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Better Data • Informed Choices • Improved Results

Understanding Persistence in High School: An Epidemiological and Latent Class Analysis of Student Academic and Labor Market Participation

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https://mldscenter.maryland.gov/

Introduction

- High school graduation is a key social determinant of health for young people moving from adolescence into adulthood
  - Associated with better long-term outcomes than students who do not graduate from high school
    - Physical wellbeing
    - Social and economic integration
    - Lower likelihood of poverty
- Preventing dropout and promoting high school graduation are among the chief charges of the education system

(Belfield et al., 2012; Rumberger, 2011)

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Introduction contd.

- Historically, most predictive studies examining students who do not graduate from high school focus on dropouts
  - Early warning indicators or
  - Typologies
- A series of recent studies have identified a second subgroup of non-graduates – *persisters* – who continue high school enrollment but do not earn a high school diploma

  (Hill & Mirakhur, 2018; Uretsky, 2019; Uretsky & Henneberger, 2020)

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Introduction contd.

- The population of persisters is sizeable
  - Between 8-22%
  - ≥ drop out (3-11%)
- Not identified at the district, state or federal level
  - Meaningfully missing data
  - Ignores, censors, or combines persisters with other non-graduates

(Hill & Mirakhur, 2018; Uretsky, 2019; Uretsky & Henneberger, 2020)

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Introduction contd.

- Persisters have received little attention in the research literature
  - Demographic and academic characteristics
  - College and workforce outcomes
- Critical information for intervention and policy development

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Current Project: Compare demographic, academic, and early labor characteristics, behaviors, and outcomes for high school non-graduates in Maryland

Research Question: What are the differences in demographic characteristics, academic characteristics, and postsecondary and early labor market outcomes for persisters and dropout?

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Method - Sample

- Data - Maryland Longitudinal Data System (MLDS)
  - 2008-09 to 2015-16
- Inclusion criteria
  - First time MD freshman in 2009-10 and
  - Attended MD HS in Years 4 (2013-14) or 5 (2014-15)
- Exclusion criteria
  - Last enrollment was before Year 4
  - Seeking a certificate of completion

