Examining the Teacher Pipeline in Virginia

An Analysis of Current VLDS data

February 17, 2014

Purpose of the Project

- Explore what we could learn about teacher preparation in Virginia
  - Where do VA teachers get their training?
  - Where do teachers from different programs get jobs?
  - What can the state and teacher preparation programs learn about their teachers from existing data?
- Provide the state with feedback on data that could be collected in future efforts to improve the usefulness of the data

What Data are Available?

SCHEV

Degree Awards
All Graduates (N=423,551)
VA Universities
(N=47)
Years: 2008-2012

VDOE

Teacher Data
All K-12 Teachers (N=85,154)
Year 2010-12

Teacher Classroom Assignments (**Teacher Sections)**
(N=152,169)

Teacher Subject Assignment (N=1,189)

Student Sections

Student Performance

CCD

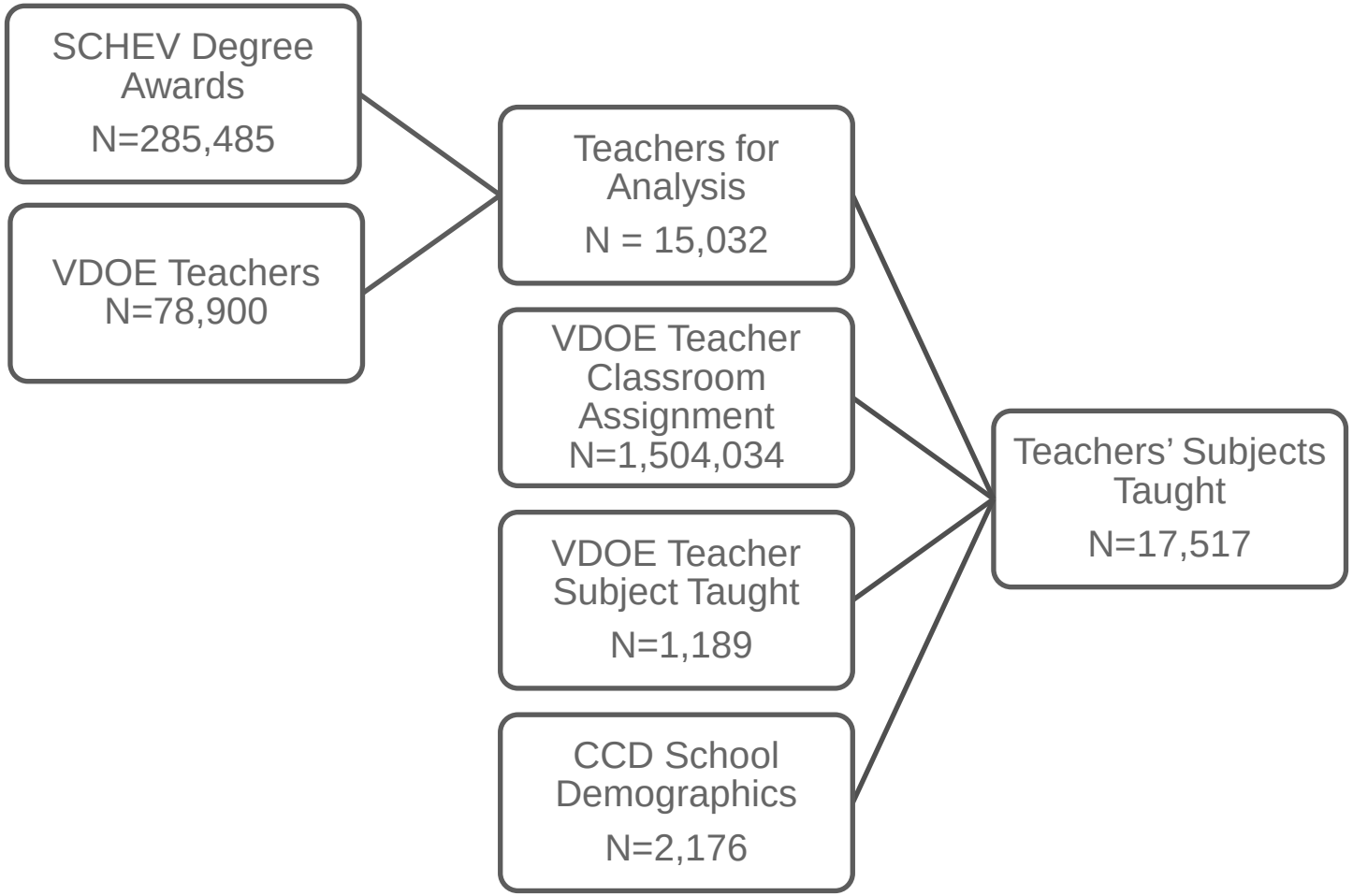
School Demographics
School level student demographics
School Lat/Lon coordinates
(N=2,176)

