The Role of Concentrated Poverty and Race in Long-Term Academic Outcomes

Commission on Innovation and Excellence in Education

July 13, 2018

https://mldscenter.maryland.gov
Introductions and Acknowledgements

• About the presenters:
  • **Angela K. Henneberger**, Ph.D., is director of the Research Branch at the MLDS Center and Research Assistant Professor at the University of Maryland School of Social Work (SSW).
  • **Bess A. Rose**, Ed.D., is a member of the Research Branch at the MLDS Center and statistician at the SSW.

• Acknowledgements:
  • Thanks to the MLDSC Research Team and Research and Policy Advisory Board, participants at the MLDS Research Series and MD Connections Summit, and MSDE staff for helpful input.
  • Thanks to Dr. Dawnsha Mushonga (SSW), Dr. Laura Stapleton, Yi Feng, and Tessa Johnson (University of Maryland, College Park) for expert consulting on statistical questions, and Alison Preston (SSW) for assistance with literature reviews.
Overview

• What is the MLDS Center?
• The problem
• Schools matter
• How does the MLDS Center measure poverty?
• Results from Maryland’s data
• Summary, next steps and Q & A
What is the MLDS Center?
mldscenter.maryland.gov
What is the MLDS Center?

- The Maryland Longitudinal Data System (MLDS) has been an independent unit of state government since 2013
- In partnership with the University of Maryland we conduct advanced statistical analyses and policy evaluation to provide actionable information for policy and practice
- We link statewide K12, postsecondary, and workforce data received from MSDE, MHEC, and DLLR
The problem

Students in poverty and African-American and Hispanic students have worse educational outcomes
Actual dropout rates by student poverty and race/ethnicity

Based on the 2007-08 6th grade cohort (N = 54,465).
Actual on-time HS graduation rates by student poverty and race/ethnicity

Based on the 2007-08 6th grade cohort (N = 54,465).
Actual postsecondary enrollment rates by student poverty and race/ethnicity

Within first year after on-time high school graduation. Based on the 2007-08 6th grade cohort (N = 54,465).
Actual mean HSA Algebra scores by student poverty and race/ethnicity

Schools matter
Schools matter

“Multilevel, or hierarchical, models have brought about a revolution in the analysis of school effects. Rather than choosing between the student level or school level as the primary unit of analysis, HLMs allow the researchers to simultaneously model hypotheses about effects that occur at each level. These advances allow educational researchers to model more effectively how, and for whom, schools make a difference.”

– Schools and Inequality: A Multilevel Analysis of Coleman’s Equality of Educational Opportunity Data (Borman & Dowling, 2010)
How does the MLDS Center measure poverty?
How does the MLDS Center define “poverty”?

MLDS Center “poverty”: Eligible for FARMS

- Federal poverty $24,858
- Free meals $31,980
- Reduced meals $45,510
- Median income in MD $92,049

Household income thresholds for a family of 4
How does the MLDS Center measure poverty?

Timing
(6th – 12th grade)

Concentration
(school average duration)

Duration
(proportion of time)

School poverty

Student poverty

Source: Chaudry & Wimer, 2016.
Results from Maryland’s data

Disentangling the roles of student poverty, school concentration of poverty, student race/ethnicity, and school racial/ethnic composition
Overview of findings

• Students who experienced poverty for longer periods of time have worse educational outcomes
• School concentration of poverty, regardless of individual experience, usually predicts worse educational outcomes
• Racial and ethnic gaps in standardized test scores persist regardless of poverty
• Racial and ethnic gaps in dropout, graduation, and postsecondary enrollment disappear or are reversed when controlling for poverty and school composition
Results: Dropping out of school
Predicted likelihood of dropping out of school

Model-based predictions for students in schools with average racial/ethnic composition, based on the 2007-08 6th grade cohort (N = 54,465).
Dropout: Summary

Controlling for poverty and race/ethnicity:

1. Student poverty: Students with longer duration of poverty are more likely to drop out than similar students with shorter duration of poverty
2. School poverty: Not a significant factor
3. Student race/ethnicity: Hispanic and African-American students are *less* likely to drop out than white students with similar poverty backgrounds in similar schools
4. School race/ethnicity composition: Students in schools with larger African-American populations are more likely to drop out than similar students in schools with similar average poverty but with smaller African-American populations
## Predicted dropout: Summary