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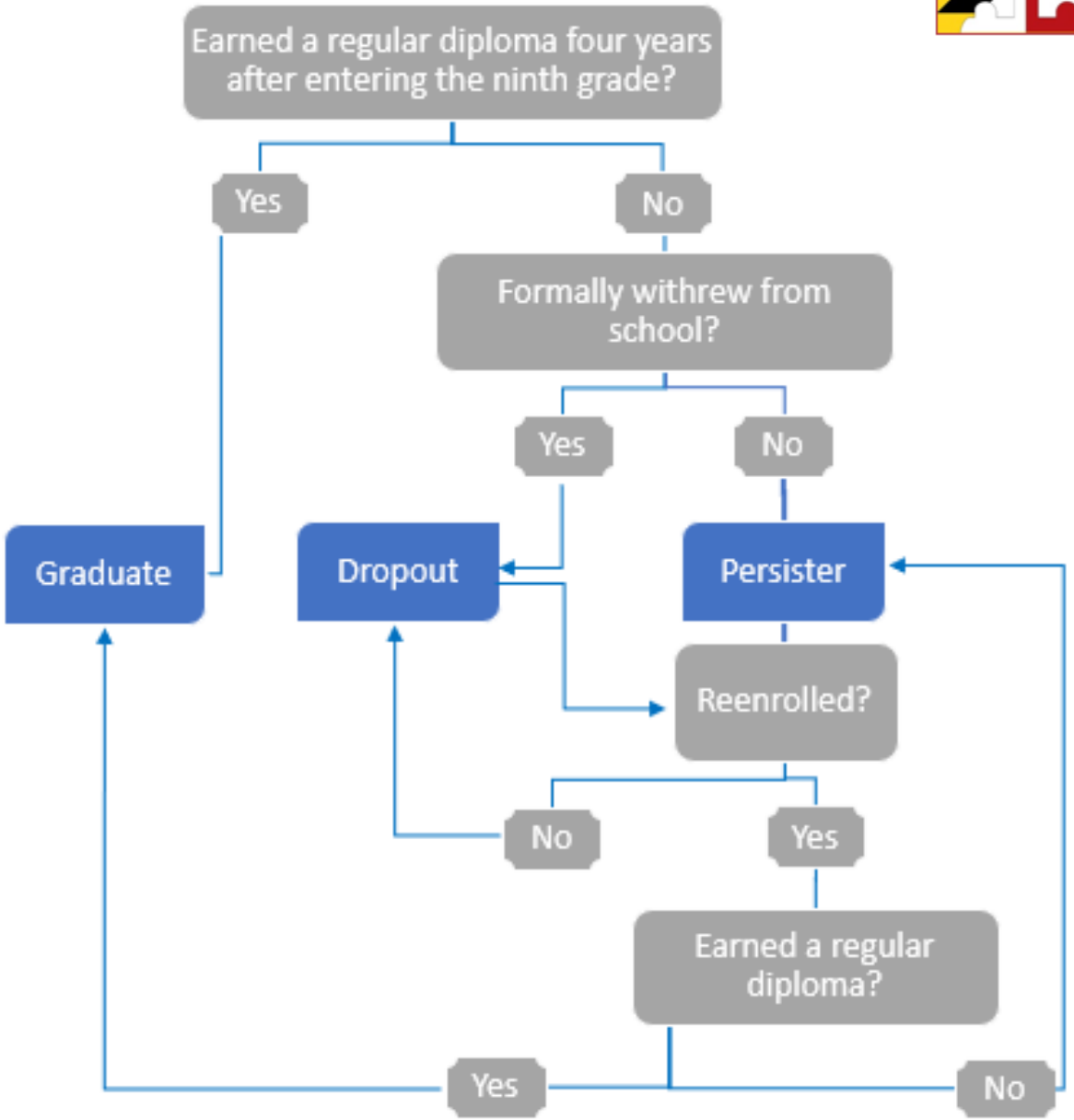
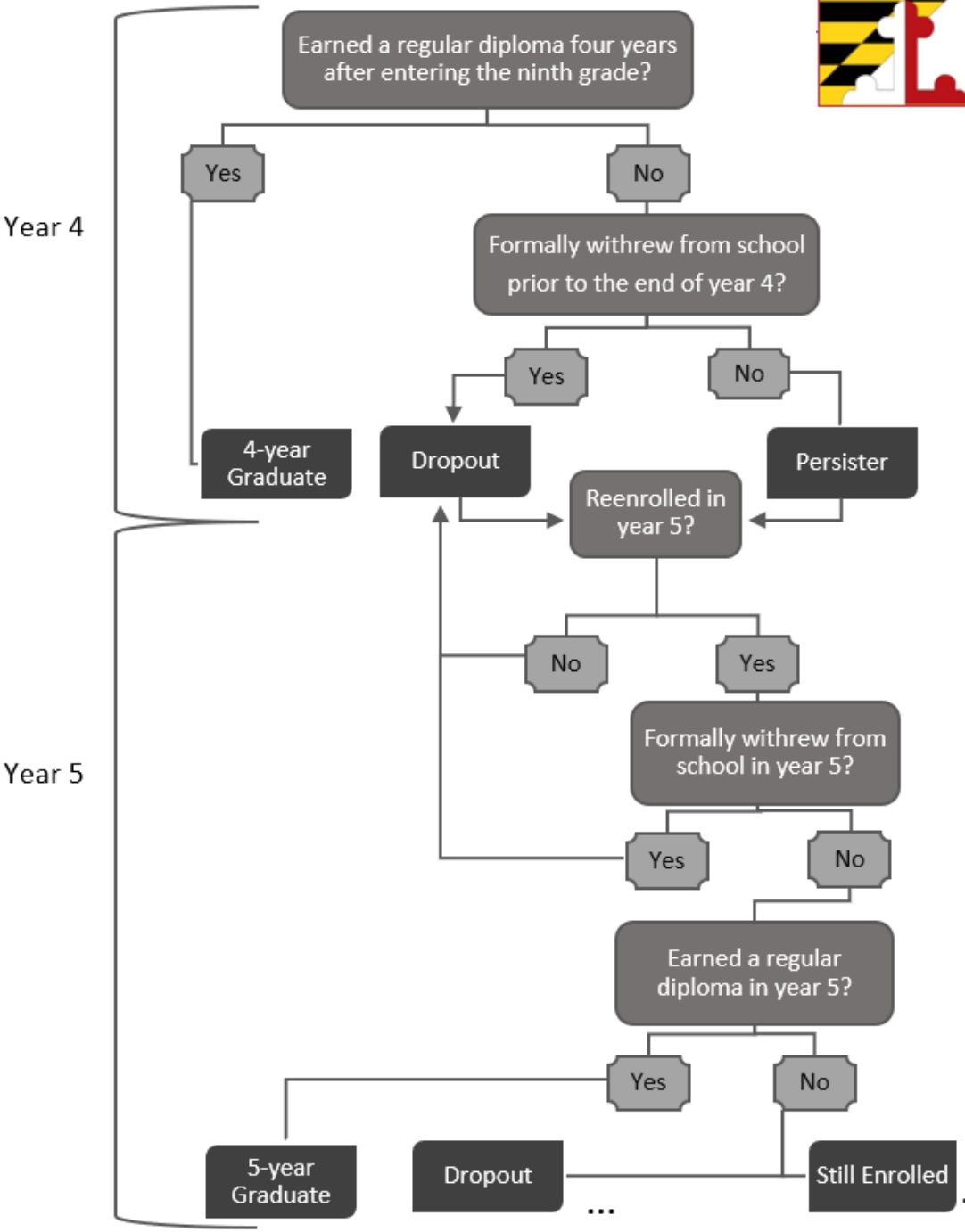
Method – Defining School Exit Status

- ***On-time graduate*** – Students who graduate with a regular diploma four years after entering the ninth grade as first-time freshmen (MSDE, 2015)
- ***Dropout*** – Students who formally withdraw from school (MSDE, 2015)
- ***Persister*** – Students who do not formally withdraw from school and do not earn a regular diploma four years after beginning high school as first-time freshmen
- ***Persisting non-graduate*** – Non-graduates who enroll in and attend a High school in Years 5 and beyond


Earned a regular diploma four years after entering the ninth grade?
Yes
No
Formally withrew from school?
Yes
No
Graduate
Dropout
Persister
Reenrolled?
No
Yes
Earned a regular diploma?
Yes
No



(Uretsky & Henneberger 2020)

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Method – Defining Outcomes

- ***Fifth year graduation*** – student completed requirements for a Maryland high school diploma during 2014-2015
- ***GED*** – student completed requirements for a GED before June 2015
- ***Workforce participation*** – Yes/no indicator using quarterly wage records aligned with the 2014-2015 and 2015-2016 academic years; also calculated working 3+ quarters
- ***College enrollment*** – Maryland or out-of-state enrollment in 2015-2016