School Performance
Proficiency Math and Reading
Year: 2010-12

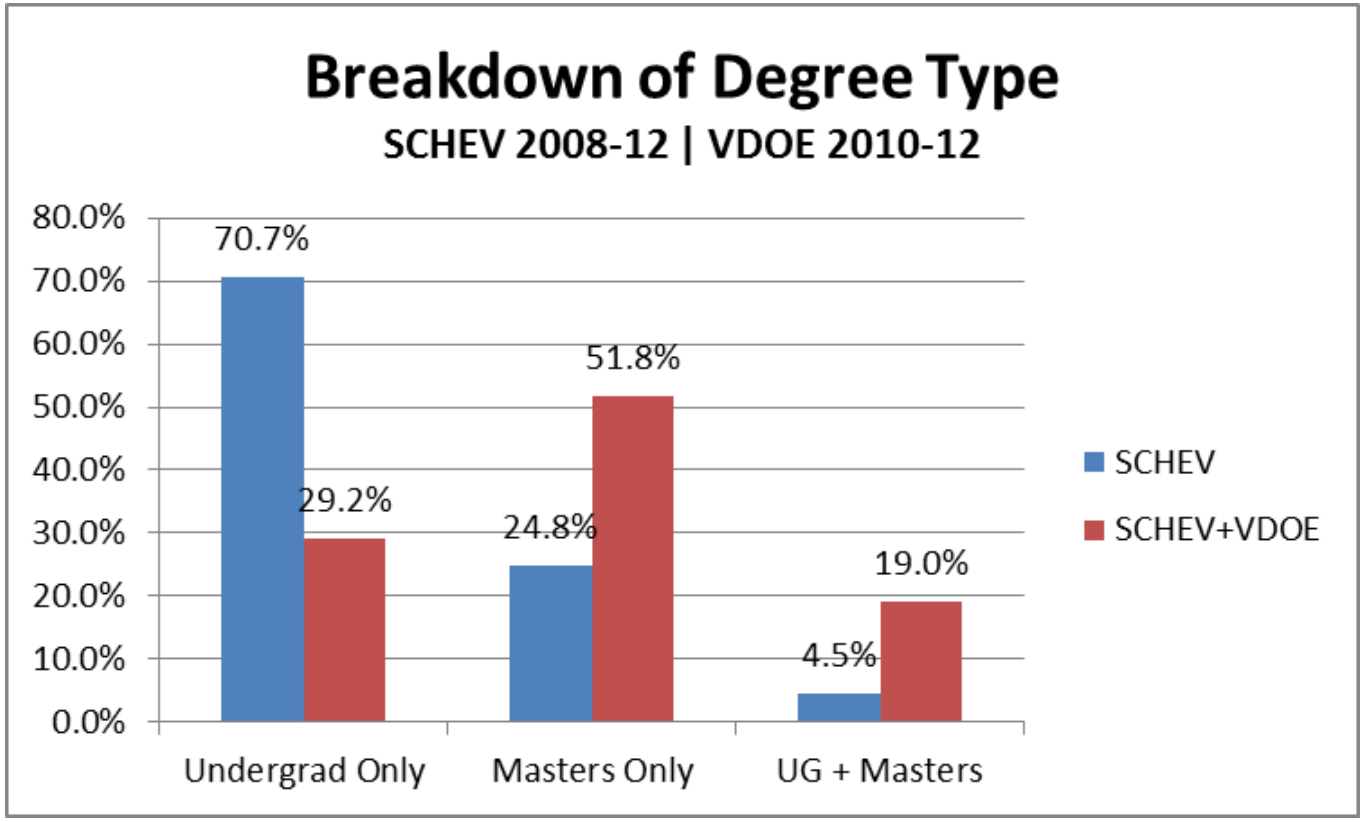
Methodology
Data Cleaning

- SCHEV Degree Awards:
  - Created distinct records by combining individuals with multiple degrees
  - Removed duplicates
- VDOE Teacher Records:
  - Removed duplicates
- VDOE Teacher Subject taught:
  - Creates sub-categories for subjects (See Appendix for Details)
- CCD School Data:
  - Some schools had no teacher assignments.

Methodology
Data Merge – Teacher Subjects Taught



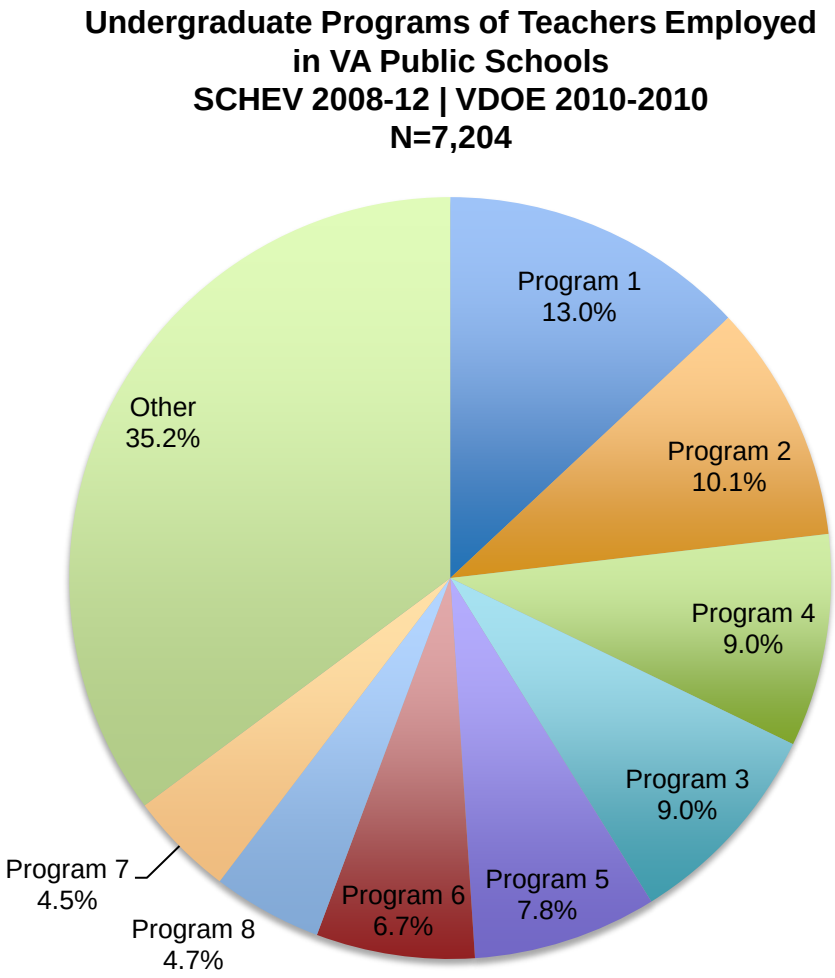
Our analysis includes more teachers with MA degrees than teachers with BAs