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<th>Factor</th>
<th>Relationship with outcome</th>
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<td>Student race/ethnicity – Hispanic</td>
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<td>School race/ethnicity composition – Percent African-American</td>
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<td>School race/ethnicity composition – Percent Hispanic</td>
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Results: High school graduation and postsecondary enrollment
Predicted likelihood of on-time graduation

Model-based predictions for students in schools with average racial/ethnic composition, based on the 2007-08 6th grade cohort (N = 54,465).
Predicted HS graduation on time: Summary

Controlling for poverty and race/ethnicity:

1. Student poverty: Students with longer duration of poverty are less likely to graduate from high school on time

2. School poverty: Students who attend schools with longer average duration of poverty are less likely to graduate on time

3. Student race/ethnicity: Hispanic and African-American students are more likely to graduate on time than white students with similar poverty backgrounds

4. School race/ethnicity composition: Students in schools with higher African-American school composition are less likely to graduate on time; students in schools with higher Hispanic populations are more likely to graduate on time
## Predicted HS graduation on time: Summary

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<td>School race/ethnicity composition – Percent African-American</td>
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Predicted HS graduation ever: Summary

Controlling for poverty and race/ethnicity:

1. Student poverty: Students with longer duration of poverty are less likely to ever graduate from high school
2. School poverty: Students who attend schools with longer average duration of poverty are less likely to ever graduate from high school
3. Student race/ethnicity: Hispanic and African-American students are more likely to ever graduate from high school than white students with similar poverty backgrounds
4. School race/ethnicity composition: Students in schools with higher Hispanic populations are more likely to ever graduate from high school
Predicted HS graduation ever: Summary

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Predicted likelihood of enrolling in postsecondary within one year of on-time HS graduation

Model-based predictions for students in schools with average racial/ethnic composition, based on the 2007-08 6th grade cohort (N=46,581 of 54,465).
Predicted postsecondary enrollment: Summary

Controlling for poverty and race/ethnicity:

1. Student poverty: Students with longer duration of poverty are less likely to enroll in postsecondary within 1 year of on-time HS graduation
2. School poverty: Students who attend schools with longer average duration of poverty are less likely to enroll in postsecondary
3. Student race/ethnicity: African-American students are more likely to enroll in postsecondary than white students with similar poverty backgrounds
4. School race/ethnicity composition: Students in schools with higher African-American and Hispanic populations are more likely to enroll in postsecondary
### Predicted postsecondary enrollment: Summary

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<td>School race/ethnicity composition – Percent Hispanic</td>
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Results: Standardized test scores
Predicted HSA Algebra scores

Model-based predictions for students in schools with average racial/ethnic composition, based on the 2007-08 6th grade cohort (N = 52,261 of 54,465). Highest score.
Predicted standardized test scores: Summary

Controlling for poverty and race/ethnicity:

1. Student poverty: Students with longer duration of poverty are predicted to have lower scores on all tests (HSA Algebra and English and PSAT and SAT Math and Verbal)

2. School poverty: Students who attend schools with longer average duration of poverty are predicted to have lower scores on all tests

3. Student race/ethnicity: African-American and Hispanic students are predicted to have lower scores on all tests than white students with similar poverty backgrounds

4. School race/ethnicity composition: Students in schools with higher African-American populations are predicted to have higher scores on some tests; Students in schools with higher Hispanic populations are predicted to have higher scores on some tests
## Predicted standardized test scores: Summary

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<td>School race/ethnicity composition – Percent African-American</td>
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Summary
Summary of findings

- Students who experienced poverty for longer periods of time have worse educational outcomes.
- School concentration of poverty, regardless of individual experience, usually predicts worse educational outcomes.
- Racial and ethnic gaps in standardized test scores persist regardless of poverty.
- Racial and ethnic gaps in dropout, graduation, and postsecondary enrollment disappear or are reversed when controlling for poverty and school composition.
## Summary of findings

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<th>Dropout</th>
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<th>Ever graduate</th>
<th>Post-secondary enrollment</th>
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↓↑ The factor has a desirable relationship with outcome

↔ The factor has no relationship with outcome
Next Steps

- Examine the associations between student and school poverty and workforce outcomes
- Explore additional student and school factors associated with outcomes
- Examine protective effects that mitigate the negative role of poverty
- Publish research report to website
Questions?

• Contact us: MLDS.Center@Maryland.gov