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Method – Analyses (1)

- Descriptive statistics
  - Academic and workforce participation
  - Years 5 and 6
- Sankey Diagramming (Acquire Procurement Services, 2019)

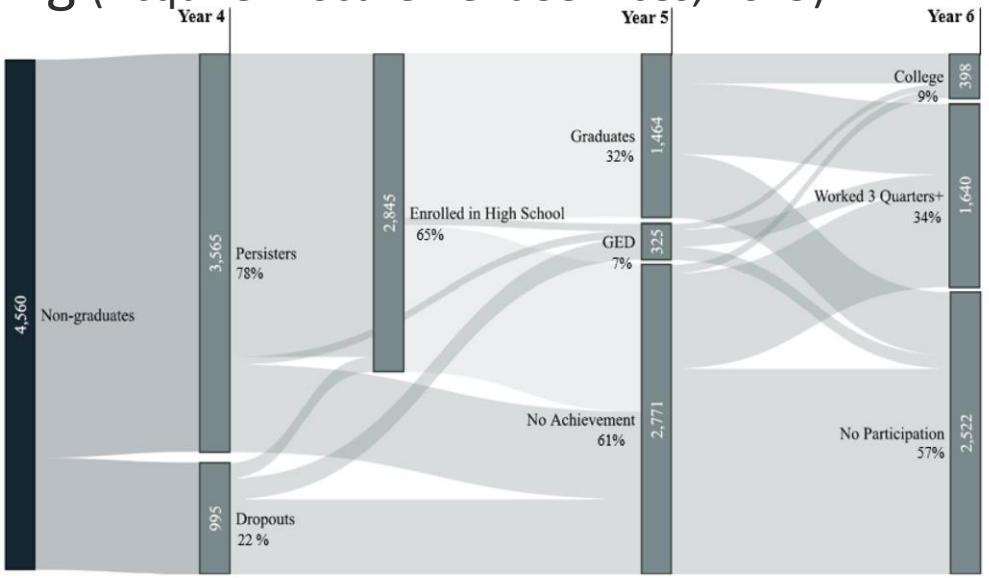

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Table 1.

Reenrollment by Year 4 & 5 Graduation Status (4,560)

	Total	Enrolled Year 5
	%	%
Total		62
Year 4		
Persister	78	76
Dropout	22	14

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Table 1. contd.

Reenrollment by Year 4 & 5 Graduation Status (4,560)

	Total	Enrolled Year 5
	%	%
Total		62
Year 4		
Persister	78	76
Dropout	22	14
Year 5		
Graduate	32	100
GED	7	20
No Achievement	61	47

Sankey Diagram Years 4-6

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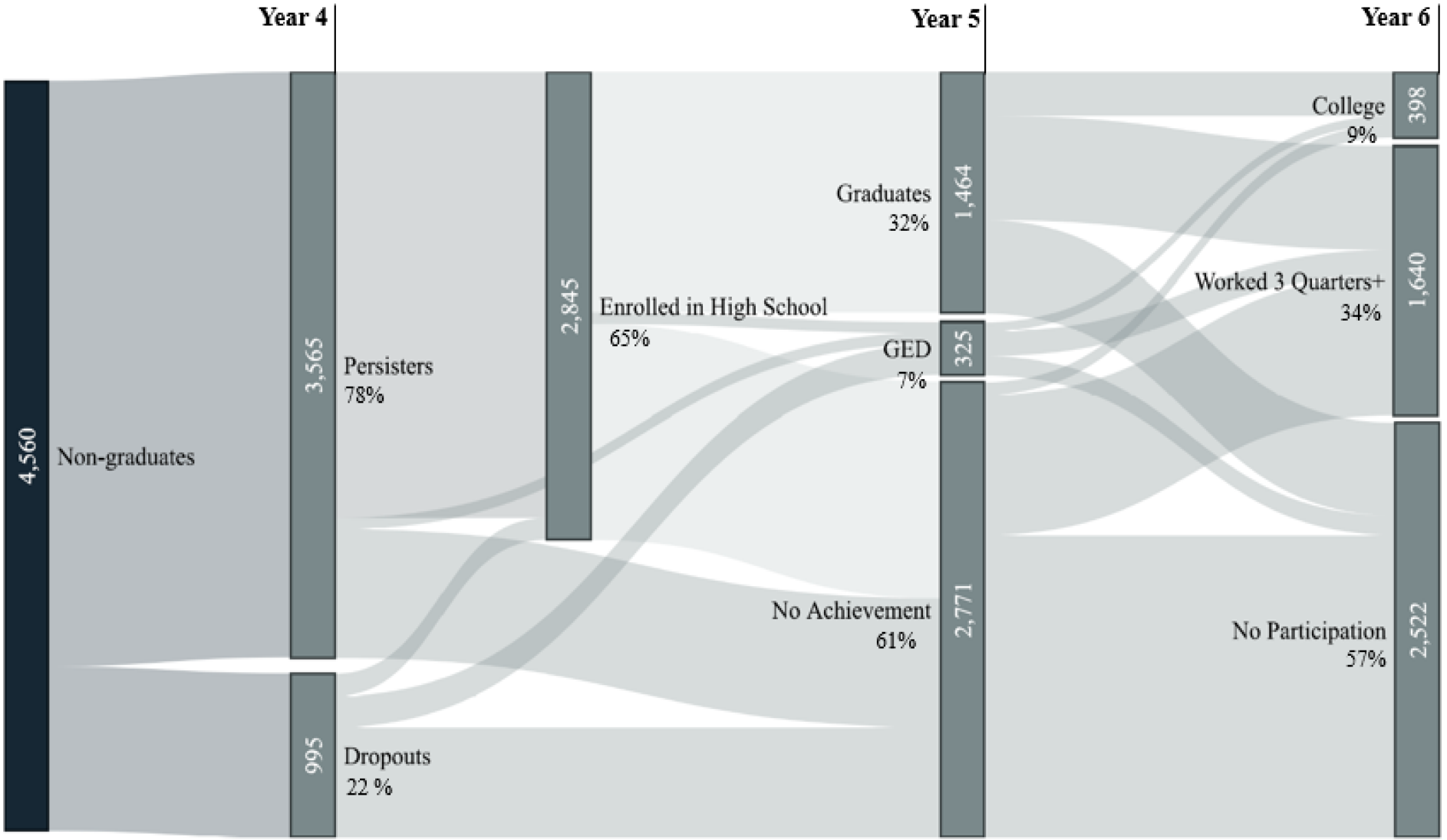