SCHEV n = 285,485
VDOE matched to SCHEV= 15,032

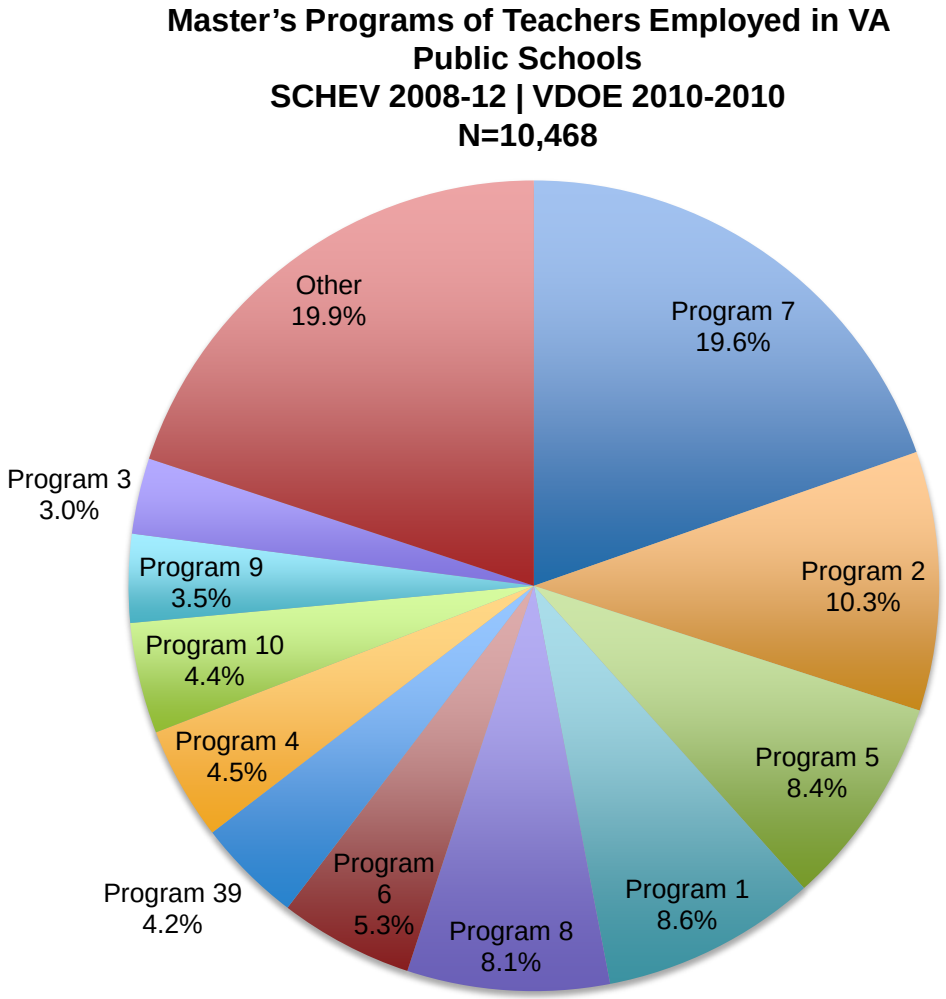
SUMMARY OF FINDINGS

Where do VDOE teachers get bachelor's degrees?



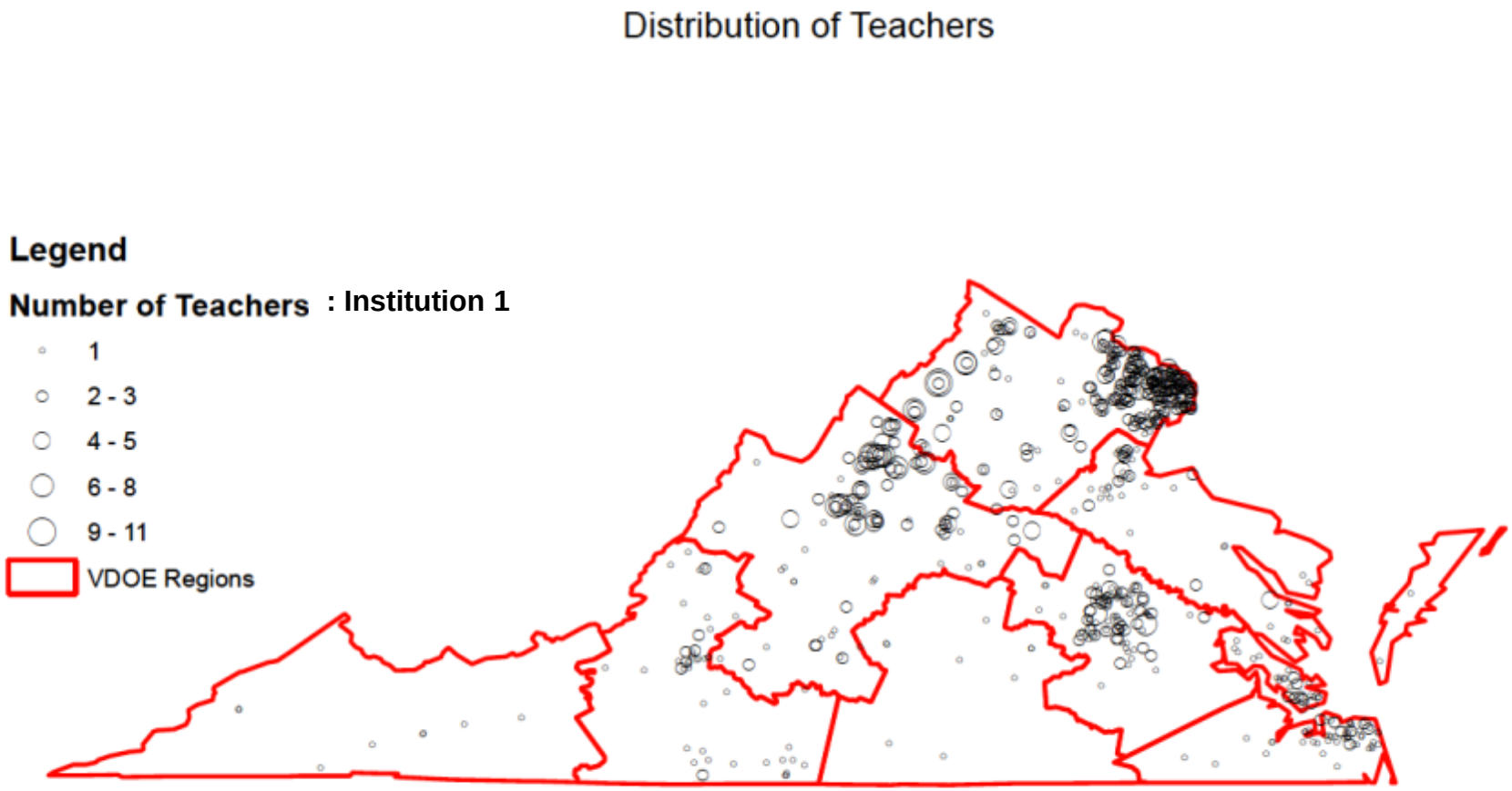
Note: Includes only teachers who completed a bachelor's degree in VA between 2008-2012

Where do VDOE teachers get master's degrees?

