends a school that is 19.3% White, 63.2% Black, 10.4% Latino, 4.0% Asian, and 3.1% other races. The last column—state average—indicates what the demographic composition of schools would look like if students were evenly distributed across schools in the state. The typical Asian student attends a school that most closely resembles this expected racial composition of a school. Figures showing the average racial composition of schools attended by the typical student by race for each district are in Appendix Figure 1.

Figure 9. Racial composition of a school attended by typical Maryland public school student, by race, 2010.



Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Because enrollment in Maryland public schools is changing demographically, we were interested in the extent to which schools are becoming more or less integrated in each district. To do this, we use data from 1990, 2000, and 2010 to calculate an exposure ratio. This is the ratio of the exposure index to Whites to the proportion of White enrollment in any given year. Thus, in a district with a Black-to-White exposure index of .65 and a proportion of White enrollment of .65, the ratio of the two would be 1.0, indicating that on average Black students are exposed to Whites at a rate equal to the proportion of White students enrolled in the district. The extent to which this exposure ratio varies from 1.0 for any group indicates some degree of segregation. A ratio of 1.25 in this example would mean that Black students, on average, enroll in schools that are 25% more White than the district proportion of White students. A ratio of .25 would mean that Black students attend schools that are 75% less white than the district's proportion of White students (or one quarter of the district's proportion of White enrollment).

To understand if segregation is increasing or decreasing, we compare exposure ratios over time. An exposure ratio that moves towards 1.00 indicates greater exposure to White students over time; a ratio that moves further from 1.00 indicates less exposure to White students. For example, if the exposure ratio of White students to other White students was 1.034 in 1990 and 1.138 in 2010, the change in the exposure ratio would indicate an increase in the exposure of White students to other White students by 10.4%.¹¹ Similarly, if the exposure ratio of White students to Black students was 0.968 in 1990 and 0.806 in 2010, the exposure of White students to Black students decreased by 16.2%. In each of these examples, the change in the exposure index would indicate greater segregation of schools, in terms of White students increased exposure to other White students and White students decreased exposure to Black students.

The overall trend between 1990 and 2010 is an increase in the exposure of White students to White students and a decrease in the exposure of Black students to White students and Latino students to White students. The exposure ratio did not change for Asian students during this time period. On average, White students' exposure to White students increased by 23% while Black students' exposure to White students decreased by 4% and Latino students' exposure to White students decreased by 17%. District trends generally mirror statewide trends. Nine districts had increases in exposure ratios of White students to White students between 1990 and 2010 of 10 percentage points or more; eleven districts had comparable decreases in exposure ratios of Black students to White students; six districts had comparable decreases in exposure ratios of Latino students to White students, and three districts had comparable decreases in exposure ratios of Asian students to White students. These changes in the exposure ratio, along with the increases in non-white racially isolated schools described earlier in the brief, indicate changes in the demographic composition of districts have been accompanied by trends toward increases in the racial segregation of schools. District level trends in the exposure index and ratio are displayed in Appendix Table 6.

¹¹ That is, $1.138 - 1.034 = .104$ or 10.4%.

Trends in the Concentration of Poverty

Scholars have long known the detrimental impact that an individual's poverty level has on academic achievement. Indeed, recent research finds a widening achievement gap between high- and low-income students (Reardon, 2011). But it is less widely acknowledged that high levels of schoolwide poverty—or concentrated poverty—create additional challenges for school systems and the students they serve. The economic composition of a school's student body is associated with educational outcomes of individual students independent of their family background (Anderson, Hollinger, & Conaty, 1992; Borman & Dowling, 2010; Fantuzzo, LeBoeuf, & Rouse, 2014; Konstantopoulos & Borman, 2011; Puma, Jones, Rock, & Fernandez, 1993; Puma et al., 1997). In other words, high concentrations of school poverty are associated with lower student achievement, regardless of an individual student's family income.

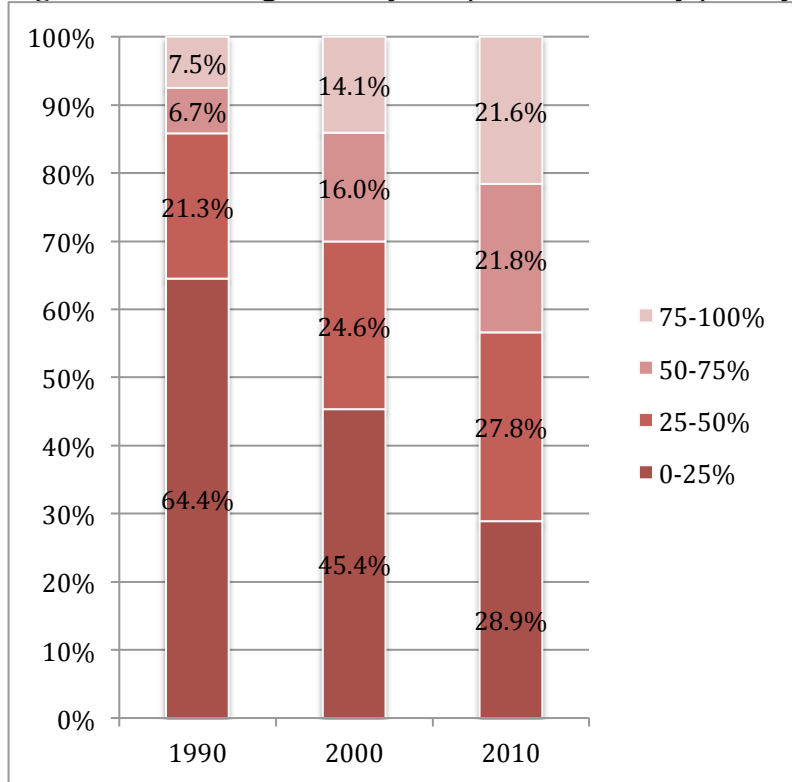
There are a number of reasons that concentrated poverty challenges school systems. School districts with rapidly changing student populations, such as in Maryland, may not have the expertise or resources needed to meet the needs of low-income students (Sunderman, 2013a). Low-income families typically have fewer resources to spend on the education of their children, which places a greater burden on school systems (Farkas, 2008). Equally important is that once poor students become a majority, middle-income families find schools less attractive and usually leave (Wilson, 1987). Also, better-qualified teachers are more likely to want to teach in schools with fewer rather than more low-income students (Ingersoll, 2004, 2007). Thus it is important for rapidly changing districts to pay attention to how low-income students are distributed across the system.

Economic Concentration of Students

As the percentage of low-income students increased in Maryland, the concentration of low-income students in schools also increased. Figure 10 shows the percentage of Maryland schools by the level of poverty concentration. In 2010, almost half (43.4%) of all schools in Maryland had poverty levels of 50% or greater, compared to 14.2% in 1990. The percentage of Maryland public schools with more than 75% of students from low-income families increased three-fold, from 7.5% of all public schools in 1990 to

21.6% in 2010. At the same time there are fewer schools with low concentrations of poverty. The percentage of schools with fewer than 25% of low-income students decreased from 64.4% in 1990 to 28.9% in 2010.

Figure 10. Percentage of Maryland public schools by poverty concentration, 1990-2010.



Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

With the increase in low-income students, there were fewer schools with low concentrations of poverty (0-25% low-income) and more schools with high concentrations of poverty (75-100% low-income) (Appendix Table 7). For the state, the percentage of schools with low concentrations of poverty decreased 46.7% between 1990 and 2010, from 786 schools to 419 schools. At the district level, the number of schools with low concentrations of poverty decreased in most districts (the exceptions were Calvert, Carroll, Howard, and Queen Anne’s). For example, in 1990, there were schools in every district with low concentrations of poverty; in 2010, eight districts no longer had any schools with low concentrations of poverty. These districts were in eastern (Caroline, Dorchester, Kent, Somerset, Talbot, and Worcester) or western Maryland (Allegany and Garrett). Statewide, the percentage of schools with concentrated poverty increased

240.2%, from 92 schools in 1990 to 313 schools in 2010. In 1990, there were 7 districts with one or more schools with concentrated poverty; in 2010 there were 22 districts; 16 of these districts had no schools with concentrated poverty in 1990.¹² Districts with the largest percentage of schools with concentrated poverty were in Baltimore City (87.8% of schools), Dorchester (30.8% of schools), Allegany (25.9% of schools), and Prince George's (25.7%). Queen Anne's and Talbot had no schools with concentrated poverty in 2010.

The trends in schools with moderate levels of low-income students—increases or decreases in schools with 25-50% low-income and those with 50-75% low-income—suggest that schools with 50-75% low-income have increased at a faster rate than those with 25-50%. Statewide, the number of schools with 50-75% low-income increased 285.4%, from 82 to 316; schools with 25-50% low-income increased 55.0%, from 260 to 403.

Table 6 summarizes the dissimilarity between low-income and non-poor students. As we did with the racial enrollments of schools, we calculated a dissimilarity index based on the distribution of low-income students across schools in a district. As previously noted, the dissimilarity index ranges from 0 to 1, where 0 reflects no segregation and 1 reflects complete segregation. As the table shows, low-income students are most segregated from non-poor students in Harford (DI=.452), Montgomery (DI=.433), and Howard (DI=.413) counties. Other districts where the dissimilarity index is above .300 include Anna Arundel (DI=.386), Baltimore City (DI=.394), Baltimore (DI=.382), Frederick (DI=.366), Prince George's (DI=.343), Queen Anne's (DI=.323), and Washington (DI=.309). With the exception of Queen Anne's, these districts are in central portion of the state. Somerset (DI=.139) and Talbot (DI=.145) have the lowest levels of segregation by income.

¹² Baltimore, Calvert, Caroline, Carroll, Cecil, Charles, Dorchester, Frederick, Garrett, Harford, Howard, Kent, St. Mary's, Washington, Wicomico, and Worcester had no schools with concentrated poverty in 1990.

The level of income segregation or integration is not simply related to the percentage of low-income students in a district, as some districts with low percentages of low-income students have higher levels of income segregation; in other districts with higher percentages, low-income students are more evenly distributed.

Table 6. Differential Distribution of Students by Income Across Districts, 2010

District	Dissimilarity Index
	FRPM and Non-FRPM
Allegany	0.230
Anne Arundel	0.386
Baltimore City	0.394
Baltimore	0.382
Calvert	0.265
Caroline	0.172
Carroll	0.297
Cecil	0.259
Charles	0.258
Dorchester	0.287
Frederick	0.366
Garrett	0.212
Harford	0.452
Howard	0.413
Kent	0.162
Montgomery	0.433
Prince George's	0.343
Queen Anne's	0.328
Somerset	0.139
St. Mary's	0.291
Talbot	0.145
Washington	0.309
Wicomico	0.229
Worcester	0.241

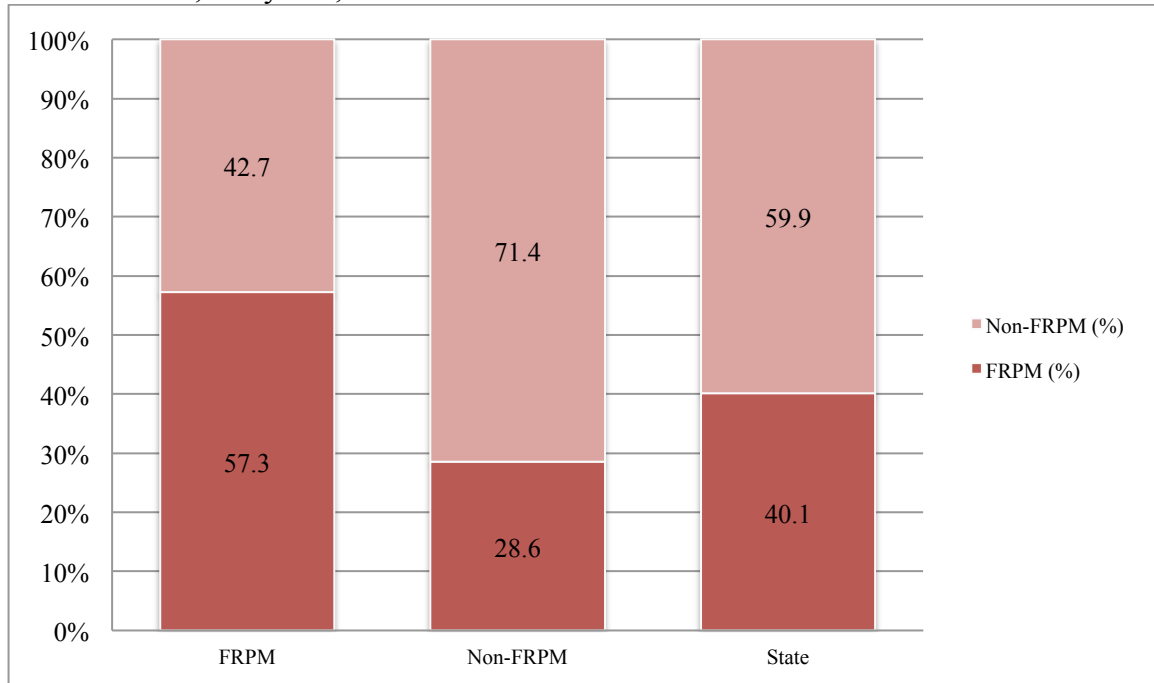
Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Exposure of Low-Income Students to Non-Poor Students

Figure 11 shows the income composition of a school attended by the typical low-income and non-poor student in Maryland in 2010. The typical low-income student attended a school that was 57.3% low-income and 42.7% non-poor, compared to a non-poor student who attended a school with 28.6% low-income students and 70.4% non-poor. If students were distributed evenly based on their FRPM status, a typical school would enroll 40.1% low-income and 59.9% non-poor students. Appendix figure 2 shows

the economic composition of schools attended by a typical low-income and non-low-poor student by district.

Figure 11. The economic composition of a school attended by a typical FRPM and non-FRPM student, Maryland, 2010.



Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

To assess the extent to which increasing percentages of low-income students are evenly distributed across a district, we compare measures of exposure over time using the exposure ratio (described above). Trends in how the exposure of low-income to non-poor students has changed over time are displayed in Appendix Table 8. For the state, the exposure ratio of low-income students to other low-income students decreased by 84% while the exposure ratio of non-poor students to low-income students increased by 8% between 1990 and 2010. Although the trend indicates greater integration of low-income students and more economically advantaged students, the exposure ratios in 2010 still indicate a degree of economic segregation in the state, with exposure ratios of 1.429 and 0.713, respectively. These ratios are consistent with Figure 11, which indicates that low-income students are more likely to attend schools with similarly disadvantaged students than their more economically advantaged peers. District trends generally mirror the state trends, with some exceptions. In fourteen districts, the exposure ratio of low-income

students to low-income students decreased but so did the exposure ratio of non-poor students to low-income students, indicating some increases in segregation, at least for economically more advantaged students. Decreases in the exposure of non-poor students to low-income students was 10% or less in these districts. District-level exposure rates and ratios for this time period are reported in Appendix Table 8.