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Sankey Diagram Years 4-6

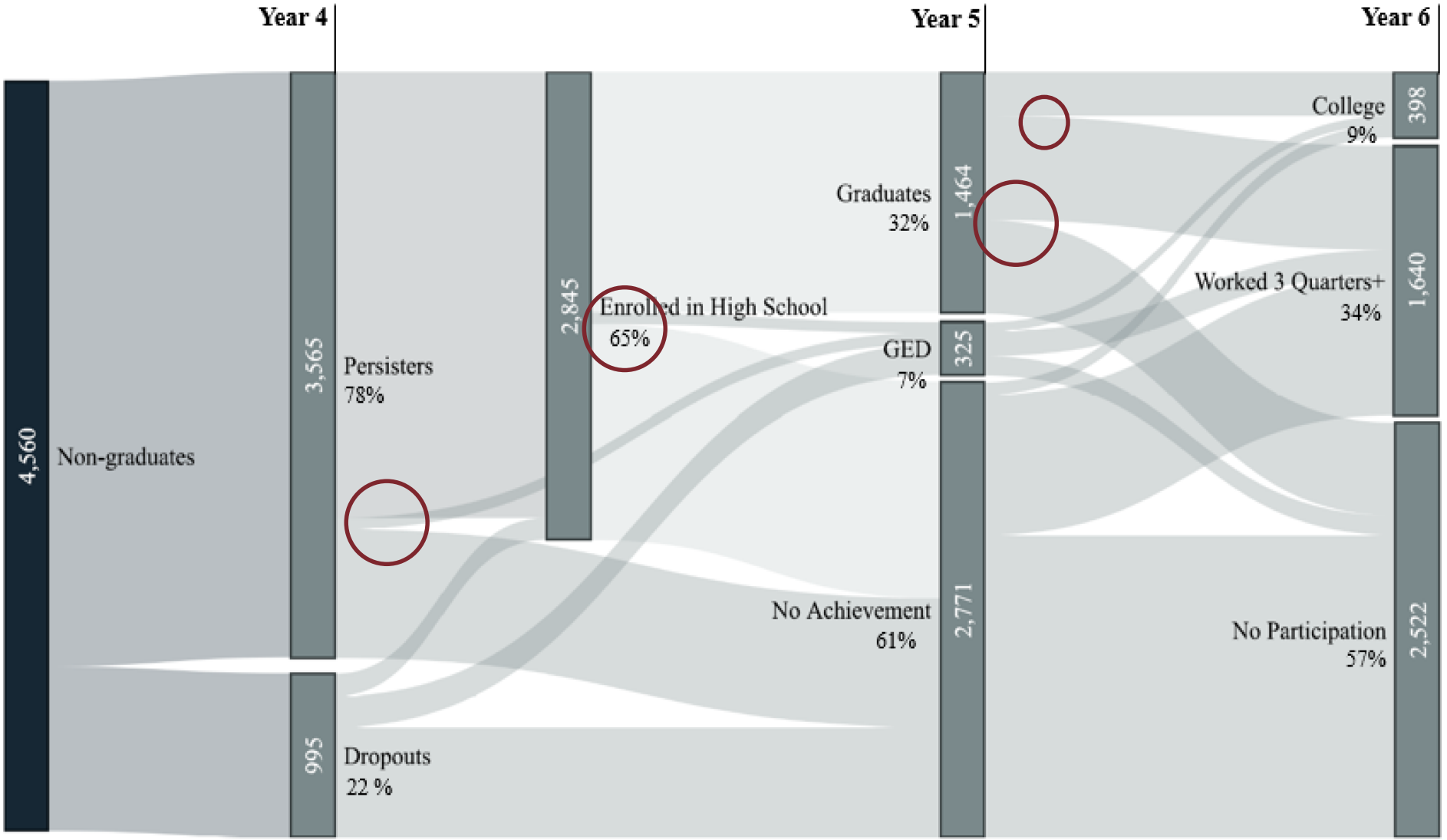

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Table 2.

Year 6 Labor and College Participation by Y5 Graduation Status

	College	Worked 3Q+	No Participation
	%	%	%
Year 5 Total	9		
Graduate	18		
GED	17		
No Achievement	3		

Table 2. contd.

Year 6 Labor and College Participation by Y5 Graduation Status

	College	Worked 3Q+	No Participation
	%	%	%
Year 5 Total	9	36	
Graduate	18	43	
GED	17	47	
No Achievement	3	31	

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Table 2.