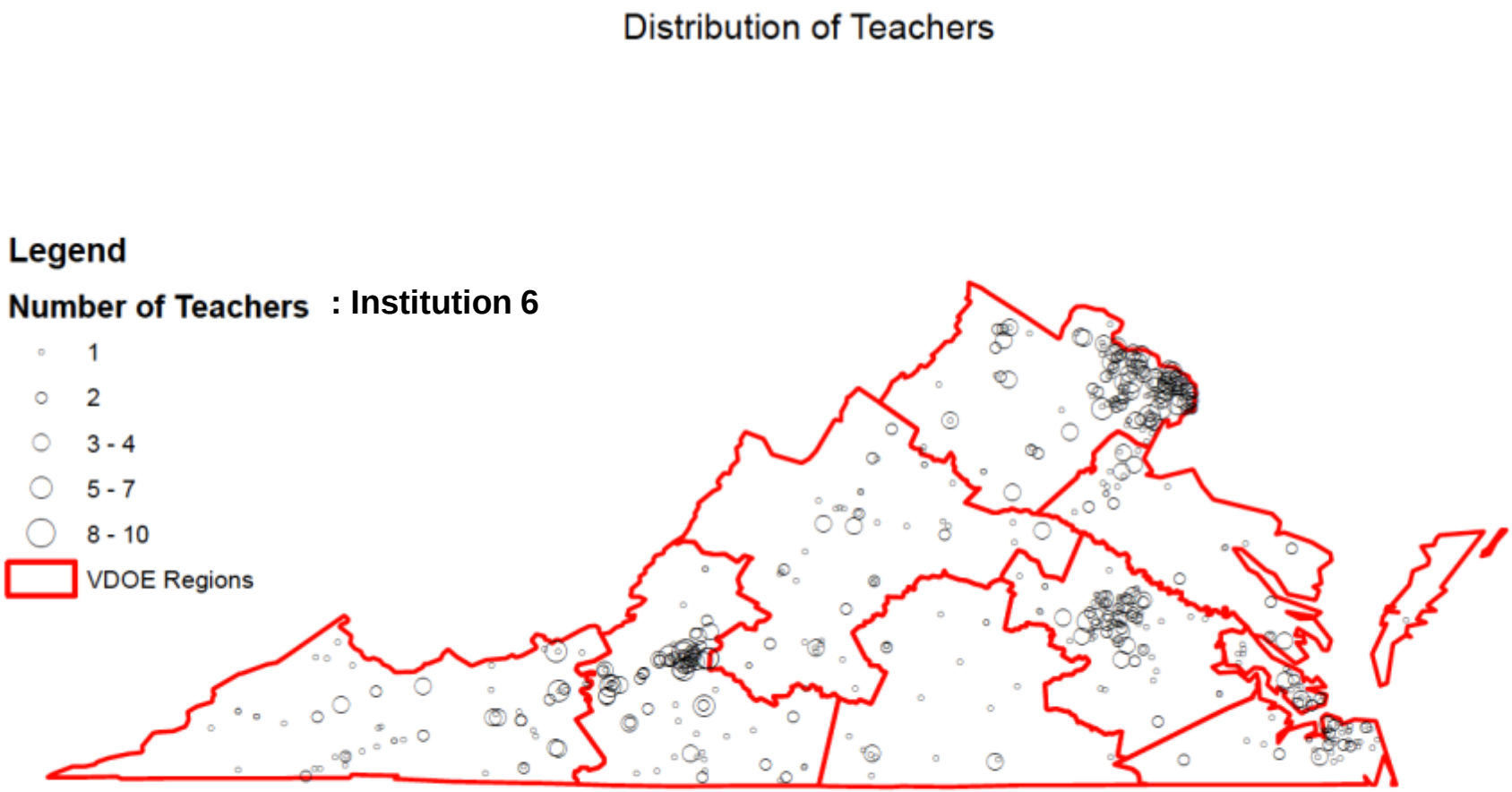


Note: Includes only teachers who completed a master's degree in VA between 2008-2012

Where are graduates teaching?: Program 1



Where are graduates teaching?: Program 6



Where are BA teachers?

Quartiles of Free/Reduced Lunch Eligibility

	FRPL					
Institution	0-24%	25-42%	43-59%	60-100%	Total	% of Total
1	35.2%	28.9%	19.5%	16.4%	1,017	12.8%
2	17.5%	24.2%	25.4%	32.9%	799	10.0%
3	20.8%	21.8%	25.6%	31.9%	731	9.2%
4	18.4%	22.4%	32.1%	27.1%	695	8.7%
5	30.5%	20.3%	16.7%	32.5%	646	8.1%
6	36.2%	24.7%	23.3%	15.8%	550	6.9%
8	40.4%	27.9%	19.8%	12.0%	384	4.8%
7	40.9%	27.6%	18.0%	13.5%	362	4.5%
9	15.5%	22.3%	34.0%	28.2%	309	3.9%
11	26.4%	31.5%	22.0%	20.1%	254	3.2%
10	39.5%	37.4%	13.6%	9.5%	243	3.1%
13	36.6%	27.8%	21.1%	14.4%	194	2.4%
12	10.8%	45.7%	29.0%	14.5%	186	2.3%
14	3.4%	11.4%	61.7%	23.4%	175	2.2%
15	11.9%	29.7%	28.0%	30.5%	118	1.5%
17	6.4%	13.6%	27.3%	52.7%	110	1.4%
16	11.5%	12.5%	21.2%	54.8%	104	1.3%
18	19.2%	19.2%	35.6%	26.0%	104	1.3%
21	3.4%	31.5%	48.3%	16.9%	89	1.1%
23	0.0%	4.7%	46.5%	48.8%	86	1.1%
24	28.6%	32.5%	22.1%	16.9%	77	1.0%
20	31.6%	35.5%	19.7%	13.2%	76	1.0%
Other <1%	15.9%	21.2%	27.1%	35.8%	656	8.2%
Total	25.0%	24.9%	25.1%	25.0%	7,965	100.0%

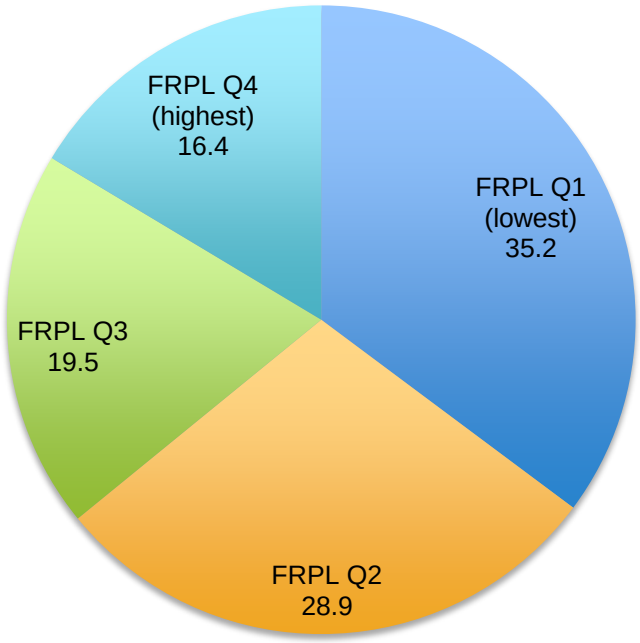
Where are MA teachers?