Discussion and Implications

As this analysis shows, student enrollment in Maryland public schools increased and became more diverse between 1990 and 2010, although this pattern varied by district. The majority of students enrolled in Maryland public schools are non-White students (56.2% in 2010) and many of these students are low-income (40.1% in 2010). There is also a growing demographic divergence between regions of the state on several dimensions. There is dramatic growth in enrollment in the Baltimore-Washington corridor (with the exception of Baltimore City) and declining enrollment in eastern and western Maryland. Minority student enrollment is growing fastest in the central region, corresponding to the growth in enrollment taking place there. Changes in student poverty show that two predominately minority districts—Baltimore City and Prince George’s County— and Baltimore County and several eastern shore districts had large increases in low-income students. At the same time, the racial stratification of students in Maryland schools has increased since 1990. These changes carry tremendous import for policy as the state and counties consider how to adjust spending priorities and create policies and programs designed to prepare all students academically and socially.

As districts diversify, both racially and economically, ensuring that all students have the opportunities they need to be successful in school will require policies that address both the educational and social-economic factors that impact success in school. At the same time, the particulars of demographic changes vary across counties, ensuring that there is no one size fits all approach to addressing them. Districts experiencing growth face different challenges from those that have seen their enrollments decrease. Districts with increases in Asian or Latino students may be faced with greater needs for English language programs and teachers, while districts with concentrated poverty and

highly segregated schools may need to consider broadening the availability of services provided in the schools to include health services, early education, and child care.¹³ All districts need to adopt policies to lessen segregation by race and income.

Maryland has some advantages when it comes to managing demographic change. Currently, the level of segregation by income and race within most districts, while increasing, is manageable if districts are proactive in addressing it. Countywide districts provide opportunities that often are not available when districts are smaller and more numerous. Student assignment policies and the placement of new school buildings to encourage and support diverse schools can help to improve the racial and socio-economic balance across schools. Magnet schools and inter-district transfers can also be used to promote diversity. Counties—and the state—should be proactive in creating high quality educational opportunities that are responsive to and inclusive of families from many racial, ethnic, and economic backgrounds.

For many years, education reform has been one-dimensional, focusing primarily on school-based approaches to improving achievement, especially among disadvantaged students. These education policies are based on assumptions that schools are both the major reason for low achievement and that they alone can remedy the impact of poverty on achievement. However, evidence suggests that schools alone cannot close racial or economic achievement gaps in a substantial, consistent, and sustainable manner (Rothstein, 2004). Policies aimed at the social and economic disadvantages of students and their families and collaboration across policy sectors will be required if all students are to have the opportunities they need to be successful.

One such policy is the inclusion of affordable housing within higher performing schools' attendance zones. Research using data from Montgomery County schools found that inclusionary housing, which provides families access to low-poverty neighborhoods and schools, leads to better educational outcomes than just providing additional resources

¹³ For more information on school-community partnerships and early education in Maryland, see the Maryland Equity Project policy briefs on these topics (www.mdequity.org).

in segregated schools in high poverty neighborhoods (Schwartz, 2010). This research showed that, by the end of elementary school, low-income children attending low-poverty schools and living in low-poverty neighborhoods in Montgomery County outperformed students who attended less advantaged schools that were provided additional resources. These findings held in 10 additional jurisdictions in other states with inclusionary zoning programs (Schwartz, 2013) and run counter to current policy trends focusing solely on school improvement strategies or increased funding for high poverty schools. Although well-designed and sustained school improvement strategies can provide meaningful educational opportunities for low-income and minority students, ever greater gains are possible when policies address residential segregation and the concentration of low-income students in schools.

Maryland has taken some steps to address social-economic factors facing families, including raising the minimum wage and facilitating an ambitious building program in Baltimore City that encourages the inclusion of school-community partnerships (Baltimore City Board of School Commissioners, 2013). It is also taking small steps to expand access to early education.

This analysis is a first step in understanding demographic change in Maryland. Since local context matters, the next step is to better understand how and where population growth and change is taking place across schools within each county, what policies are in place to manage growth, and how well these policies manage current demographic changes. Montgomery County provided an example of such an analysis when it analyzed the demographic changes and performance in its 25 comprehensive high schools and compared performance in its high-poverty high schools to low-poverty high schools (Bonner-Tompkins, 2014).

Below we outline some of the challenges that Maryland is likely to encounter as school districts diversify.

1. Building the capacity of schools and districts to meet the needs of a diverse population, including the capacity to serve English language learners, low-income, and culturally diverse students.
2. Maintaining school quality across all schools, regardless of racial or social economic composition.
 - In districts with growing and diversifying populations, ensuring resource, program, and facility equity across schools.
 - In districts with declining populations, developing plans to close and consolidate schools and doing so in ways that do not burden particular types of students.
 - Developing student assignment policies that lessen the segregation of students by race and income.
3. Being attentive to where growth is taking place and the development of racial and low-income enclaves.
4. Revising housing policies that lead to segregated residential patterns (e.g., prohibitions on rental properties in certain areas, lot size minimums) and adopting those that encourage diverse communities (e.g., mixed-income housing).

Consistent with meeting these challenges and developing the capacity to educate a diverse student population, we propose the following recommendations.

1. Promote racial and socioeconomic integration through student assignment, school site selection, and housing policies that support diversity.
 - The state should encourage and support purposeful integration efforts by developing and supporting innovative educational options that will appeal to families of all racial and economic backgrounds.
 - Districts should create student assignment policies and plans that foster diverse schools and reduce concentrated poverty. Schools should also strive to integrate *classrooms* by race and income.
 - To lessen segregation by race and income, districts should aim to ensure that none of their schools enroll more than 40 percent low-income students or more than 25 percent performing below grade level (Puma et al., 1993).

This should be possible because Maryland school districts include all schools in the county. Schools integrated in this manner are much more likely to perform well and benefit all students.

- Locate new schools—both public and charter—in locations where they will result in diverse student enrollment.
 - Include affordable housing within higher performing schools' attendance zones.
2. Use magnet schools and open enrollment to create integrated schools by race and income.
- Create regional, cross-district magnet schools in highly segregated districts that provide opportunities for students from all racial and economic backgrounds to attend diverse schools.
 - Use the opportunity created by the Baltimore City 21st Century Building Initiative to think innovatively about creating regional magnets in new or renovated city schools. Use building initiatives in other counties to promote regional magnets.
 - Promote diversity in charter school enrollment through legislation, outreach to diverse communities, encouraging inter-district enrollment, and the provision of transportation.
3. Increase investments in *quality and research-based* practices and programs designed to ensure that all students have the learning opportunities they need to succeed and that support the whole child.
- Increase investments in high-quality early childhood education and development, including expanding access to publicly funded preschool to all 4-year children in the state and to all low-income 3-year olds (Sunderman & Titan, 2014).
 - Increase investments in health and nutrition supports that ensure that children come to school healthy.
 - Increase investments in out-of-school programs, such as after-school and summer learning programs.

- Provide support for school-community partnerships, a reform that shows promise in improving students' overall wellbeing and life prospects, and in strengthening families (Valli, Stefanski, & Jacobson, 2014).
4. Focus resources and school improvement efforts on increasing the capacity of schools and districts to serve diverse students.
 5. Adopt social, economic, and housing policies that address the challenges facing families.

Maryland has the opportunity to be a national leader in addressing the increasing diversity of students and providing the high quality education that all children need to thrive in a rapidly changing economy and society. Paramount is to ensure that increasing inequalities in wealth do not create inequities in access to educational opportunity. It will take political commitment to address the social, economic, and housing issues outside of schools that affect learning and will require a fundamental rethinking of the reform strategies that have dominated over the past half-century. But the good news is that we have a greater understanding of children's developmental needs and research that provides compelling evidence of both the limitations of current school reform approaches and identifies the kinds of reforms that actually increase student learning (Carter & Welner, 2013; Sunderman, 2013b; The Equity and Excellence Commission, 2013). Given these tools, and Maryland's traditional commitment to delivering a high-quality education, we believe the state can successfully manage the transition to a diverse, integrated school system.

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Appendix

Appendix Table 1. Demographic Composition and Enrollment, by District
1990, 2000, 2010

District	Black %	White %	Latino %	Asian %	Multi-	FRPM %	Enroll
Allegany							
1990	2.43	96.88	0.13	0.45	-	36.1	9916
2000	3.33	95.23	0.32	0.80	-	45.8	10416
2010	4.00	91.17	1.18	0.60	2.79	48.9	8948
Anne Arundel							
1990	15.04	82.25	0.89	1.70	-	8.7	65051
2000	19.63	75.15	2.33	2.73	-	15.6	74491
2010	20.70	61.95	8.76	3.43	4.49	27.9	75453
Baltimore City							
1990	80.86	18.04	0.30	0.54	-	66.5	106109
2000	87.54	10.78	0.73	0.60	-	71.4	99859
2010	86.69	7.72	3.85	1.02	0.24	84.0	84594
Baltimore							
1990	18.55	77.40	0.86	3.00	-	11.3	86102
2000	32.36	61.70	1.70	3.79	-	26.5	106898
2010	35.04	50.97	5.42	5.48	2.70	42.3	113466
Calvert							
1990	18.29	80.94	0.19	0.44	-	9.0	10398
2000	15.65	82.46	0.87	0.88	-	12.3	16170
2010	14.55	75.26	3.79	1.54	4.51	21.4	16781
Caroline							
1990	19.58	79.65	0.35	0.35	-	26.9	4790
2000	19.96	77.15	2.02	0.83	-	40.8	5557
2010	16.41	70.03	8.14	0.56	4.40	52.5	5503
Carroll							
1990	1.97	96.75	0.42	0.77	-	5.1	21478
2000	2.34	95.65	0.77	1.06	-	8.2	27528
2010	3.53	89.15	3.33	1.93	1.81	15.7	27292
Cecil							
1990	4.77	93.97	0.65	0.54	-	13.1	12868
2000	5.94	91.37	1.70	0.77	-	20.8	15905
2010	8.49	81.28	4.52	0.92	4.35	37.7	15923
Charles							
1990	22.01	75.35	0.85	1.32	-	13.0	17760
2000	34.98	59.92	1.85	2.22	-	21.2	23468
2010	51.51	34.78	5.10	3.05	4.79	28.4	26836
Dorchester							
1990	38.63	60.49	0.44	0.38	-	35.9	4525
2000	42.31	55.62	0.00	0.99	-	44.7	4869
2010	36.66	52.35	5.02	0.95	4.80	59.5	4621
Frederick							
1990	5.59	92.42	0.79	1.07	-	8.7	25502
2000	9.00	86.37	2.37	2.08	-	13.3	36885
2010	10.60	68.10	10.92	4.60	5.30	22.8	40132
Garrett							
1990	0.17	99.75	0.00	0.00	-	35.2	4808
2000	0.28	99.47	0.12	0.10	-	44.0	4946
2010	0.36	98.38	0.43	0.38	0.45	48.9	4200
Harford							
1990	11.16	85.34	1.47	1.67	-	10.0	31468
2000	14.00	81.32	2.16	2.03	-	15.3	39520
2010	18.09	68.57	5.23	3.04	4.53	27.4	38394

Howard							
1990	13.84	79.39	1.05	5.64	-	3.8	29963
2000	17.83	69.91	2.50	9.62	-	9.4	44946
2010	20.45	48.78	8.23	15.95	6.21	16.1	50980
Kent							
1990	26.36	69.93	3.13	0.58	-	23.2	2591
2000	26.73	69.98	2.61	0.47	-	37.9	2795
2010	22.37	65.63	6.86	0.19	4.86	49.6	2159
Montgomery							
1990	17.26	61.50	9.00	11.97	-	13.4	100836
2000	21.16	49.02	16.19	13.33	-	21.8	134180
2010	21.32	34.57	25.29	14.28	4.32	30.6	143995
Prince George's							
1990	65.36	26.57	3.62	4.06	-	20.3	107179
2000	77.19	11.44	7.51	3.31	-	41.5	133723
2010	68.94	4.46	21.03	2.90	1.76	54.4	126606
Queen Anne's							
1990	14.74	84.41	0.37	0.45	-	12.5	5368
2000	10.63	88.11	0.42	0.61	-	15.0	7217
2010	6.95	85.13	3.66	1.31	2.48	22.6	7781
Somerset							
1990	54.59	45.08	0.18	0.15	-	43.7	3330
2000	45.71	52.07	1.27	0.82	-	56.3	3063
2010	41.40	46.04	6.30	0.79	5.13	65.6	2906
St. Mary's							
1990	17.44	79.87	0.87	1.35	-	16.7	12206
2000	19.20	76.44	1.76	1.99	-	20.0	15151
2010	19.50	70.32	4.38	2.75	2.49	28.8	17243
Talbot							
1990	26.23	72.69	0.47	0.61	-	30.4	4068
2000	24.60	72.09	1.92	1.15	-	29.7	4521
2010	17.85	67.83	8.64	1.75	3.53	35.2	4504
Washington							
1990	4.35	94.37	0.35	0.90	-	21.5	17483
2000	7.51	89.64	1.41	1.28	-	27.1	19782
2010	11.56	74.94	5.62	1.78	5.91	43.9	22206
Wicomico							
1990	31.79	66.23	0.43	1.49	-	24.5	11908
2000	35.29	60.16	2.15	2.27	-	34.8	14138
2010	34.68	50.47	6.10	3.20	5.12	52.0	14382
Worcester							
1990	31.84	66.40	0.91	0.84	-	29.4	5703
2000	26.80	70.95	1.35	0.75	-	32.9	6892
2010	20.73	68.72	5.22	1.67	3.35	40.9	6687
State Total							
1990	32.90	61.07	2.33	3.48	-	22.4	701410
2000	37.08	53.37	4.84	4.36	-	30.9	852920
2010	35.42	43.63	11.41	5.64	3.41	40.1	861592

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Appendix Table 2. Average School-Level Change in Percentage of White Students, by District