Year 6 Labor and College Participation by Y5 Graduation Status

	College	Worked 3Q+	No Participation
	%	%	%
Year 5 Total	9	36	55
Graduate	18	43	39
GED	17	47	36
No Achievement	3	31	66

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Method – Analyses (2)

- T-Tests and Chi-Square tests to examine differences between dropouts and persisters
- Additional within subgroups analyses of groups with increased risk for dropout or persisting
  - Focus on the heterogeneity within, rather than between subgroups
  - Increased nuance

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Table 3.

Characteristics of Persisters and Dropouts - Differences at .05 (*N* = 4,560)

	Dropout		Persister
	%		%
White	36		21
Black	47	<	65
Other	16		14
Free and Reduced-priced Meals	73	<	79
Special Education	21	<	26
Experienced Mobility	51	<	63
Prior Dropout	100	>	8

Table 4.

Characteristics of Persisters and Dropouts – No Difference at .05 (*N* = 4,560)

	Dropout	Persister
	%	%
Male	63	64
Female	37	36
Latinx	16	15
ELL	5	5
Homelessness	9	8
Passed HSA - English	35	35
Passed HSA - Math	45	43

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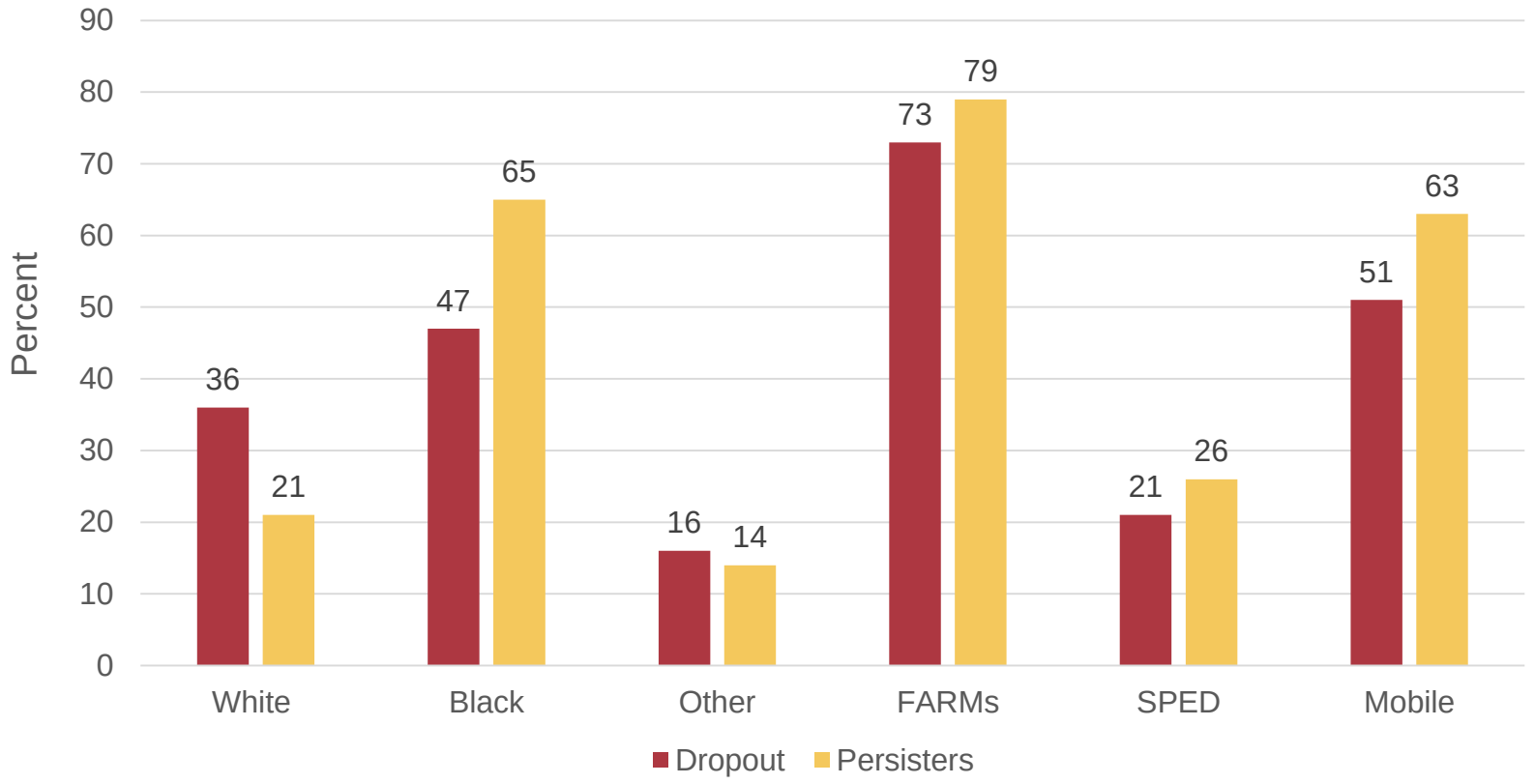
Student and Academic Characteristics

– Significant Differences ($p < .05$)



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Student and Academic Characteristics – No Significant Differences