Quartiles of Free/Reduced Lunch Eligibility

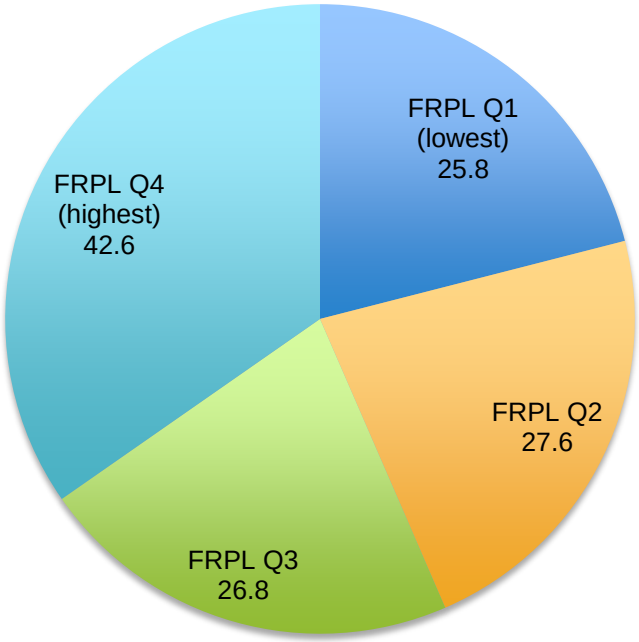
	FRPL					
Institution	0-19%	20-36%	37-54%	55-100%	Total	% of Total
7	40.1%	27.6%	19.7%	12.6%	2,388	20.3%
2	14.6%	21.7%	26.9%	36.7%	1,195	10.2%
5	30.6%	19.9%	18.1%	31.3%	1,009	8.6%
8	29.1%	29.1%	24.9%	16.9%	987	8.4%
1	25.8%	27.6%	26.8%	19.8%	980	8.3%
6	23.9%	29.5%	25.3%	21.3%	661	5.6%
39	12.3%	19.0%	26.1%	42.6%	537	4.6%
4	9.4%	19.8%	41.8%	28.9%	519	4.4%
10	25.6%	39.7%	20.4%	14.3%	504	4.3%
9	13.3%	18.8%	33.3%	34.5%	414	3.5%
3	22.4%	21.8%	22.1%	33.8%	340	2.9%
11	16.4%	27.4%	28.5%	27.8%	281	2.4%
32	9.6%	23.9%	25.0%	41.4%	280	2.4%
13	30.2%	36.0%	17.4%	16.3%	258	2.2%
20	29.4%	31.6%	27.7%	11.3%	231	2.0%
28	43.8%	18.6%	15.2%	22.4%	210	1.8%
15	12.4%	23.7%	32.8%	31.1%	177	1.5%
16	8.8%	10.1%	23.0%	58.1%	148	1.3%
18	7.1%	12.9%	51.4%	28.6%	140	1.2%
Other <1%	10.0%	17.9%	29.1%	43.1%	492	4.2%
Total	24.8%	25.0%	24.9%	25.3%	11,751	100.0%

Institution 1: School Poverty Quartile of BA and MA Graduates

Distribution of BA teachers by FRPL Quartile



Distribution of MA teachers by FRPL Quartile



Where are BA graduates teaching: Math and Reading proficiency

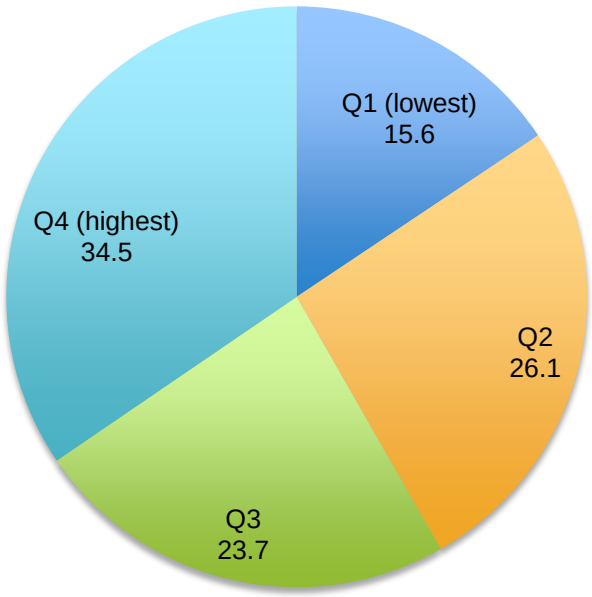
	Math Proficiency Quartiles				Reading Proficiency Quartiles			
Institution	Lowest	Quartile 2	Quartile 3	Highest	Lowest	Quartile 2	Quartile 3	Highest
1	15.6%	26.1%	23.7%	34.5%	21.1%	23.7%	22.8%	32.4%
2	32.5%	27.4%	23.3%	16.8%	32.0%	26.8%	24.5%	16.8%
3	28.1%	24.0%	28.8%	19.1%	30.2%	28.1%	25.8%	15.9%
4	22.5%	29.5%	24.3%	23.7%	25.6%	30.0%	27.6%	16.8%
5	29.8%	23.9%	22.8%	23.6%	31.6%	20.0%	22.6%	25.7%
6	20.3%	24.9%	24.7%	30.0%	16.1%	18.1%	24.0%	41.8%
8	15.3%	22.1%	23.4%	39.2%	16.4%	17.9%	20.5%	45.2%
7	15.2%	21.8%	25.4%	37.6%	16.0%	18.2%	27.1%	38.7%
9	40.1%	22.2%	23.5%	14.2%	29.1%	28.8%	28.8%	13.2%
11	29.1%	23.5%	25.1%	22.3%	26.3%	23.9%	26.3%	23.5%
10	13.2%	18.9%	36.6%	31.3%	10.3%	27.6%	21.0%	41.2%
13	18.2%	14.1%	30.7%	37.0%	13.5%	20.8%	29.2%	36.5%
12	17.6%	36.8%	28.0%	17.6%	22.5%	33.0%	26.4%	18.1%
14	24.0%	22.3%	18.3%	35.4%	9.7%	31.4%	42.3%	16.6%
15	28.4%	21.6%	35.3%	14.7%	30.2%	37.9%	19.8%	12.1%
17	57.4%	21.3%	17.6%	3.7%	52.8%	18.5%	20.4%	8.3%
16	53.5%	19.8%	18.8%	7.9%	49.5%	16.8%	23.8%	9.9%
18	33.0%	30.0%	22.0%	15.0%	28.0%	33.0%	20.0%	19.0%
21	25.8%	33.7%	30.3%	10.1%	13.5%	29.2%	34.8%	22.5%
23	32.1%	22.6%	20.2%	25.0%	17.9%	39.3%	34.5%	8.3%
20	11.8%	32.9%	40.8%	14.5%	17.1%	31.6%	32.9%	18.4%
24	17.1%	17.1%	23.7%	42.1%	19.7%	19.7%	34.2%	26.3%
Other <1%	29.3%	26.8%	24.0%	19.9%	32.5%	26.3%	21.0%	20.2%
TOTAL	**24.9%**	**25.0%**	**25.1%**	**25.0%**	**25.0%**	**25.0%**	**25.0%**	**25.0%**