District	1990-2000	2000-2010	1990-2010
Allegany	-1.8	-2.9	-4.7
Anne Arundel	-8.4	-13.4	-21.7
Baltimore City	-8.4	-1.8	-10.3
Baltimore	-14.8	-15.1	-29.9
Calvert	0.8	-8.9	-8.1
Caroline	-2.7	-3.8	-6.5
Carroll	-1.4	-6.5	-7.8
Cecil	-2.4	-9.3	-11.7
Charles	-15.4	-21.2	-36.6
Dorchester	-4.7	3.5	-1.3
Frederick	-7.0	-13.9	-20.9
Garrett	-0.3	-1.3	-1.5
Harford	-4.8	-12.7	-17.5
Howard	-10.6	-19.7	-30.3
Kent	-0.8	2.8	2.0
Montgomery	-13.3	-14.7	-28.0
Prince George's	-15.7	-4.2	-19.9
Queen Anne's	3.9	-3.4	0.5
Somerset	10.9	0.6	11.5
St. Mary's	-6.0	-1.2	-7.2
Talbot	-1.0	-2.2	-3.1
Washington	-4.9	-14.1	-19.0
Wicomico	-8.9	-7.8	-16.7
Worcester	3.0	-1.0	2.0
State Total	-4.8	-7.2	-12.0

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Appendix Table 3. Percentage of District Schools that are Racially Isolated White Schools, by District & Year

District	Percentage of district schools that are 90-100% white		
	1990	2000	2010
Allegany	100.0	91.7	66.7
Anne Arundel	37.5	27.4	1.6
Baltimore City	6.2	1.7	0.0
Baltimore	36.1	16.2	3.0
Calvert	7.1	8.7	0.0
Caroline	11.1	0.0	0.0
Carroll	93.6	94.7	45.7
Cecil	76.0	63.3	21.4
Charles	0.0	0.0	0.0
Dorchester	9.1	9.1	0.0
Frederick	65.1	58.5	14.8
Garrett	100.0	100.0	100.0
Harford	48.8	45.3	13.2
Howard	14.6	7.7	0.0
Kent	0.0	0.0	0.0
Montgomery	4.6	3.1	0.0
Prince George's	0.0	0.0	0.0
Queen Anne's	33.3	25.0	0.0
Somerset	16.7	10.0	12.5
St. Mary's	11.1	12.0	8.0
Talbot	11.1	11.1	0.0
Washington	88.1	60.0	23.9
Wicomico	8.3	8.0	0.0
Worcester	0.0	15.4	0.0
State Total	25.4	19.5	6.6

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Appendix Table 4. Percentage of District Schools that are Racially Isolated Minority Schools, by District & Year

District	Percentage of district schools that are 90-100% racial minority		
	1990	2000	2010
Allegany	0.0	0.0	0.0
Anne Arundel	0.0	1.7	4.1
Baltimore City	61.6	70.9	80.1
Baltimore	2.0	11.2	19.6
Calvert	0.0	0.0	0.0
Caroline	0.0	0.0	0.0
Carroll	0.0	0.0	0.0
Cecil	0.0	0.0	0.0
Charles	0.0	0.0	2.8
Dorchester	0.0	0.0	0.0
Frederick	0.0	0.0	0.0
Garrett	0.0	0.0	0.0
Harford	0.0	0.0	0.0
Howard	0.0	0.0	0.0
Kent	0.0	0.0	0.0
Montgomery	1.2	3.1	18.2
Prince George's	21.5	66.3	87.7
Queen Anne's	0.0	0.0	0.0
Somerset	0.0	0.0	0.0
St. Mary's	0.0	0.0	0.0
Talbot	0.0	0.0	0.0
Washington	0.0	0.0	0.0
Wicomico	16.7	0.0	0.0
Worcester	0.0	0.0	0.0
State Total	12.4	20.9	28.9

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Appendix Table 5. Percentage of District Schools that are Predominantly Minority Schools, by District & Year

District	Percentage of district schools that are 50-90% racial minority		
	1990	2000	2010
Allegany	0.0	0.0	0.0
Anne Arundel	5.4	15.4	29.3
Baltimore City	20.3	21.4	17.3
Baltimore	10.9	14.9	30.4
Calvert	0.0	0.0	4.0
Caroline	0.0	0.0	0.0
Carroll	0.0	0.0	0.0
Cecil	0.0	0.0	0.0
Charles	7.1	25.0	69.4
Dorchester	0.0	45.5	54.6
Frederick	0.0	1.9	18.0
Garrett	0.0	0.0	0.0
Harford	0.0	7.5	34.0
Howard	0.0	15.4	48.6
Kent	0.0	12.5	14.3
Montgomery	24.9	47.6	56.2
Prince George's	62.2	31.1	12.3
Queen Anne's	0.0	0.0	0.0
Somerset	66.7	40.0	50.0
St. Mary's	0.0	8.0	24.0
Talbot	0.0	0.0	0.0
Washington	0.0	0.0	4.4
Wicomico	16.7	36.0	56.0
Worcester	0.0	23.1	30.8
State Total	18.3	20.7	27.3

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Appendix Table 6. Exposure to White Students and Exposure Ratio, by District 1990, 2000, 2010

District	Exposure to White students by the typical:					Exposure Ratio (Exposure to White/Proportion White)				
	District White %	White (%)	Black (%)	Latino (%)	Asian (%)	White	Black	Latino	Asian	
Allegany	1990	96.9	96.9	95.1	95.3	95.7	1.001	0.982	0.984	0.988
	2000	95.2	95.3	92.4	93.4	94.1	1.001	0.970	0.981	0.988
	2010	91.2	90.8	88.3	89.3	89.1	0.996	0.968	0.979	0.978
Anne Arundel	1990	82.3	85.1	67.6	72.8	79.2	1.034	0.822	0.885	0.963
	2000	75.1	80.7	56.5	60.4	69.9	1.073	0.752	0.804	0.931
	2010	61.9	70.5	44.2	48.1	55.8	1.138	0.714	0.776	0.900
Baltimore City	1990	18.0	58.2	8.8	42.9	31.1	3.227	0.489	2.380	1.726
	2000	10.8	47.4	5.9	30.8	26.6	4.397	0.550	2.860	2.464
	2010	7.7	33.2	4.8	19.7	23.8	4.297	0.627	2.549	3.083
Baltimore	1990	77.4	84.1	49.6	76.8	77.6	1.086	0.640	0.992	1.003
	2000	61.7	76.6	33.0	61.4	65.1	1.241	0.534	0.995	1.056
	2010	51.0	62.6	26.3	42.6	47.1	1.228	0.515	0.835	0.924
Calvert	1990	80.9	81.4	78.9	81.5	82.0	1.005	0.975	1.007	1.013
	2000	82.5	82.9	80.5	81.1	82.5	1.005	0.976	0.983	1.000
	2010	75.3	75.8	73.1	74.1	75.7	1.008	0.972	0.984	1.006
Caroline	1990	79.7	80.3	76.8	80.3	78.7	1.009	0.964	1.008	0.988
	2000	77.1	77.8	74.4	78.2	75.0	1.009	0.965	1.014	0.972
	2010	70.0	70.8	67.2	68.2	69.1	1.011	0.960	0.974	0.986
Carroll	1990	96.8	96.8	95.3	95.6	95.8	1.000	0.985	0.989	0.990
	2000	95.6	95.7	94.3	94.6	95.1	1.001	0.985	0.989	0.994
	2010	89.2	89.2	87.3	87.5	87.8	1.001	0.979	0.982	0.984
Cecil	1990	94.0	94.2	90.5	92.4	92.6	1.002	0.963	0.983	0.985
	2000	91.4	91.9	84.7	86.3	87.1	1.006	0.927	0.945	0.953
	2010	81.3	83.2	69.4	74.9	73.9	1.024	0.853	0.922	0.909
Charles	1990	75.4	76.1	72.9	76.5	76.4	1.009	0.968	1.015	1.014
	2000	59.9	61.6	57.3	57.3	58.9	1.028	0.956	0.956	0.983
	2010	34.8	46.0	28.0	30.5	29.5	1.323	0.806	0.876	0.847
Dorchester	1990	60.5	61.8	58.5	58.8	60.6	1.021	0.967	0.971	1.002
	2000	55.6	60.6	49.1	55.4	50.0	1.090	0.883	0.996	0.898
	2010	52.3	58.8	43.5	49.3	44.7	1.123	0.831	0.942	0.853
Frederick	1990	92.4	93.0	84.0	87.8	88.6	1.007	0.908	0.950	0.959
	2000	86.4	88.2	73.4	76.4	78.5	1.021	0.849	0.884	0.908
	2010	68.1	74.4	50.0	52.3	57.5	1.093	0.734	0.768	0.844
Garrett	1990	99.8	99.8	99.4	0.0	99.7	1.000	0.997	0.000	0.999
	2000	99.5	99.5	98.7	99.2	98.7	1.000	0.992	0.997	0.992
	2010	98.4	98.2	96.7	97.5	96.7	0.998	0.983	0.991	0.983
Harford	1990	85.3	87.2	72.8	75.3	83.2	1.022	0.853	0.882	0.975
	2000	81.3	84.5	65.1	70.8	80.3	1.038	0.801	0.870	0.987
	2010	68.6	75.4	47.5	59.4	70.6	1.099	0.692	0.866	1.030
Howard	1990	79.4	80.7	72.5	75.9	78.1	1.017	0.913	0.957	0.983
	2000	69.9	73.2	59.0	59.2	69.2	1.047	0.843	0.847	0.989
	2010	48.8	54.5	38.8	40.6	49.7	1.116	0.796	0.833	1.019
Kent	1990	69.9	70.6	68.5	66.9	68.6	1.010	0.979	0.956	0.981
	2000	70.0	71.4	65.6	75.6	65.3	1.021	0.938	1.080	0.933
	2010	65.6	66.6	62.0	62.6	64.4	1.015	0.945	0.954	0.981

Montgomery										
1990	61.5	66.1	53.0	51.6	57.5	1.075	0.862	0.839	0.935	
2000	49.0	57.8	39.0	36.6	47.8	1.179	0.795	0.746	0.976	
2010	34.6	47.5	24.3	24.6	35.8	1.373	0.702	0.710	1.035	
Prince George's										
1990	26.6	41.4	20.8	21.0	28.1	1.559	0.781	0.789	1.058	
2000	11.4	28.0	9.1	8.4	15.0	2.443	0.799	0.730	1.314	
2010	4.5	13.5	3.7	4.3	7.1	3.029	0.830	0.953	1.594	
Queen Anne's										
1990	84.4	85.0	80.8	86.1	86.4	1.007	0.957	1.020	1.023	
2000	88.1	88.5	85.9	88.3	86.5	1.004	0.975	1.002	0.981	
2010	85.1	85.4	84.0	83.0	85.5	1.003	0.986	0.975	1.004	
Somerset										
1990	45.1	46.8	43.7	43.6	44.7	1.038	0.968	0.966	0.992	
2000	52.1	55.2	48.6	52.4	47.9	1.060	0.933	1.006	0.919	
2010	46.0	49.8	42.0	46.6	42.5	1.081	0.912	1.013	0.922	
St. Mary's										
1990	79.9	81.0	75.4	74.0	75.1	1.014	0.944	0.926	0.941	
2000	76.4	79.3	66.4	70.5	69.6	1.037	0.869	0.922	0.910	
2010	70.3	75.3	58.8	63.6	61.8	1.071	0.837	0.905	0.879	
Talbot										
1990	72.7	73.4	70.7	71.4	70.6	1.010	0.972	0.982	0.971	
2000	72.1	73.7	67.9	67.1	68.4	1.023	0.942	0.931	0.949	
2010	67.8	69.3	64.9	63.2	63.2	1.021	0.956	0.931	0.932	
Washington										
1990	94.4	94.8	86.4	86.0	88.6	1.005	0.915	0.912	0.939	
2000	89.6	90.6	80.5	84.6	85.4	1.010	0.898	0.944	0.952	
2010	74.9	77.8	64.1	67.5	71.2	1.038	0.855	0.900	0.950	
Wicomico										
1990	66.2	68.4	62.0	59.3	64.3	1.032	0.936	0.896	0.970	
2000	60.2	64.5	53.2	55.7	57.2	1.073	0.884	0.926	0.950	
2010	50.5	57.0	42.7	44.7	47.9	1.129	0.846	0.886	0.949	
Worcester										
1990	66.4	68.7	61.4	72.2	70.6	1.034	0.925	1.087	1.063	
2000	71.0	74.4	61.7	72.7	71.0	1.049	0.869	1.024	1.000	
2010	68.7	71.8	59.4	70.0	67.1	1.045	0.864	1.019	0.976	
State Total										
1990	61.1	78.7	29.5	49.1	58.4	1.288	0.483	0.804	0.956	
2000	53.4	75.5	24.0	36.0	52.1	1.414	0.449	0.674	0.976	
2010	43.6	66.6	19.3	27.5	41.7	1.528	0.443	0.631	0.956	

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*

Appendix Table 7. Concentration of Low-Income Students by Percentile Quartiles and District 1990, 2000, 2010

District		Percentage of low-income students in school				Total
		0-25%	25-50%	50-75%	75-100%	
Allegany						
1990	Count	6	12	5	1	24
	Percent	25.0%	50.0%	20.8%	4.2%	100.0%
2000	Count	1	9	13	3	26
	Percent	3.8%	34.6%	50.0%	11.5%	100%
2010	Count	0	10	10	7	27
	Percent	0.0%	37.0%	37.0%	25.9%	100.0%
Anne Arundel						
1990	Count	98	12	2	2	114
	Percent	86.0%	10.5%	1.8%	1.8%	100.0%
2000	Count	83	25	8	3	119
	Percent	69.7%	21.0%	6.7%	2.5%	100.0%
2010	Count	58	39	18	8	123
	Percent	47.2%	31.7%	14.6%	6.5%	100.0%
Baltimore City						
1990	Count	10	37	46	84	177
	Percent	5.6%	20.9%	26.0%	47.5%	100.0%
2000	Count	3	19	34	128	184
	Percent	1.6%	10.3%	18.5%	69.6%	100.0%
2010	Count	2	6	16	172	196
	Percent	1.0%	3.1%	8.2%	87.8%	100.0%
Baltimore						
1990	Count	123	23	1	0	147
	Percent	83.7%	15.6%	0.7%	0.0%	100.0%
2000	Count	84	41	32	12	169
	Percent	49.7%	24.3%	18.9%	7.1%	100.0%
2010	Count	40	51	61	19	171
	Percent	23.4%	29.8%	35.7%	11.1%	100.0%
Calvert						
1990	Count	14	0	0	0	14
	Percent	100.0%	0.0%	0.0%	0.0%	100.0%
2000	Count	22	1	0	2	25
	Percent	88.0%	4.0%	0.0%	8.0%	100.0%
2010	Count	15	9	1	1	26
	Percent	57.7%	34.6%	3.8%	3.8%	100.0%
Caroline						
1990	Count	4	5	0	0	9
	Percent	44.4%	55.6%	0.0%	0.0%	100.0%
2000	Count	0	7	2	1	10
	Percent	0.0%	70.0%	20.0%	10.0%	100.0%
2010	Count	0	5	3	2	10
	Percent	0.0%	50.0%	30.0%	20.0%	100.0%
Carroll						
1990	Count	29	2	0	0	31
	Percent	93.5%	6.5%	0.0%	0.0%	100.0%
2000	Count	34	4	0	2	40
	Percent	85.0%	10.0%	0.0%	5.0%	100.0%
2010	Count	34	9	2	3	48
	Percent	70.8%	18.8%	4.2%	6.3%	100.0%
Cecil						
1990	Count	22	3	0	0	25
	Percent	88.0%	12.0%	0.0%	0.0%	100.0%
2000	Count	20	10	0	1	31
	Percent	64.5%	32.3%	0.0%	3.2%	100.0%
2010	Count	6	14	8	1	29
	Percent	20.7%	48.3%	27.6%	3.4%	100.0%