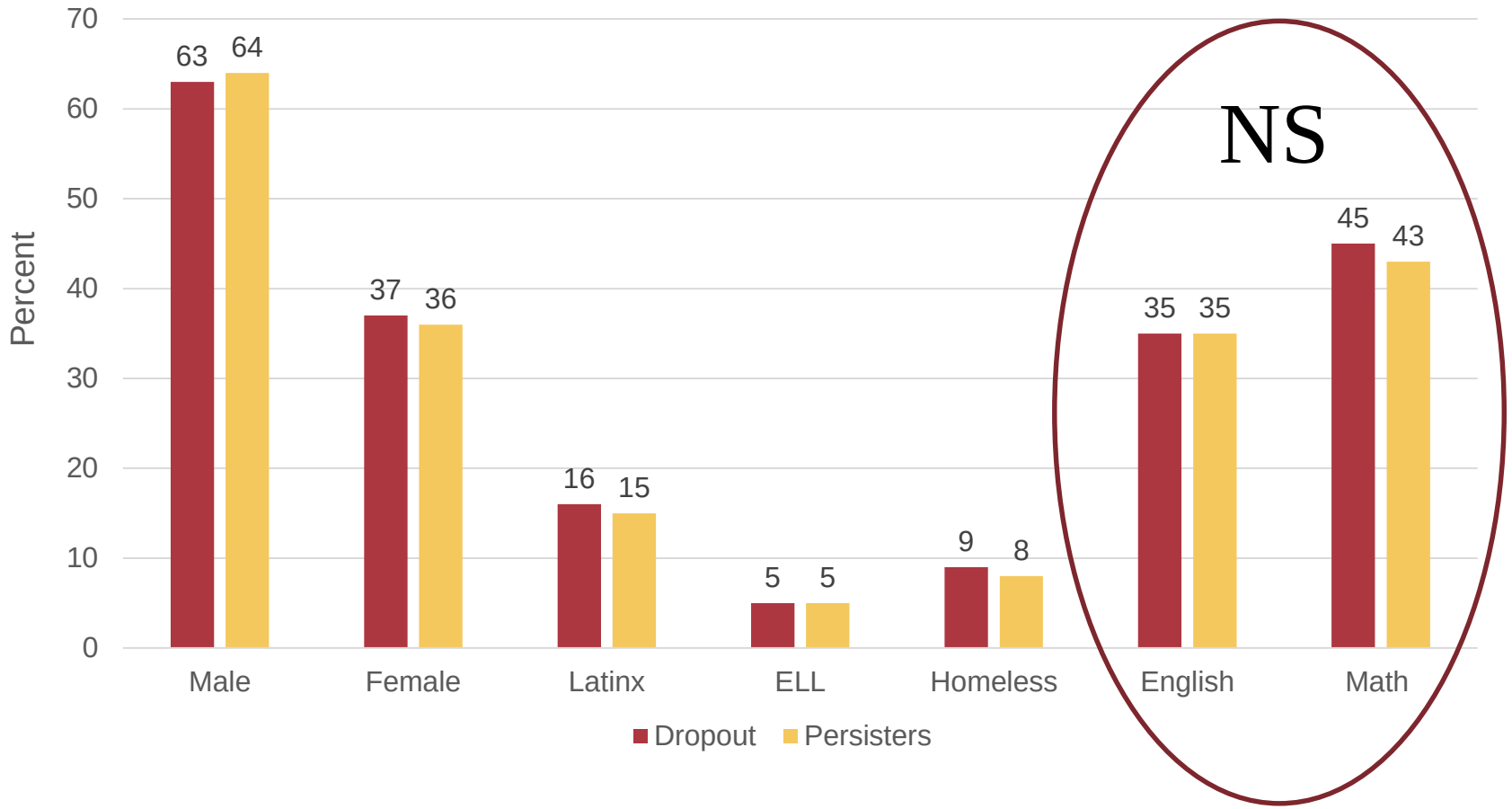

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Table 5.

Within Subgroup Comparisons (*N* = 4,560)

	Experienced Mobility		Special Education		Free and Reduced-priced Meals		Black	
	Dropout	Persister	Dropout	Persister	Dropout	Persister	Dropout	Persister
	(*n*=511)	(*n*=2,252)	(*n*=212)	(*n*=935)	(*n*=726)	(*n*=2,818)	(*n*=470)	(*n*=2,305)
Female								
Latinx								
English Language learner								
FARMS								
Special Education								
Experienced Homelessness								
Experienced Mobility								
Passed HSA - English								
Passed HSA - Math								
Prior Dropout								
Enrolled in Year 5								

Note. ǂ Cells represents a frequency below 10 and was suppressed according with MLDSC data rules. – value is equal to 100%. * $p<.05$, ** $p<.01$, *** $p<.001$. FARMs = free and reduced-price meal eligible; HSA = high school assessment.

Table 5. contd.

Within Subgroup Comparisons (*N* = 4,560)

	Experienced Mobility		Special Education		Free and Reduced-priced Meals		Black	
	Dropout	Persister	Dropout	Persister	Dropout	Persister	Dropout	Persister
	(*n*=511)	(*n*=2,252)	(*n*=212)	(*n*=935)	(*n*=726)	(*n*=2,818)	(*n*=470)	(*n*=2,305)
Female	38	37						
Latinx	12	12						
English Language learner	2	4*						
FARMS	76	81*						
Special Education	21	24						
Experienced Homelessness	13	10*						
Experienced Mobility	-	-						
Passed HSA - English	30	34						
Passed HSA - Math	41	41						
Prior Dropout	-	10						
Enrolled in Year 5	16	68***						

Note. ǂ Cells represents a frequency below 10 and was suppressed according with MLDSC data rules. – value is equal to 100%. * $p<.05$, ** $p<.01$, ***$p<.001$. FARMs = free and reduced-price meal eligible; HSA = high school assessment.