Where are MA graduates teaching: School math achievement level

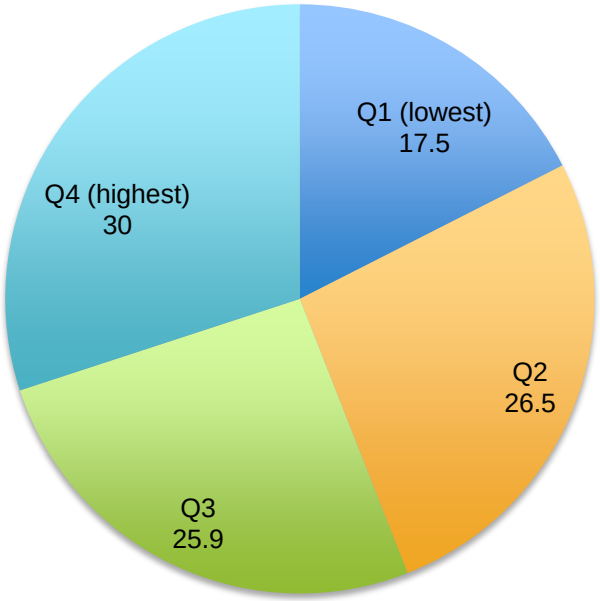
Institution	Math Proficiency Quartiles				Reading Proficiency Quartiles			
	Lowest	Quartile 2	Quartile 3	Highest	Lowest	Quartile 2	Quartile 3	Highest
7	15.4%	20.0%	26.1%	38.5%	16.5%	16.8%	27.8%	38.9%
2	33.1%	26.0%	25.1%	15.8%	35.6%	29.2%	19.4%	15.8%
5	31.1%	27.0%	18.5%	23.3%	31.4%	23.7%	18.4%	26.4%
8	17.5%	22.6%	24.1%	35.7%	19.1%	20.1%	27.0%	33.8%
1	17.5%	26.5%	25.9%	30.0%	26.6%	26.1%	23.9%	23.4%
6	24.4%	25.9%	24.7%	25.0%	17.3%	22.6%	29.5%	30.6%
39	38.3%	28.9%	22.3%	10.5%	27.8%	32.3%	24.8%	15.2%
4	19.8%	38.0%	27.4%	14.9%	17.8%	34.8%	33.5%	13.9%
10	15.7%	23.9%	46.0%	14.3%	20.9%	33.9%	22.7%	22.5%
9	38.2%	23.4%	26.8%	11.7%	29.2%	29.7%	27.3%	13.9%
3	25.3%	36.2%	19.4%	19.1%	26.8%	34.4%	21.2%	17.6%
11	32.4%	26.3%	23.4%	18.0%	35.3%	25.2%	22.7%	16.9%
32	44.2%	20.4%	20.8%	14.6%	40.1%	26.6%	22.3%	10.9%
13	16.3%	18.3%	28.8%	36.6%	12.8%	25.7%	27.6%	33.9%
20	21.6%	27.7%	32.5%	18.2%	24.2%	26.8%	28.6%	20.3%
28	13.7%	17.9%	22.6%	45.8%	25.5%	17.0%	21.2%	36.3%
15	30.3%	28.6%	24.6%	16.6%	38.9%	32.6%	20.0%	8.6%
16	60.1%	28.0%	6.3%	5.6%	44.8%	30.1%	16.8%	8.4%
18	54.7%	21.9%	19.0%	4.4%	27.7%	37.2%	25.5%	9.5%
Other <1%	34.9%	27.3%	21.8%	16.0%	35.3%	27.9%	23.2%	13.6%
TOTAL	**25.0%**	**25.0%**	**25.1%**	**24.9%**	**25.2%**	**25.1%**	**24.7%**	**25.0%**

Institution 1: School Math Achievement Quartile BA and MA Graduates

Distribution of BA teachers by Math Achievement Quartile



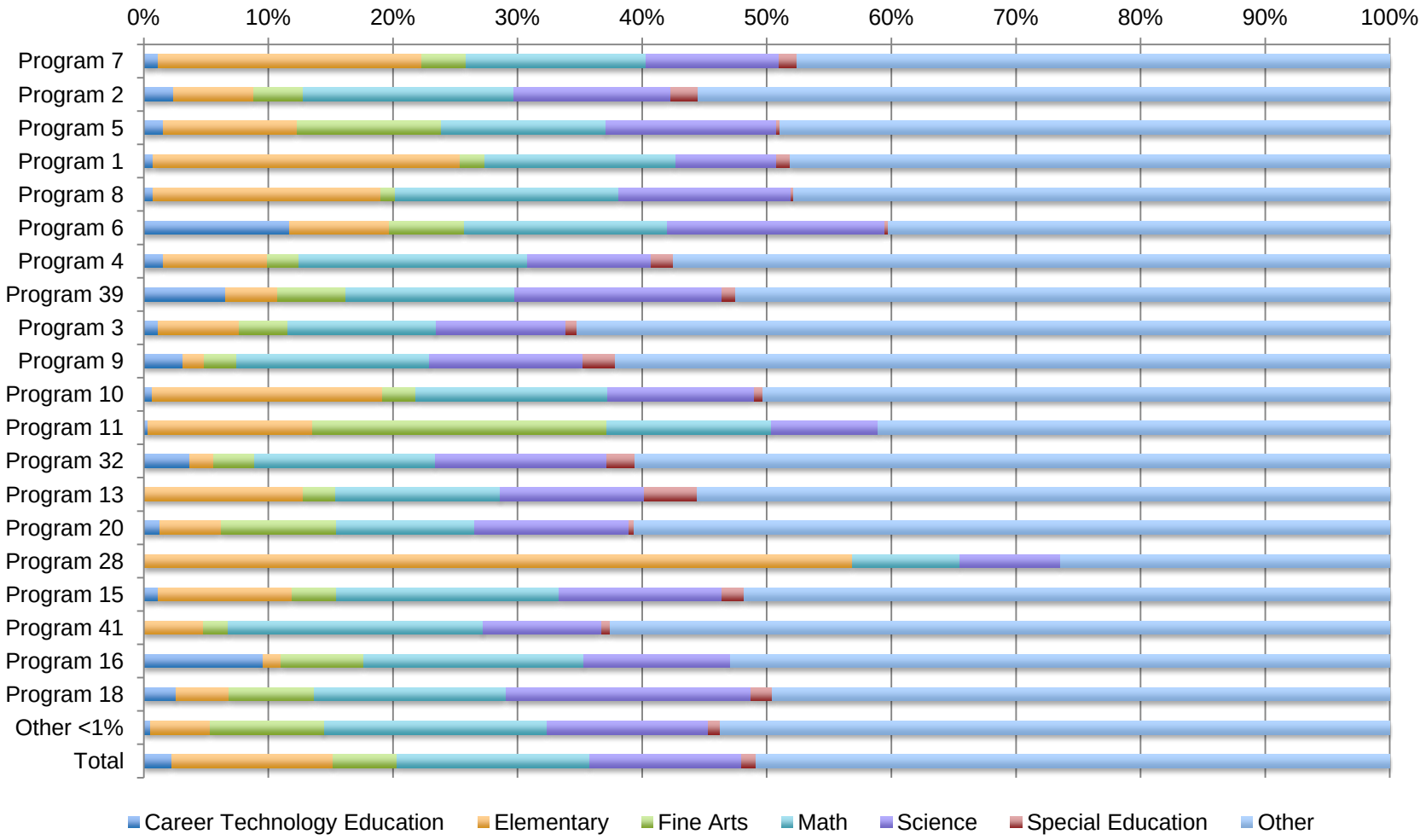
Distribution of MA teachers by Math Achievement Quartile



In which fields are BA graduates teaching?