Charles							
1990	Count	22	6	0	0	28	
	Percent	78.6%	21.4%	0.0%	0.0%	100.0%	
2000	Count	19	10	2	2	33	
	Percent	57.6%	30.3%	6.1%	6.1%	100.0%	
2010	Count	13	15	8	1	37	
	Percent	35.1%	40.5%	21.6%	2.7%	100.0%	
Dorchester							
1990	Count	6	4	2	0	12	
	Percent	50.0%	33.3%	16.7%	0.0%	100.0%	
2000	Count	2	5	4	3	14	
	Percent	14.3%	35.7%	28.6%	21.4%	100.0%	
2010	Count	0	3	6	4	13	
	Percent	0.0%	23.1%	46.2%	30.8%	100.0%	
Frederick							
1990	Count	40	3	0	0	43	
	Percent	93.0%	7.0%	0.0%	0.0%	100.0%	
2000	Count	40	11	2	1	54	
	Percent	74.1%	20.4%	3.7%	1.9%	100.0%	
2010	Count	37	20	0	8	65	
	Percent	56.9%	30.8%	0.0%	12.3%	100.0%	
Garrett							
1990	Count	3	10	3	0	16	
	Percent	18.8%	62.5%	18.8%	0.0%	100.0%	
2000	Count	2	7	7	1	17	
	Percent	11.8%	41.2%	41.2%	5.9%	100.0%	
2010	Count	0	6	7	2	15	
	Percent	0.0%	40.0%	46.7%	13.3%	100.0%	
Harford							
1990	Count	39	4	0	0	43	
	Percent	90.7%	9.3%	0.0%	0.0%	100.0%	
2000	Count	38	10	5	1	54	
	Percent	70.4%	18.5%	9.3%	1.9%	100.0%	
2010	Count	28	12	11	2	53	
	Percent	52.8%	22.6%	20.8%	3.8%	100.0%	
Howard							
1990	Count	48	0	0	0	48	
	Percent	100.0%	6.0%	0.0%	0.0%	106.0%	
2000	Count	59	19	0	2	80	
	Percent	73.8%	23.8%	0.0%	2.5%	100.0%	
2010	Count	51	19	2	1	73	
	Percent	69.9%	26.0%	2.7%	1.4%	100.0%	
Kent							
1990	Count	2	6	0	0	8	
	Percent	25.0%	75.0%	0.0%	0.0%	100.0%	
2000	Count	0	6	2	0	8	
	Percent	0.0%	75.0%	25.0%	0.0%	100.0%	
2010	Count	0	3	4	2	9	
	Percent	0.0%	33.3%	44.4%	22.2%	100.0%	
Montgomery							
1990	Count	142	26	4	1.0	173	
	Percent	82.1%	15.0%	2.3%	0.6%	100.0%	
2000	Count	111	59	17	5	192	
	Percent	57.8%	30.7%	8.9%	2.6%	100.0%	
2010	Count	91	55	47	11	204	
	Percent	44.6%	27.0%	23.0%	5.4%	100.0%	
Prince George's							
1990	Count	101	58	11	2	172	
	Percent	58.7%	33.7%	6.4%	1.2%	100.0%	
2000	Count	43	62	71	17	193	
	Percent	22.3%	32.1%	36.8%	8.8%	100.0%	
2010	Count	13	65	75	53	206	
	Percent	6.3%	31.6%	36.4%	25.7%	100.0%	

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Queen Anne's						
1990	Count	9	0	0	0	9
	Percent	100.0%	0.0%	0.0%	0.0%	100.0%
2000	Count	10	2.0	0	1	13
	Percent	76.9%	15.4%	0.0%	7.7%	100.0%
2010	Count	10	3	1	0	14
	Percent	71.4%	21.4%	7.1%	0.0%	100.0%
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Somerset						
1990	Count	2	6	4	1	13
	Percent	15.4%	46.2%	30.8%	7.7%	100.0%
2000	Count	1	3	6	1	11
	Percent	9.1%	27.3%	54.5%	9.1%	100.0%
2010	Count	0	1	7	1	9
	Percent	0.0%	11.1%	77.8%	11.1%	100.0%
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St. Mary's						
1990	Count	19	8.0	0	0	27
	Percent	70.4%	29.6%	0.0%	0.0%	100.0%
2000	Count	18	5	2.0	2	27
	Percent	66.7%	18.5%	7.4%	7.4%	100.0%
2010	Count	11	9	3	3	26
	Percent	42.3%	34.6%	11.5%	11.5%	100.0%
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Talbot						
1990	Count	7	1	0	1	9
	Percent	77.8%	11.1%	0.0%	11.1%	100.0%
2000	Count	3	6	0	0	9
	Percent	33.3%	66.7%	0.0%	0.0%	100.0%
2010	Count	0	8	0	0	8
	Percent	0.0%	100.0%	0.0%	0.0%	100.0%
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Washington						
1990	Count	24	16	2	0	42
	Percent	57.1%	38.1%	4.8%	0.0%	100.0%
2000	Count	25	15	4	1	45
	Percent	55.6%	33.3%	8.9%	2.2%	100.0%
2010	Count	9	21	13	3	46
	Percent	19.6%	45.7%	28.3%	6.5%	100.0%
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Wicomico						
1990	Count	11	11	2	0	24
	Percent	45.8%	45.8%	8.3%	0.0%	100.0%
2000	Count	7	9	8	2	26
	Percent	26.9%	34.6%	30.8%	7.7%	100.0%
2010	Count	1	11	8	5	25
	Percent	4.0%	44.0%	32.0%	20.0%	100.0%
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Worcester						
1990	Count	5	7	0	0	12
	Percent	41.7%	58.3%	0.0%	0.0%	100.0%
2000	Count	3	8	2	1	14
	Percent	21.4%	57.1%	14.3%	7.1%	100.0%
2010	Count	0	9	4	1	14
	Percent	0.0%	64.3%	28.6%	7.1%	100.0%
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State Total						
1990	Count	786	260	82	92	1220
	Percent	64.4%	21.3%	6.7%	7.5%	100.0%
2000	Count	628	340	221	195	1384
	Percent	45.4%	24.6%	16.0%	14.1%	100.0%
2010	Count	419	403	316	313	1451
	Percent	28.9%	27.8%	21.8%	21.6%	100.0%

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Appendix Table 8. Exposure to Low-Income Students and Exposure Ratio, by District 1990, 2000, 2010

District	District % FRPM	Exposure to FRPM Students by the Typical:		Exposure Ratio (Exposure to FRPM/Proportion FRPM)		
		Low-Income Student	Non Low-Income Student	Low-Income Student	Non Low-Income Student	
Allegany	1990	36.1	42.3	32.6	1.172	0.903
	2000	45.8	49.5	42.7	1.081	0.932
	2010	48.9	53.1	45.0	1.086	0.920
Anne Arundel	1990	8.7	20.5	7.6	2.356	0.874
	2000	15.6	30.1	12.9	1.929	0.827
	2010	27.9	41.3	22.7	1.480	0.814
Baltimore City	1990	66.5	78.5	42.5	1.180	0.639
	2000	71.4	78.0	55.1	1.092	0.772
	2010	84.0	86.8	69.3	1.033	0.825
Baltimore	1990	11.3	20.7	10.1	1.832	0.894
	2000	26.5	40.6	21.4	1.532	0.808
	2010	42.3	53.7	34.0	1.270	0.804
Calvert	1990	9.0	11.8	8.7	1.311	0.967
	2000	12.3	15.4	11.8	1.252	0.959
	2010	21.4	26.7	20.0	1.248	0.935
Caroline	1990	26.9	30.7	25.5	1.141	0.948
	2000	40.8	42.9	39.4	1.051	0.966
	2010	52.5	54.7	50.2	1.042	0.956
Carroll	1990	5.1	10.0	4.8	1.961	0.941
	2000	8.2	12.6	7.8	1.537	0.951
	2010	15.7	22.2	14.5	1.414	0.924
Cecil	1990	13.1	19.3	12.2	1.473	0.931
	2000	20.8	25.1	19.7	1.207	0.947
	2010	37.7	43.0	34.5	1.140	0.915
Charles	1990	13.0	20.8	1.4	1.600	0.106
	2000	21.2	27.6	19.5	1.302	0.920
	2010	28.4	35.2	25.8	1.239	0.908
Dorchester	1990	35.9	40.1	33.5	1.117	0.933
	2000	44.7	49.2	40.9	1.101	0.915
	2010	59.5	63.8	53.3	1.072	0.896
Frederick	1990	8.7	15.6	8.1	1.793	0.931
	2000	13.3	22.2	12.0	1.669	0.902
	2010	22.8	36.4	18.7	1.596	0.820
Garrett	1990	35.2	40.3	32.4	1.145	0.920
	2000	44.0	46.6	42.0	1.059	0.955
	2010	48.9	52.5	45.5	1.074	0.930
Harford	1990	10.0	21.7	8.7	2.170	0.870
	2000	15.3	31.7	12.4	2.072	0.810
	2010	27.4	43.1	21.5	1.573	0.785
Howard	1990	3.8	7.3	3.7	1.921	0.974
	2000	9.4	18.5	8.5	1.968	0.904
	2010	16.1	26.8	14.0	1.665	0.870
Kent	1990	23.2	26.1	22.3	1.125	0.961
	2000	37.9	40.4	36.4	1.066	0.960
	2010	49.6	51.6	47.8	1.041	0.964

Montgomery					
1990	13.4	25.2	11.6	1.881	0.866
2000	21.8	35.7	17.9	1.638	0.821
2010	30.6	46.3	23.7	1.514	0.775
Prince George's					
1990	20.3	32.6	17.1	1.606	0.842
2000	41.5	52.5	33.7	1.265	0.812
2010	54.4	61.7	45.8	1.134	0.842
Queen Anne's					
1990	12.5	15.9	12.0	1.272	0.960
2000	15.0	17.8	14.6	1.187	0.973
2010	22.6	28.4	20.9	1.257	0.925
Somerset					
1990	43.7	47.4	40.8	1.085	0.934
2000	56.3	58.4	53.8	1.037	0.956
2010	65.6	66.4	64.2	1.012	0.979
St. Mary's					
1990	16.7	23.6	15.3	1.413	0.916
2000	20.0	29.8	17.5	1.490	0.875
2010	28.8	37.0	25.5	1.285	0.885
Talbot					
1990	30.4	75.4	10.7	2.480	0.352
2000	29.7	33.9	27.9	1.141	0.939
2010	35.2	37.1	34.2	1.053	0.972
Washington					
1990	21.5	29.4	19.3	1.367	0.898
2000	27.1	35.9	23.8	1.325	0.878
2010	43.9	51.8	37.7	1.180	0.859
Wicomico					
1990	24.5	32.4	22.0	1.322	0.898
2000	34.8	42.3	30.8	1.216	0.885
2010	52.0	56.3	47.5	1.082	0.913
Worcester					
1990	29.4	34.1	27.4	1.160	0.932
2000	32.9	37.1	30.8	1.128	0.936
2010	40.9	45.2	38.0	1.104	0.929
State Total					
1990	22.4	50.9	14.1	2.272	0.629
2000	30.9	50.8	21.1	1.644	0.683
2010	40.1	57.3	28.6	1.429	0.713

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

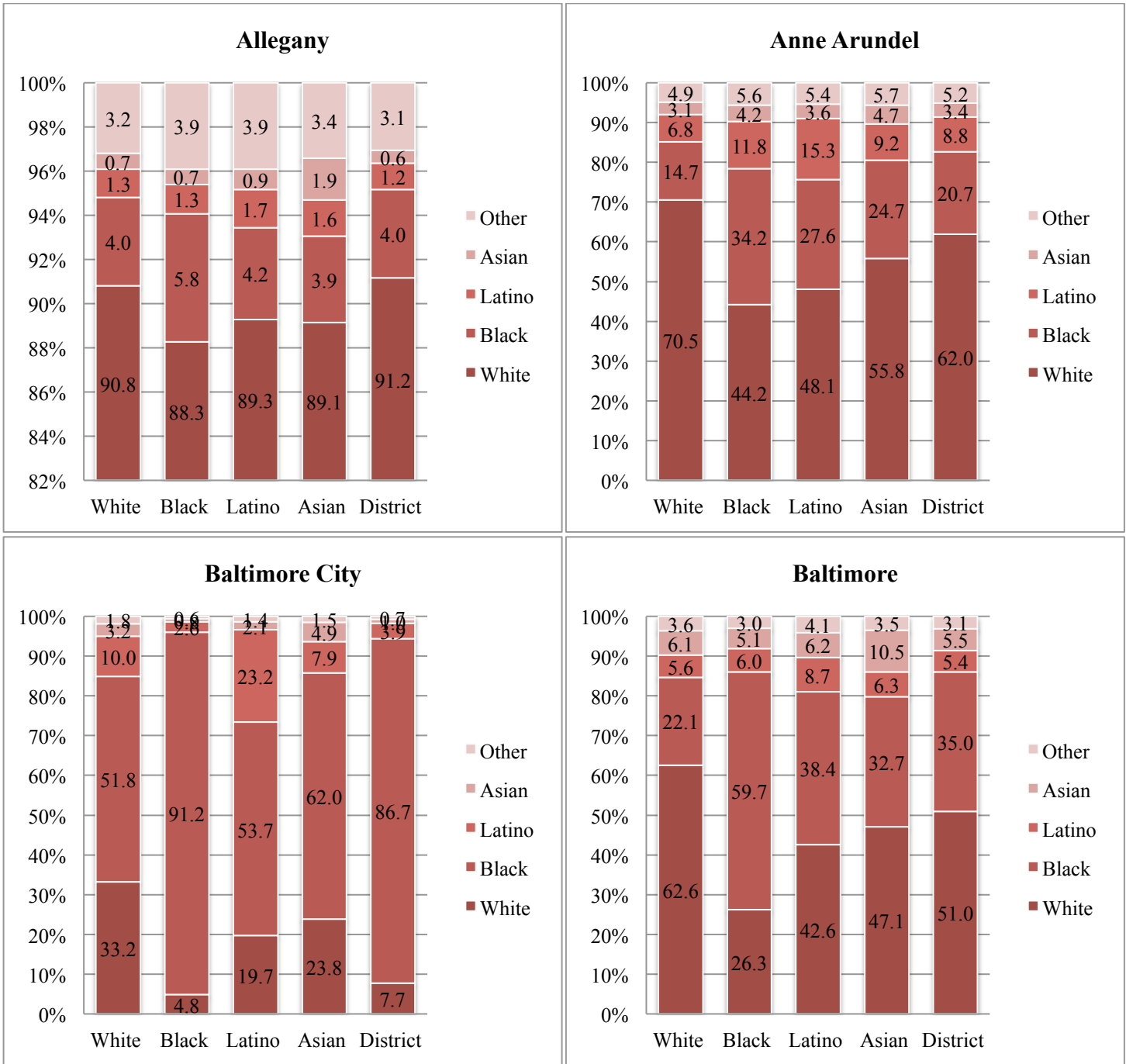
Appendix Table 9. Differential Distribution of Students by Income, by District 1990, 2000, 2010