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Table 5. contd.

Within Subgroup Comparisons (*N* = 4,560)

	Experienced Mobility		Special Education		Free and Reduced-priced Meals		Black	
	Dropout	Persister	Dropout	Persister	Dropout	Persister	Dropout	Persister
	(*n*=511)	(*n*=2,252)	(*n*=212)	(*n*=935)	(*n*=726)	(*n*=2,818)	(*n*=470)	(*n*=2,305)
Female	38	37	25	30	39	37	36	37
Latinx	12	12	15	11	18	16	ǂ	ǂ
English Language learner	2	4*	ǂ	2	6	6	ǂ	ǂ
FARMS	76	81*	76	81	-	-	79	85*
Special Education	21	24	-	-	22	27*	23	26
Experienced Homelessness	13	10*	6	9	13	10	11	9
Experienced Mobility	-	-	51	58	54	65***	61	68**
Passed HSA - English	30	34	18	22	33	32	24	28*
Passed HSA - Math	41	41	25	26	43	39	30	34
Prior Dropout	-	10	-	9	-	8	-	7
Enrolled in Year 5	16	68***	15	83***	16	77***	15	78***

Note. ǂ Cells represents a frequency below 10 and was suppressed according with MLDSC data rules. – value is equal to 100%. * $p<.05$, ** $p<.01$, *** $p<.001$. FARMs = free and reduced-price meal eligible; HSA = high school assessment.

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Strengths and Limitations

- Strengths
  - Understudied phenomenon
  - Administrative data collected by schools
  - Population-level data
  - Data linked to postsecondary experiences
- Limitations
  - Available variables and constructs
  - Workforce data limitations

Discussion and Implications

- Persisting should be considered *along with dropout* as a critical element of a more informative analysis of high school graduation
- Within group heterogeneity
- Traditional risk factors are consistently clustered for persisters
  - Contradicts much previous educational literature linking minority status and poverty with increased risk
  - Motivational resilience and vulnerability (Skinner, 2020)

Discussion and Implications contd.

- College enrollment and workforce participation were similar for GED earners and fifth year graduates
  - Inconsistent with prior literature (e.g., Heckman et al., 2011)
  - Timing of GED attainment may matter
  - Initial evidence for the positive postsecondary outcomes for GED earners

Future Directions – Institute for Research on Poverty

Examine subgroup patterns of academic and workforce participation to identify typologies that may be predictive of later college enrollment and workforce outcomes up to 10 years later.

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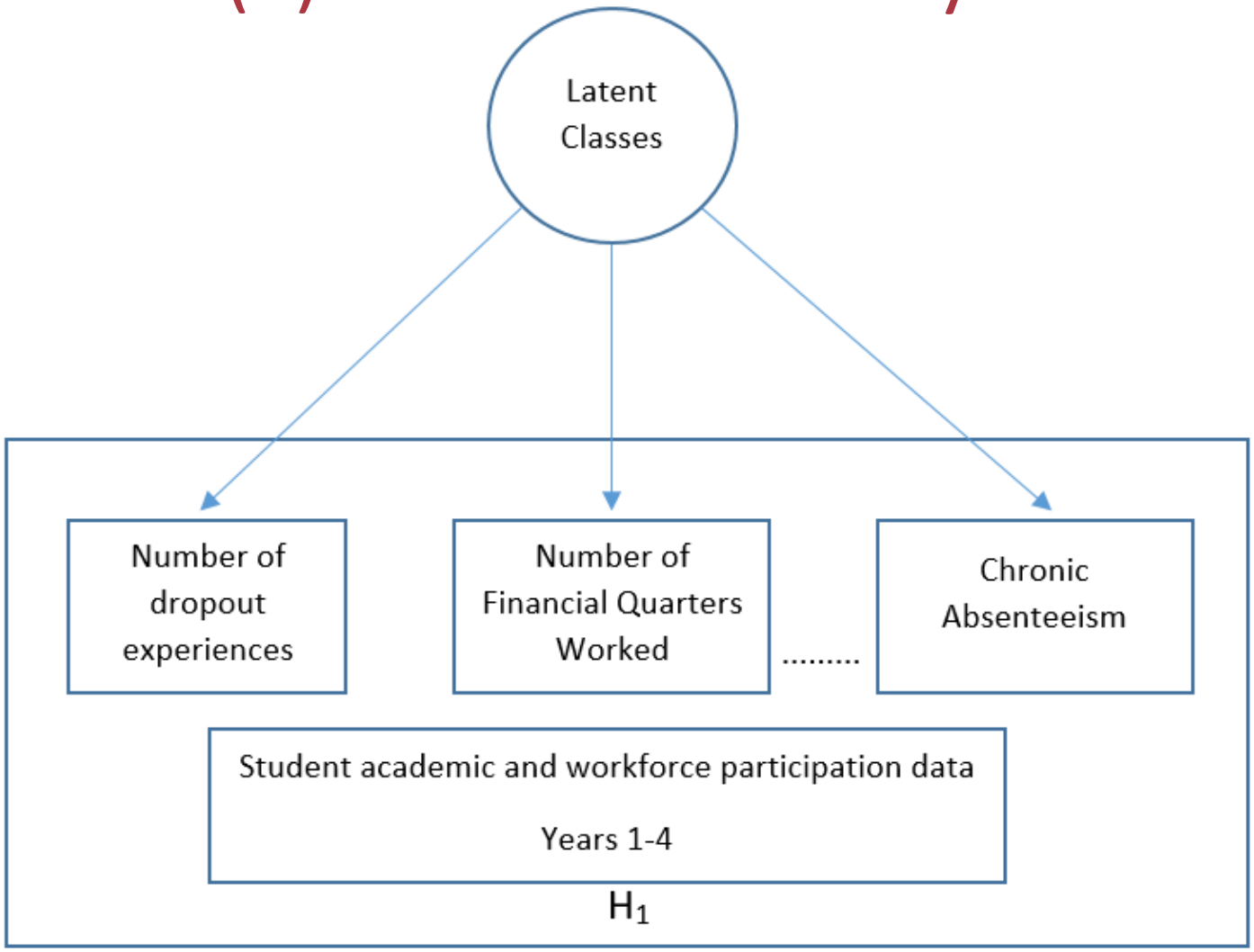
Background