Note: for some teacher's subject were not found, so sample sizes might not match exactly with other figures.

In which fields are MA graduates teaching?



Note: for some teacher's subject were not found, because they either substitutes , Teacher sometime, or teaching few students.

Conclusions

- The majority of teachers received bachelors and master's degrees from relatively few institutes of higher education (IHEs)
- Graduates from IHEs are not evenly distributed across schools according to school characteristics (demographics, achievement)
- Graduates from some IHEs are more likely to teach in some subjects than are graduates from other IHEs

Recommendations

- Enhance efforts to collect data that effectively tracks the career paths of teachers.
- Provide programs with annual reports that allow them to track graduates over time
- Work with divisions to simplify data collection and reduce redundancy

Suggested Data Elements to Collect at the State Level

Data Elements	Description	Justification
Program Link	A linkage between each teacher and the teacher preparation program from which she graduated	This allows the state and programs to track program effectiveness. This is a better measure of teacher training than the IHE from which the teacher earned a degree
Teacher Experience	How many years of teaching experience the teacher has	This would allow the state to track teacher careers and to observe teacher turnover and breaks in service.
Teacher Demographics	Indicators for teacher race, ethnicity, and sex.	Research suggests that minority teachers have a positive mentor effect on minority students. The state could monitor the diversity of program graduates and their employment paths.
Teacher Evaluations	Performance evaluations of teachers	Programs would be able assess the quality of their graduates in short term and long term. The state would also be better equipped to assess the quality of teachers from different programs.

APPENDIX

Data Relationship

SCHEV_tchrprepdegreeawards
what university teacher attended

HASHED_SSN
satm
satr
satw
act
gradyear
plevone
proglev_text
progone
NAMCIP_TITLE
unitid
Institution_Name
teached
teached_text

SCHEV_tchrprepcourses
how did theacher do at university

HASHED_SSN
unitid
repyear
repper
crsdisp
crslev
crslev_text
crsabbr
crsnum
crslet
crshour
crsgrd
crstype
crstype_text
crstype_definition

site
SITE_TEXT

VDOE_14695_deident
teacher who work for VDOE

hashed_ssn
LICENSE_PREFIX
DATE_OF_BIRTH
gender
fte
TEACHER_ROLE_CODE
UNIQUE_SECTION_IDENTIFIER
LOCAL_PROVIDER_ID

VDOE_Student Section 2
link table

school_year
research_id
unique_section_identifier
local_provider_id

VDOE sced_crosswalk
looks like a teacher table, what they teach in VDOE?

sced_code
sced_code_original
va_sequence
secondary_flag
virginia_assignment_codes
virginia_assignment_description
vdoe_instructional_area_descript
english
math

VA_lat_long

s_name
nces_id
s_id
d_id
lat
lon
enroll
n__natamer

n__asian
n__black
n__hisp
n__white
n__multi
n__frpl

p_natamer

p_asian
p_black
p_hisp
p_white
p_multi
p_frpl

VDOE_section
where teachers teach?

school_year
unique_section_identifier
assignment_code
sced_code
sced_sequence
sequence_num
reporting_division
serving_division
serving_school

VDOE Student Assessment
Student assessment

school_year
division
school
research_id
test_source
test_level
subject
scaled_score
growth_percentile
growth_percentile_level