District		Dissimilarity Index
		FRPM and Non-FRPM
Allegany	1990	0.265
	2000	0.227
	2010	0.230
Anne Arundel	1990	0.450
	2000	0.436
	2010	0.386
Baltimore City	1990	0.551
	2000	0.456
	2010	0.394
Baltimore	1990	0.409
	2000	0.413
	2010	0.382
Calvert	1990	0.264
	2000	0.259
	2010	0.265
Caroline	1990	0.201
	2000	0.152
	2010	0.172
Carroll	1990	0.350
	2000	0.286
	2010	0.297
Cecil	1990	0.332
	2000	0.229
	2010	0.259
Charles	1990	0.359
	2000	0.270
	2010	0.258
Dorchester	1990	0.235
	2000	0.262
	2010	0.287
Frederick	1990	0.355
	2000	0.352
	2010	0.366
Garrett	1990	0.231
	2000	0.178
	2010	0.212
Harford	1990	0.460
	2000	0.480
	2010	0.452
Howard	1990	0.392
	2000	0.426
	2010	0.413
Kent	1990	0.190
	2000	0.176
	2010	0.162

Montgomery	1990	0.404
	2000	0.407
	2010	0.433
Prince George's	1990	0.394
	2000	0.382
	2010	0.343
Queen Anne's	1990	0.285
	2000	0.217
	2010	0.328
Somerset	1990	0.196
	2000	0.170
	2010	0.139
St. Mary's	1990	0.312
	2000	0.335
	2010	0.291
Talbot	1990	0.593
	2000	0.219
	2010	0.145
Washington	1990	0.327
	2000	0.340
	2010	0.309
Wicomico	1990	0.309
	2000	0.296
	2010	0.229
Worcester	1990	0.259
	2000	0.235
	2010	0.241

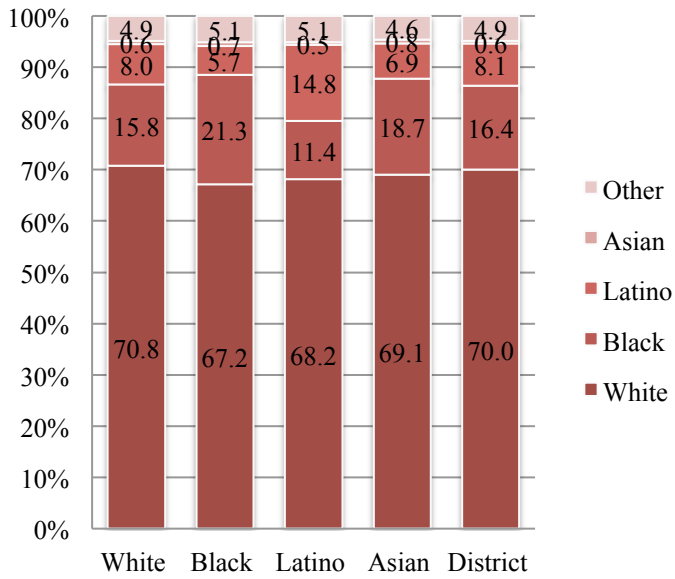
Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

Appendix Figures I. Demographic composition of a school attended by typical Maryland public school student, by race, 2010¹⁴.

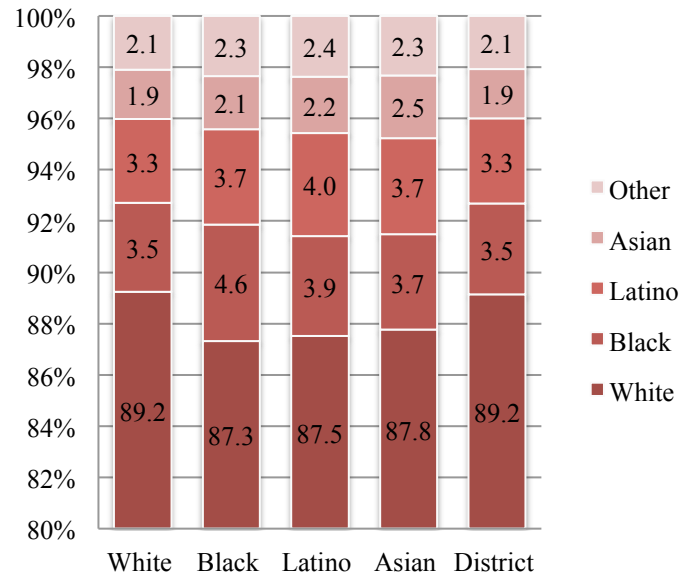


¹⁴ Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

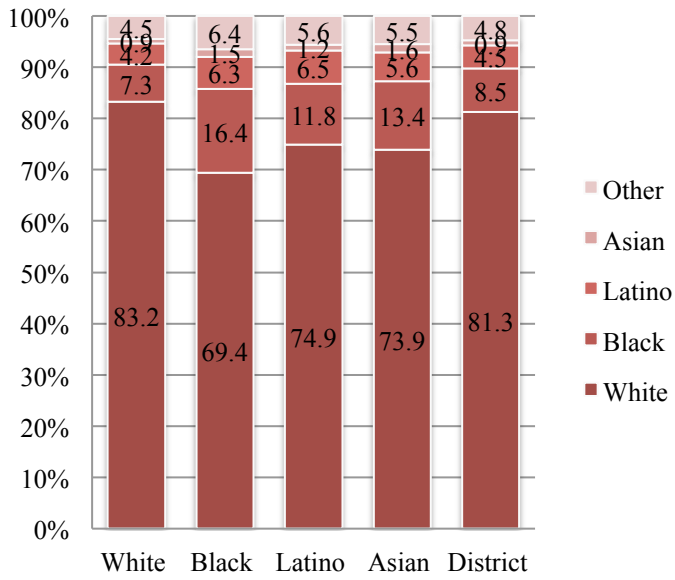
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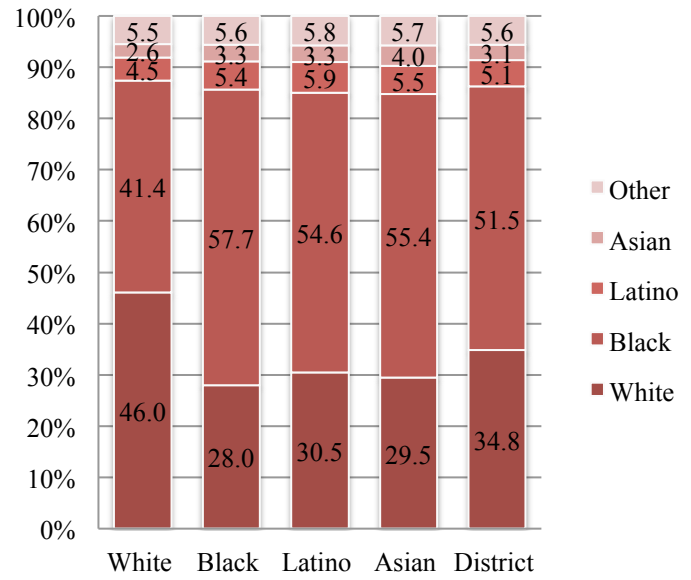
Carroll