- Few studies describe academic pathways during high school that include *both* dropouts and persisters
  - Available studies limited to describing *near term* postsecondary and workforce outcomes
    - < 2/3 of non-graduates enroll in Year 5
    - < 1/2 of 4 Year non-graduates are employed or enrolled in school two years later

Method (3) Latent Class Analyses



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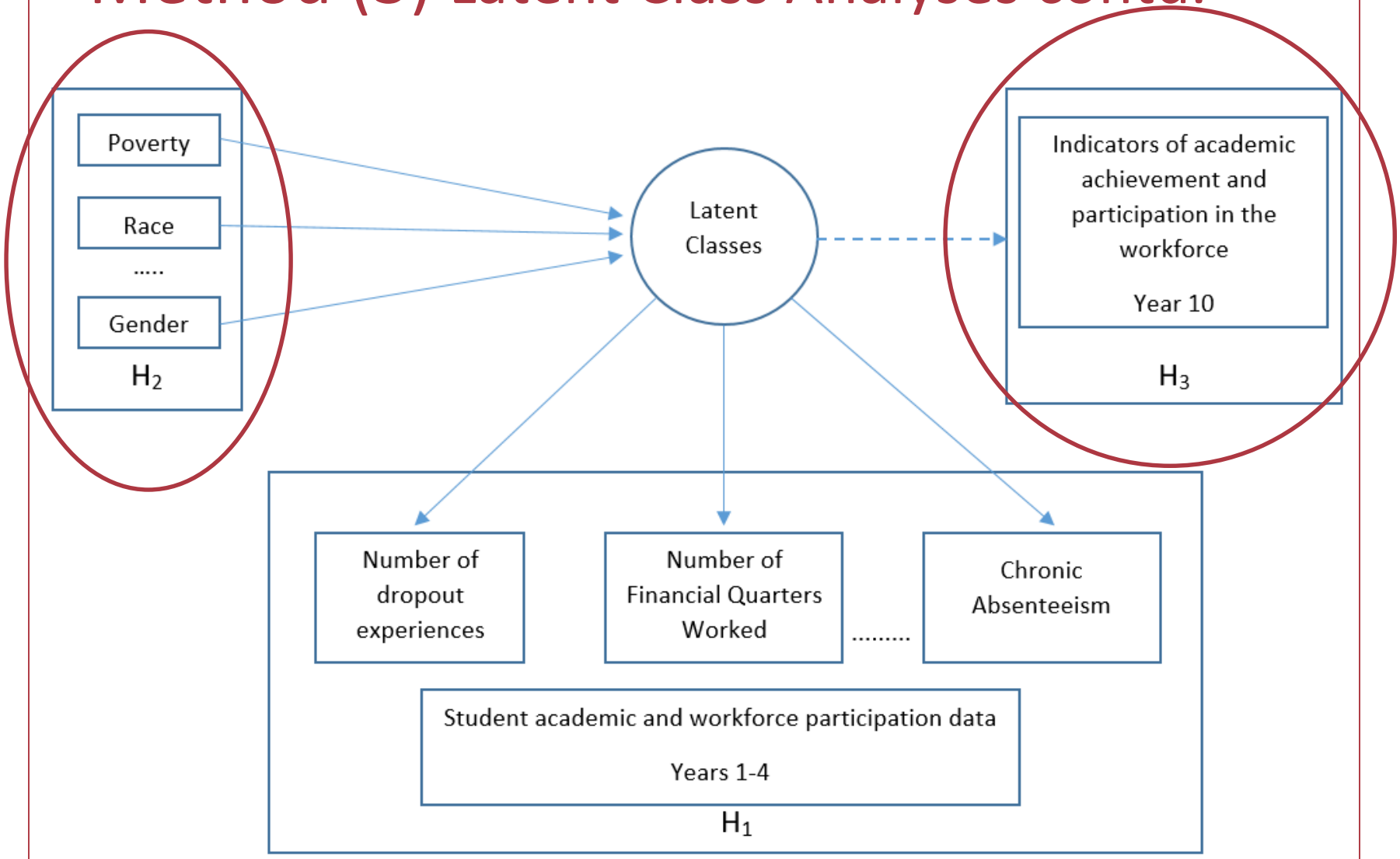
Method (3) Latent Class Analyses contd.



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The MLDS Center is an independent agency of the State of Maryland. The mission of the Center is to develop and maintain the Maryland Longitudinal Data System in order to provide analyses, produce relevant information, and inform choices to improve student and workforce outcomes in the State of Maryland.

Thank you

Questions?

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