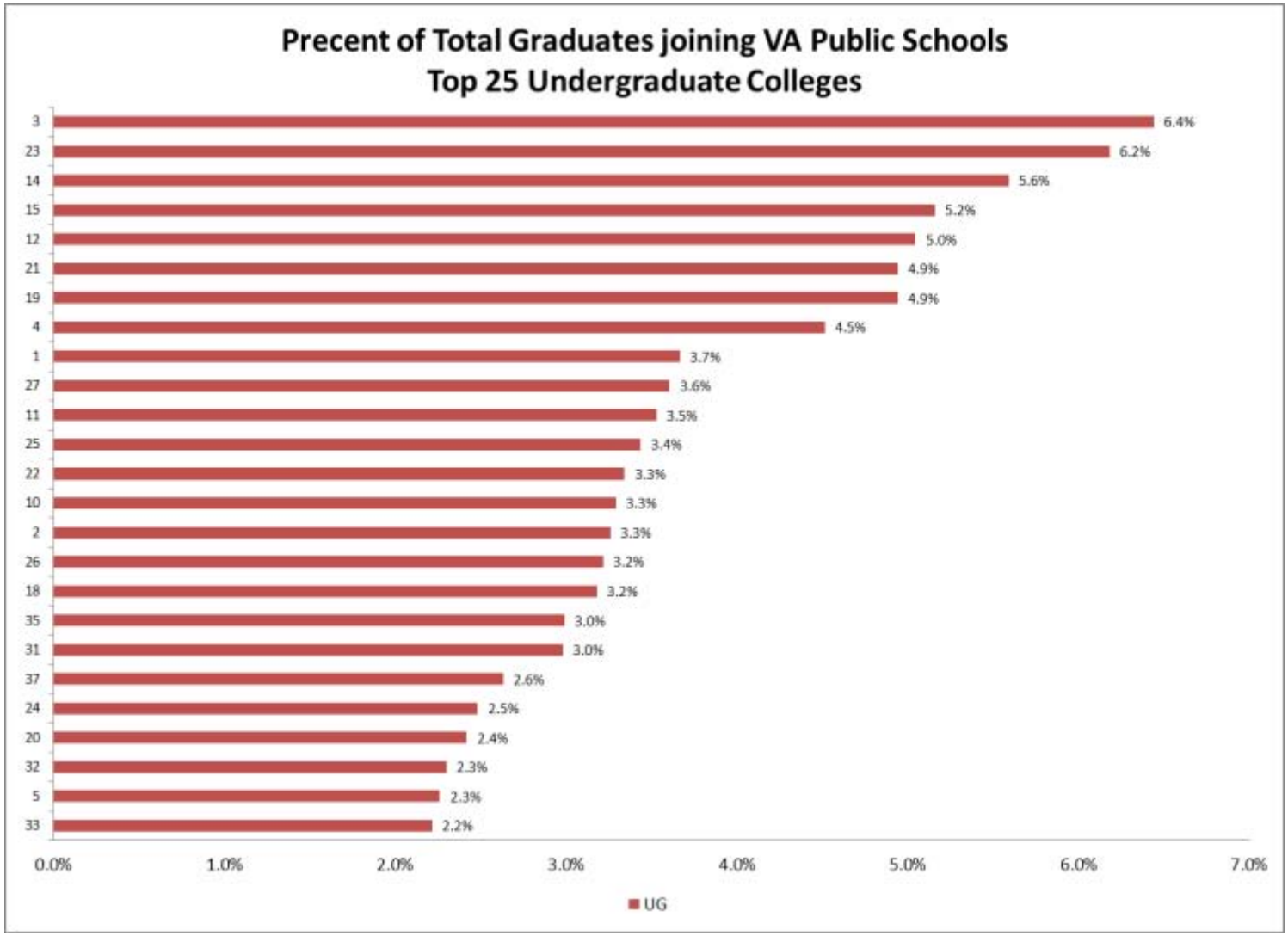
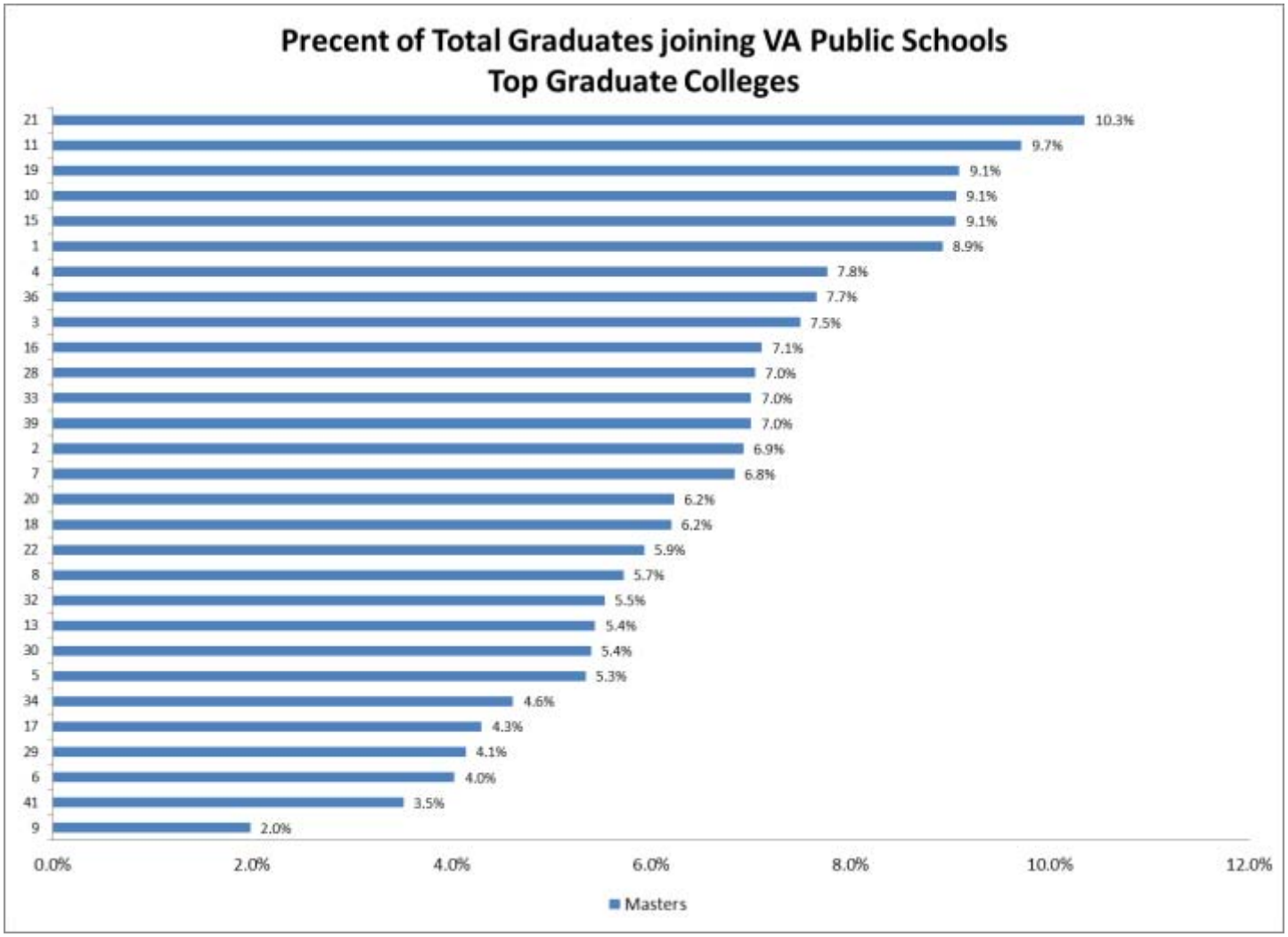
VDOE Student_demo_deident
Student data

school_year
division
school
research_id
active_code
entry_code
entry_date
gender
disadvantaged_status
lep_status
gifted_code
title_i_status
days_enrolled
percent_of_attendance
hispanic_flag
race_code

Subject Categories

vdoe_instructional_area_descript	Category
CTE - Agricultural Education	CTE
CTE - Business and Information Technolo	CTE
CTE - Career Connections	CTE
CTE - Career Connections and Military S	CTE
CTE - Family and Consumer Sciences	CTE
CTE - Health and Medical Sciences	CTE
CTE - Marketing	CTE
CTE - Technology Education	CTE
CTE - Trade and Industrial	CTE
Elementary	ELM
Fine Arts - Art	FAR
Fine Arts - Dance	FAR
Fine Arts - Music	FAR
Fine Arts - Theatre	FAR
Fine Arts -Art	FAR
Fine Arts -Theatre Arts	FAR
Fine Arts -Visual Arts	FAR
Mathematics	MAT
Computer and Information Science	OTH
English	OTH
Foreign Language	OTH
Health and Physical Education	OTH
History/Social Sciences	OTH
Miscellaneous Positions	OTH
Miscellaneous Positions - Secondary	OTH
Non-scheduled Course	OTH
Not a Course Code	OTH
Social Studies	OTH
Science	SCI
Special Education	SED
Special Education - Not a Course	SED

What percentage of an institution's BA graduates are teaching in VDOE schools?



What percentage of an institution's MA graduates are teaching in VDOE schools?