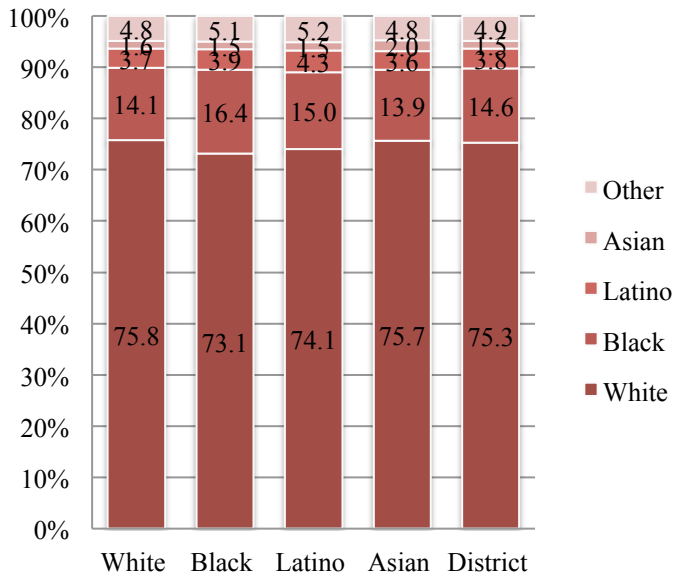
Cecil



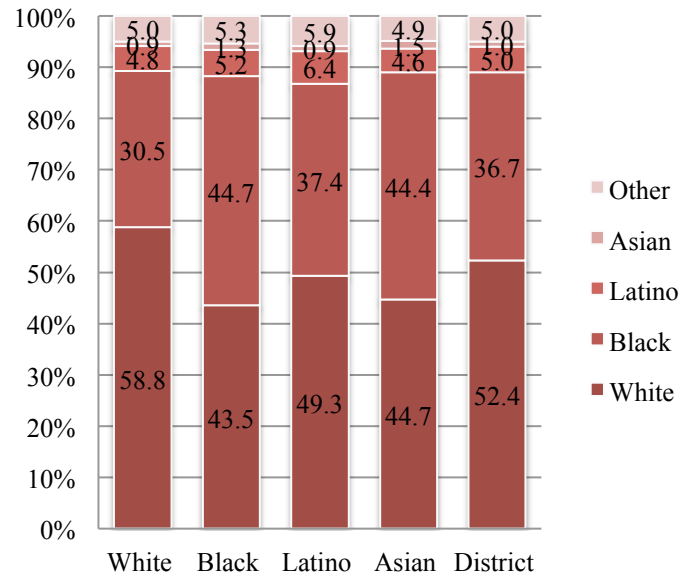
Charles



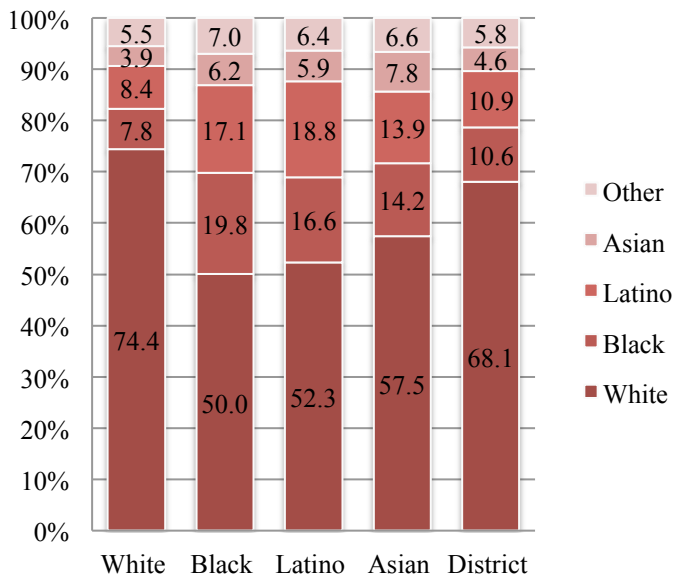
Calvert



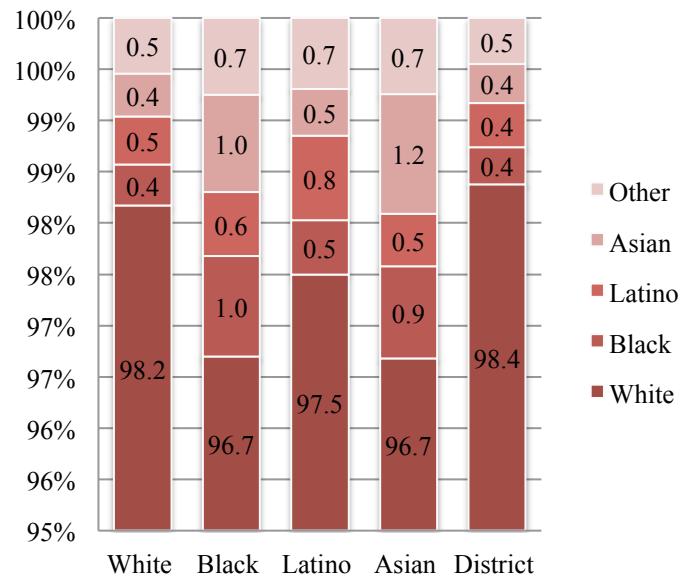
Dorchester



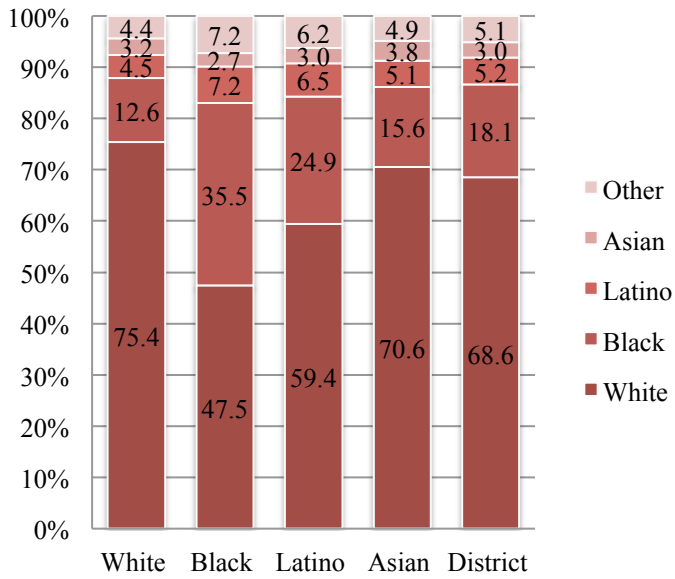
Frederick



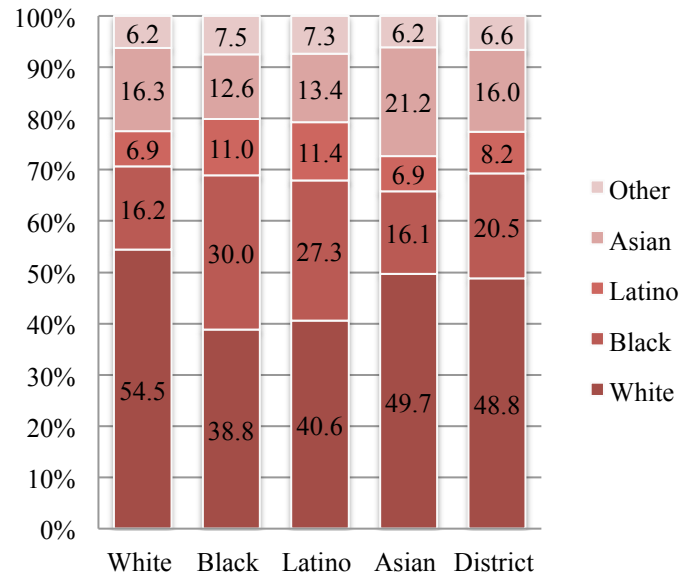
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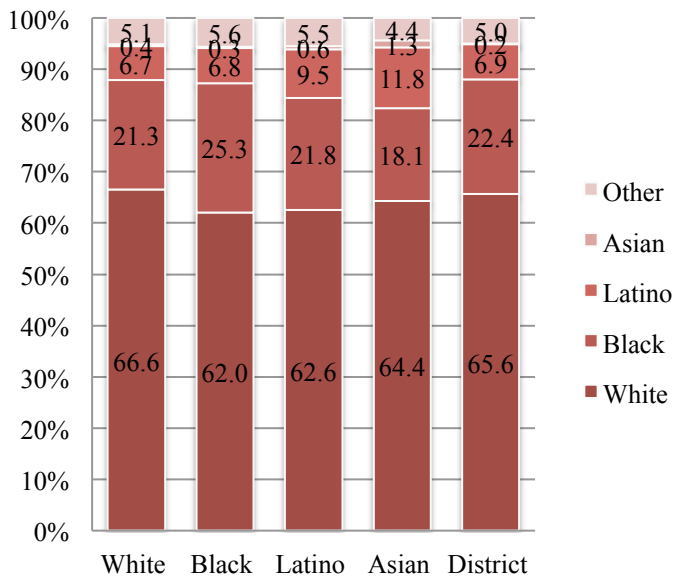
Harford



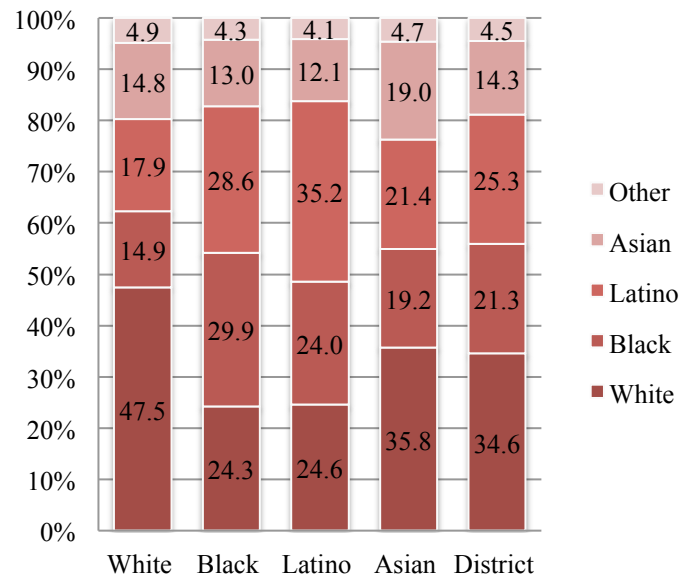
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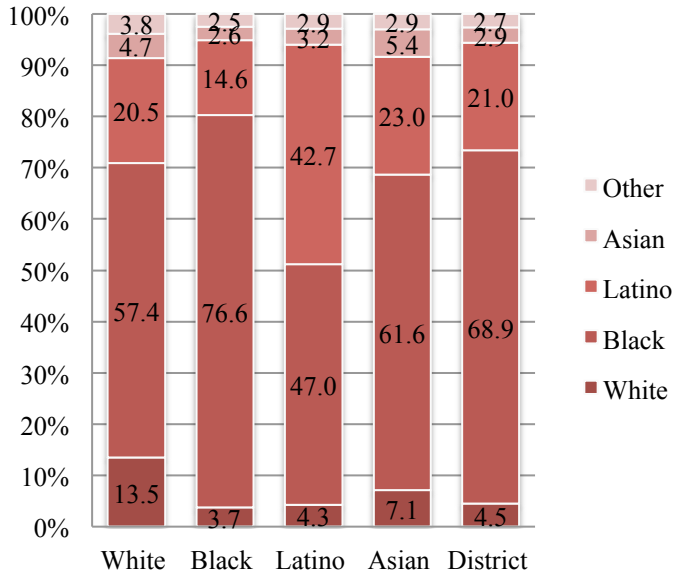
Kent



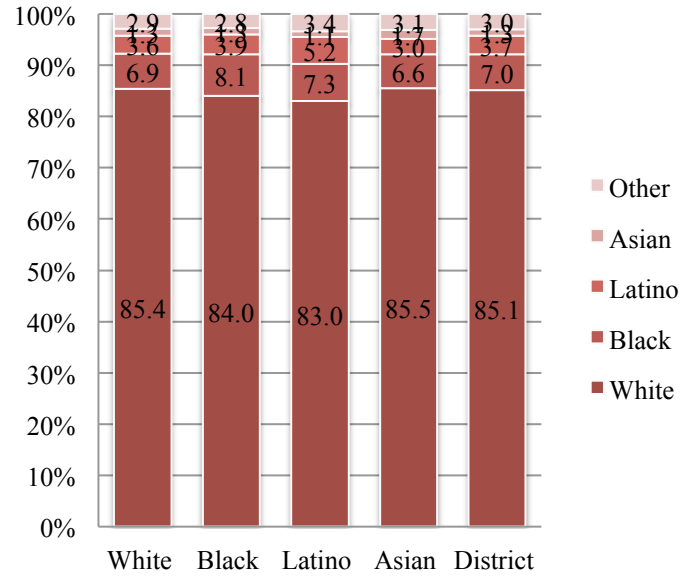
Montgomery



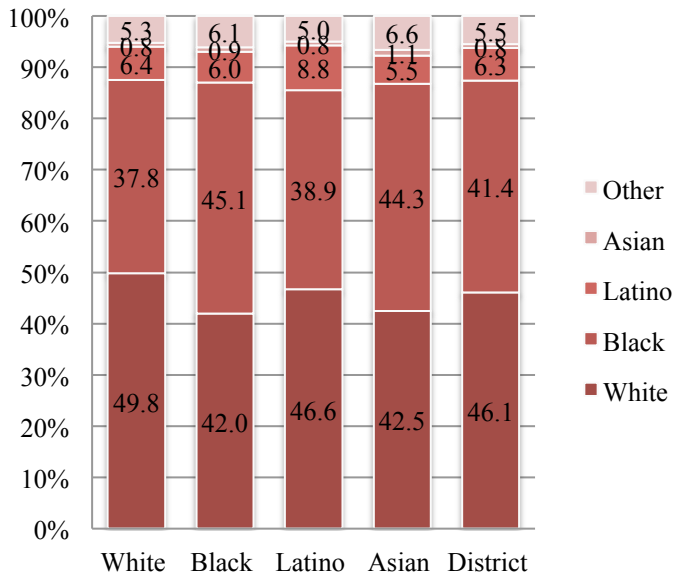
Prince George's



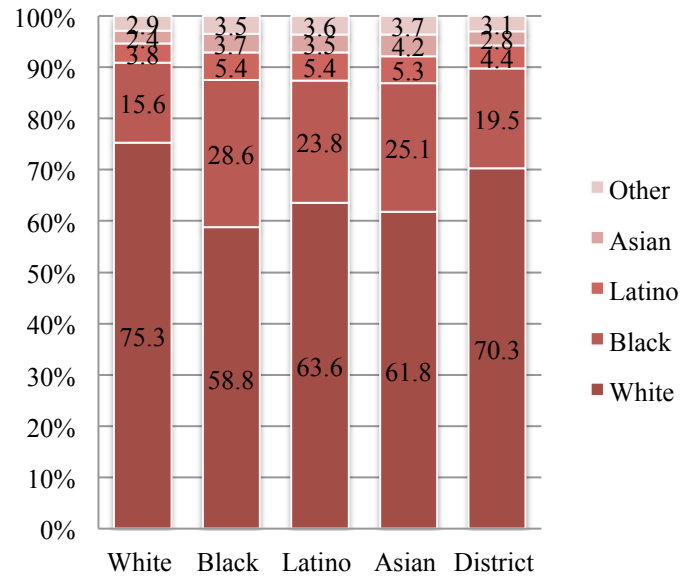
Queen Anne's



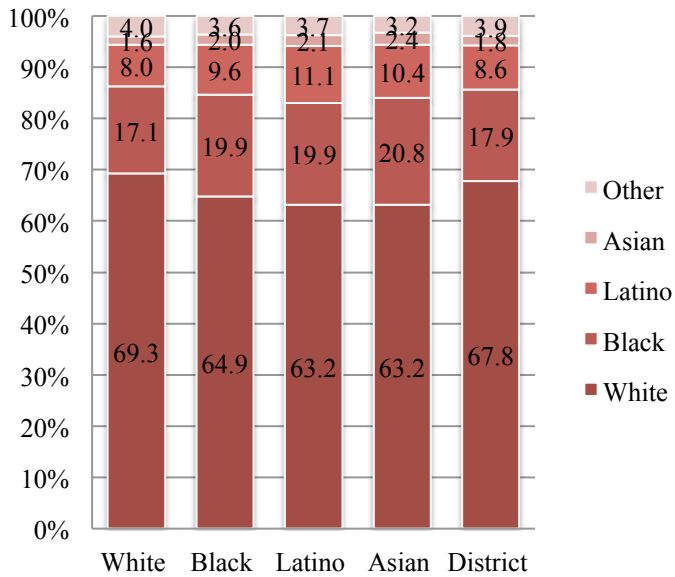
Somerset



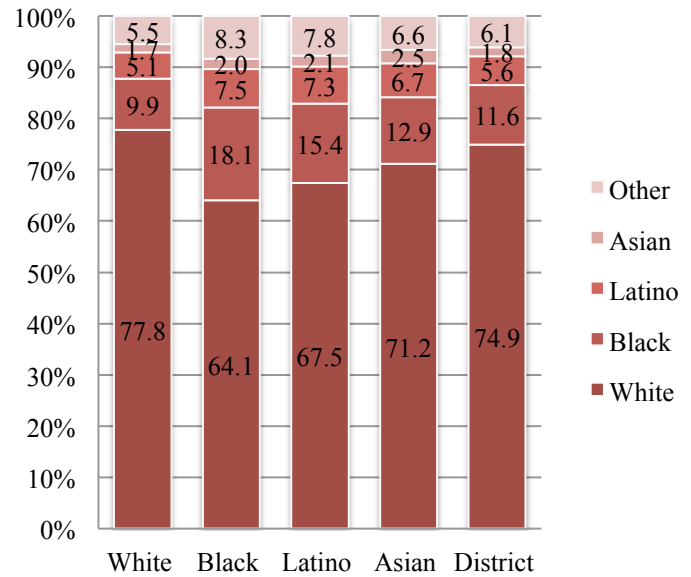
St. Mary's



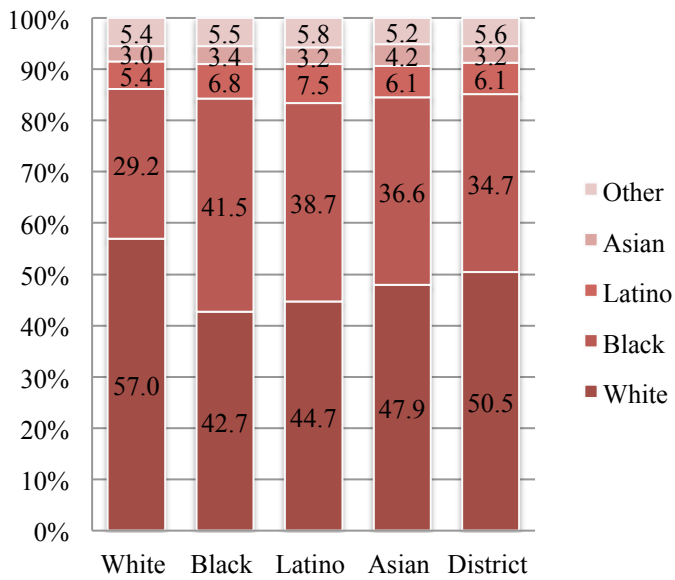
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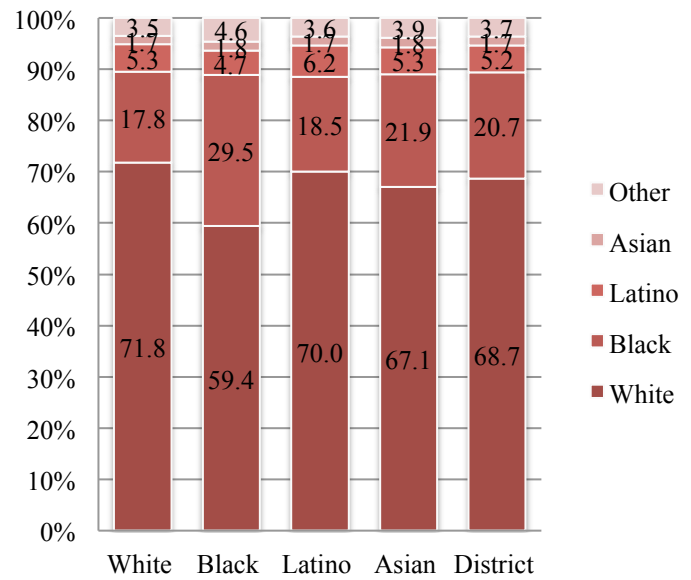
Washington



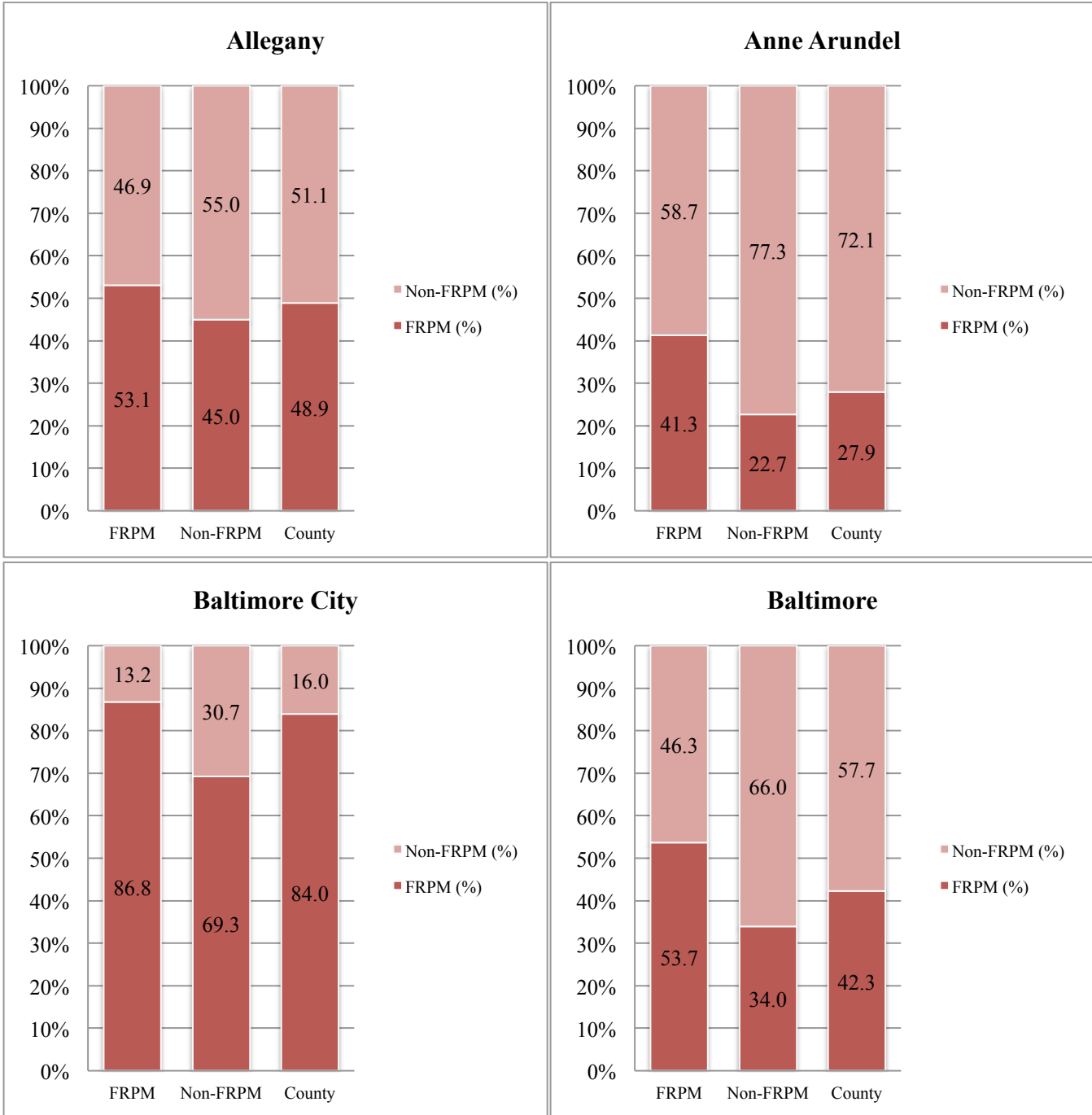
Wicomico



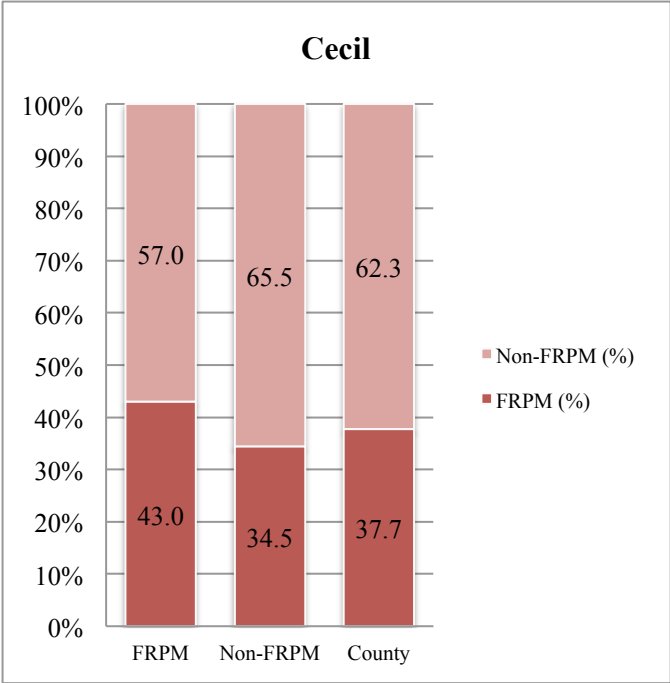
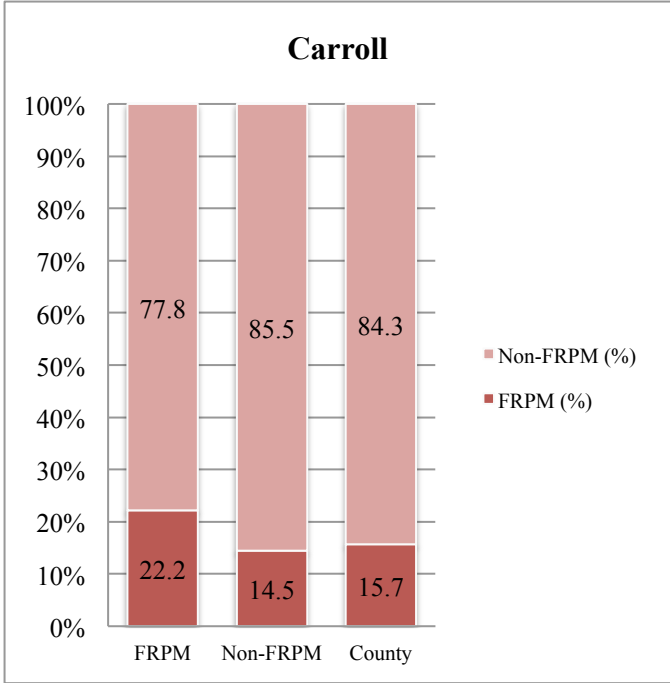
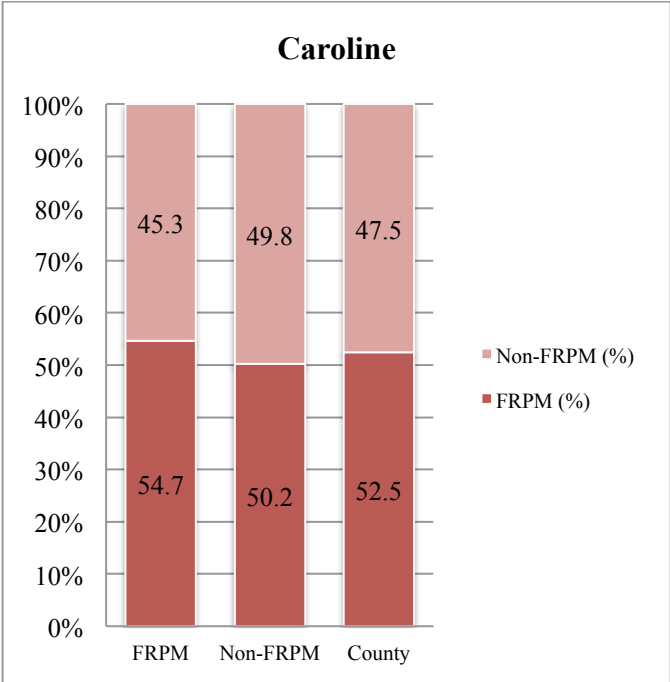
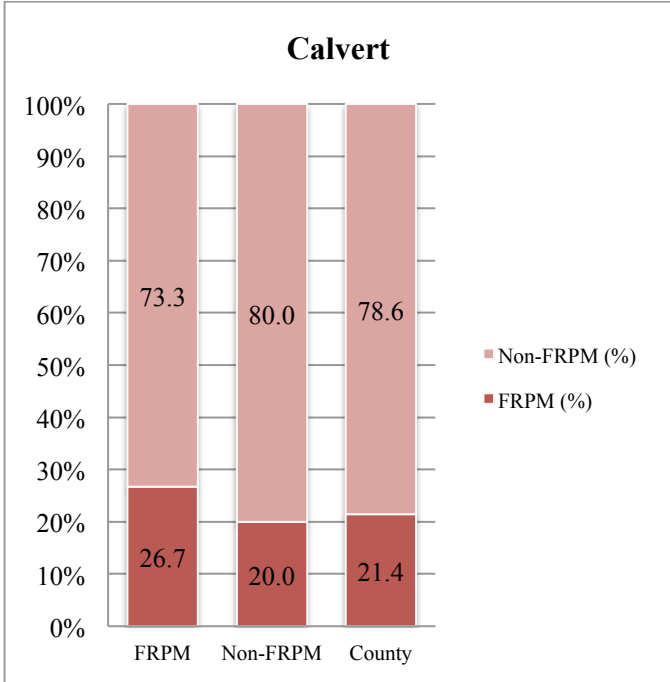
Worcester

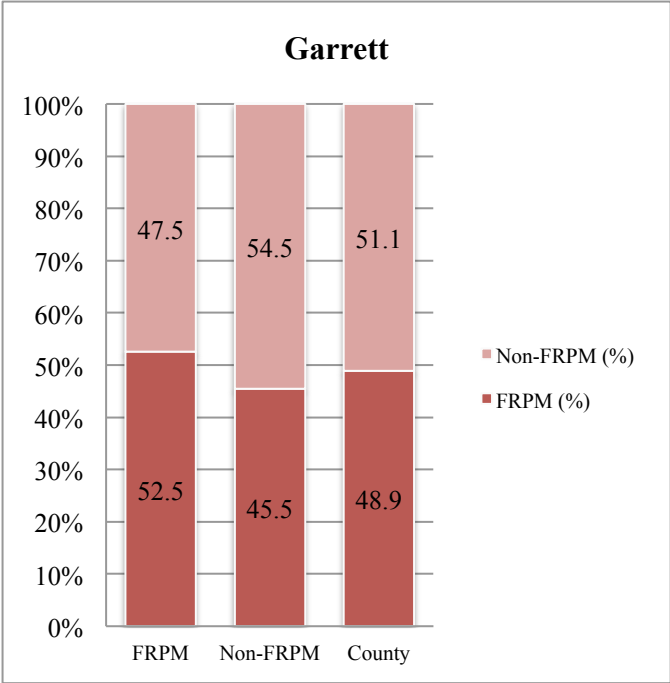
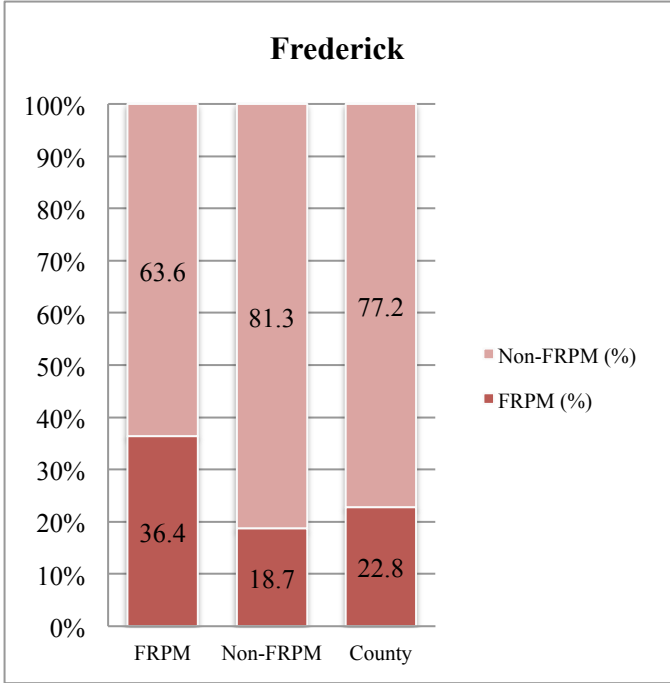
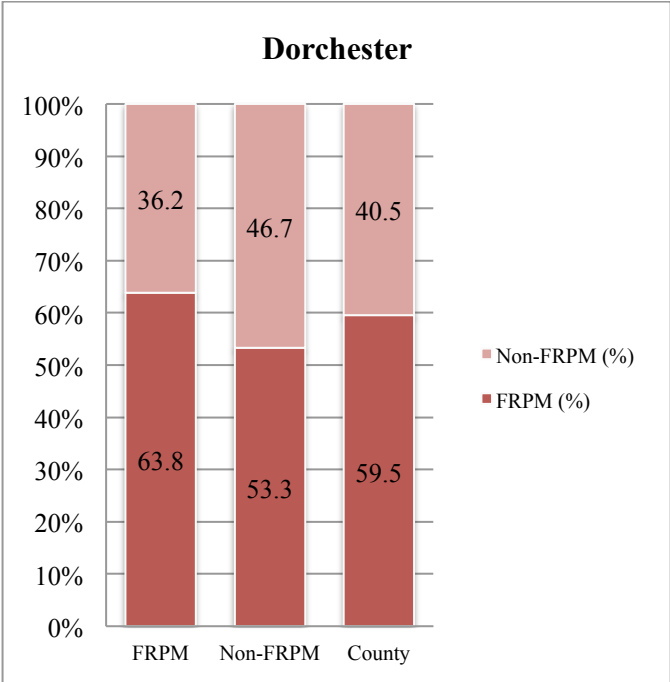
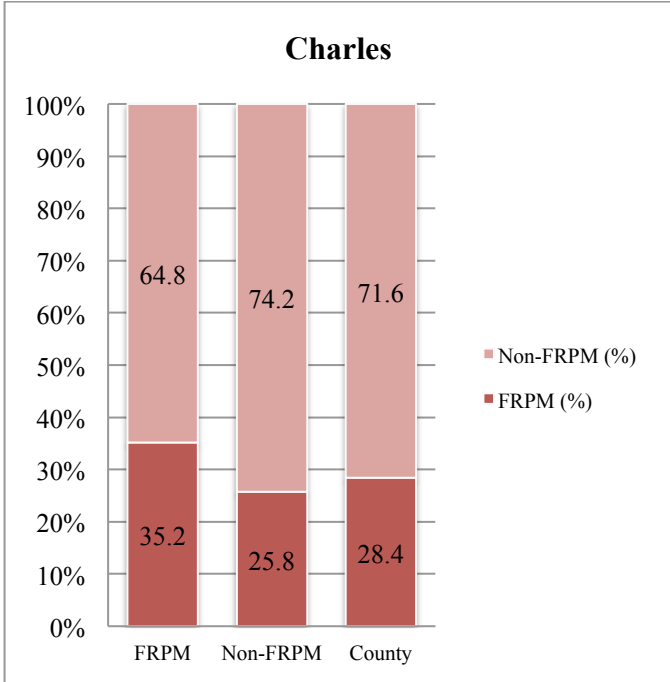


Appendix Figures 2. Economic composition of a school attended by typical Maryland public school student, by race, 2010¹⁵

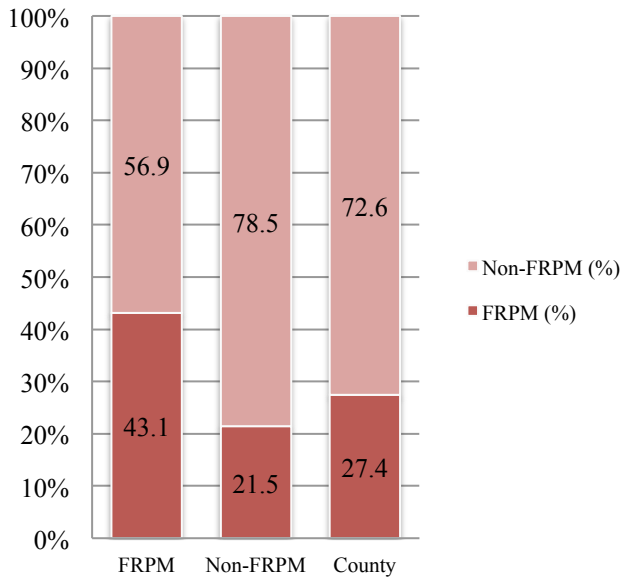


¹⁵ Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*.

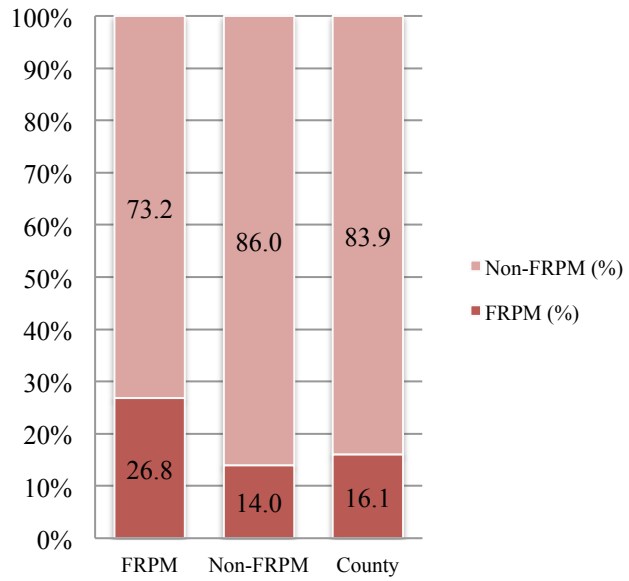




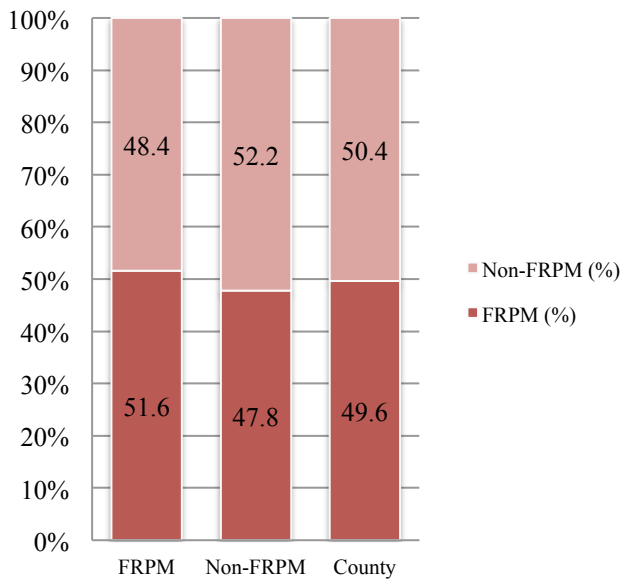
Harford



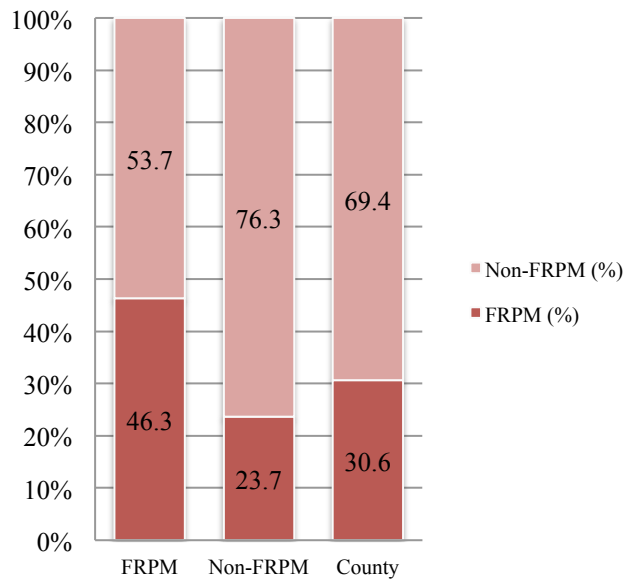
Howard



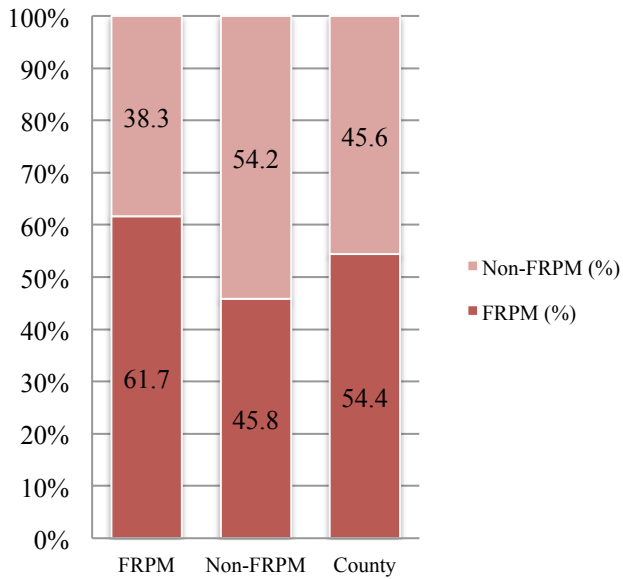
Kent



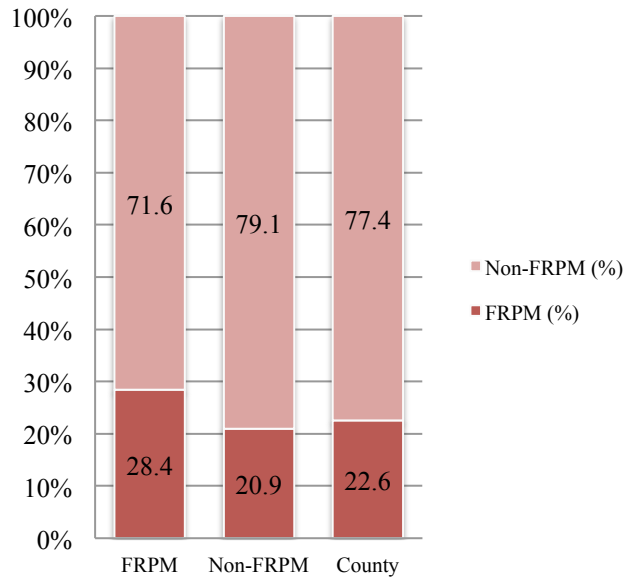
Montgomery



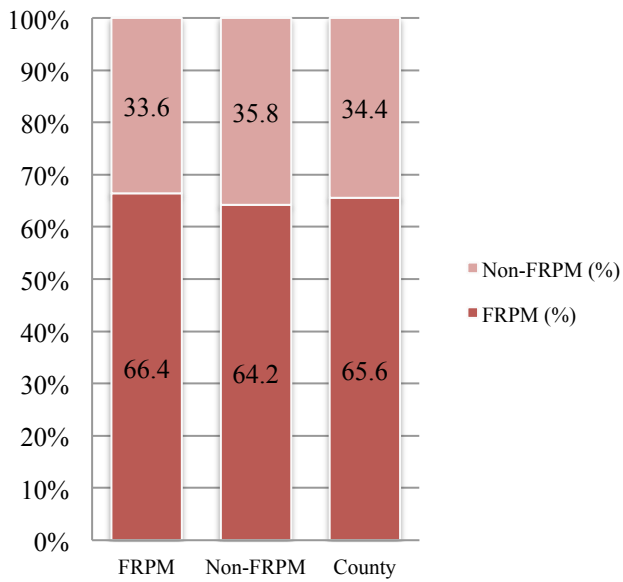
Prince George's



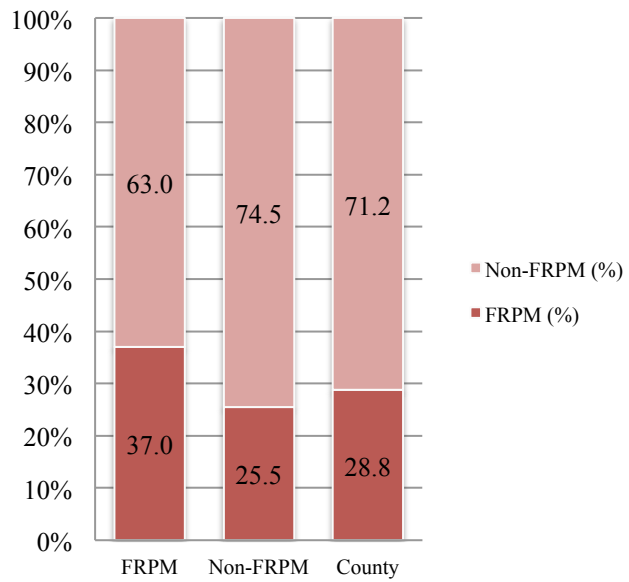
Queen Anne's



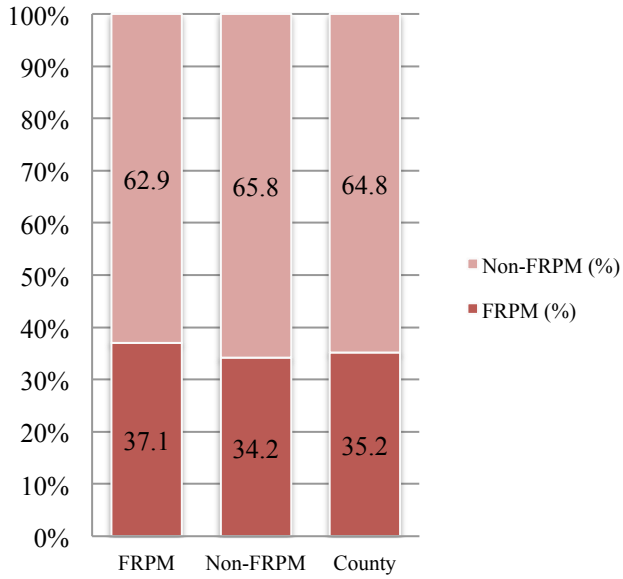
Somerset



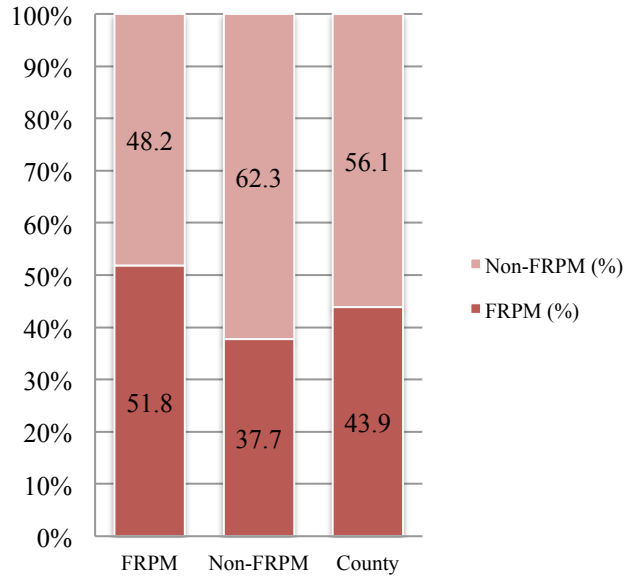
St. Mary's



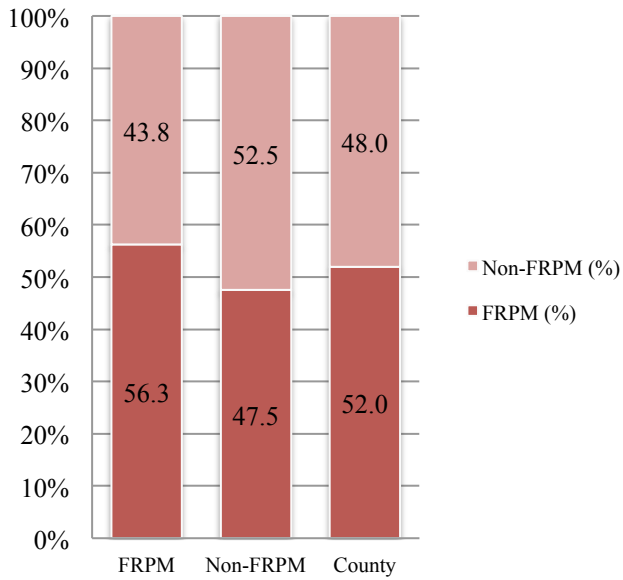
Talbot



Washington



Wicomico



Worcester

