Statistical Software for Students: Academic Practices & Employer Expectations

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Statistical Software for Students

Wm Adams, Donna Infeld, Carli Wulff • Trachtenberg School • George Washington University • APPAM 2011

Prior Research on Merits

Academic Practices

Employer Preferences

Statistical Software for Students

Prior Research on Merits

- Only one (small) RCT

- Accuracy strong (issues with Excel)

- Costs (student versions under $50)

- Usability (no systematic research)

Statistical Software for Students
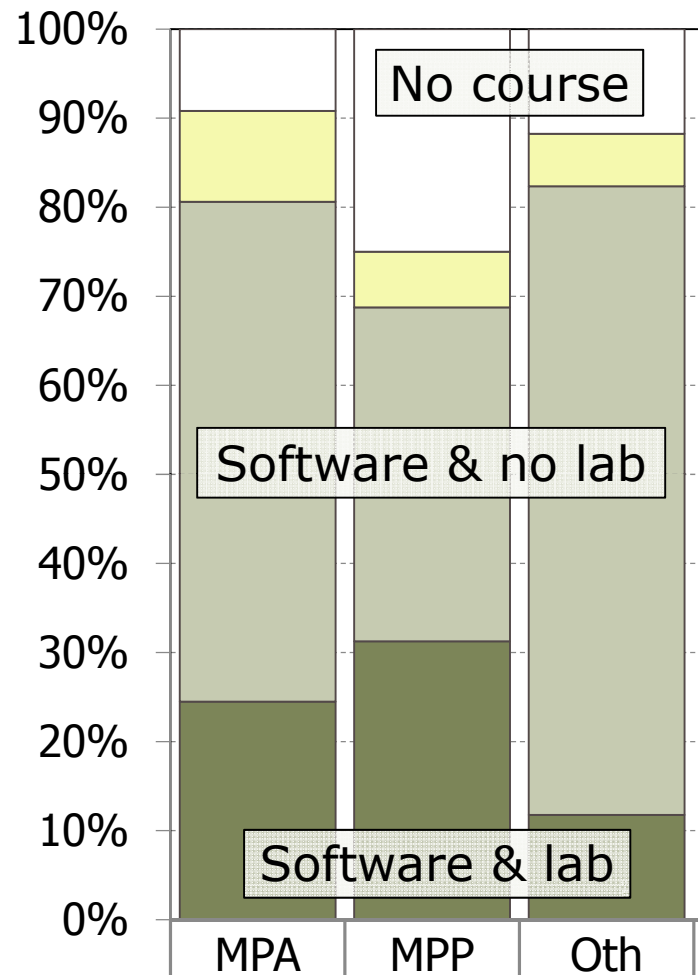
Prior Research on Merits

Academic Practices

Employer Preferences

- 52% of MPA programs (n=98)

- 53% of MPP programs (n=16)

- Plus 17 from other related masters

Intro Budget & Finance Course

Percent of Each Masters Program Type
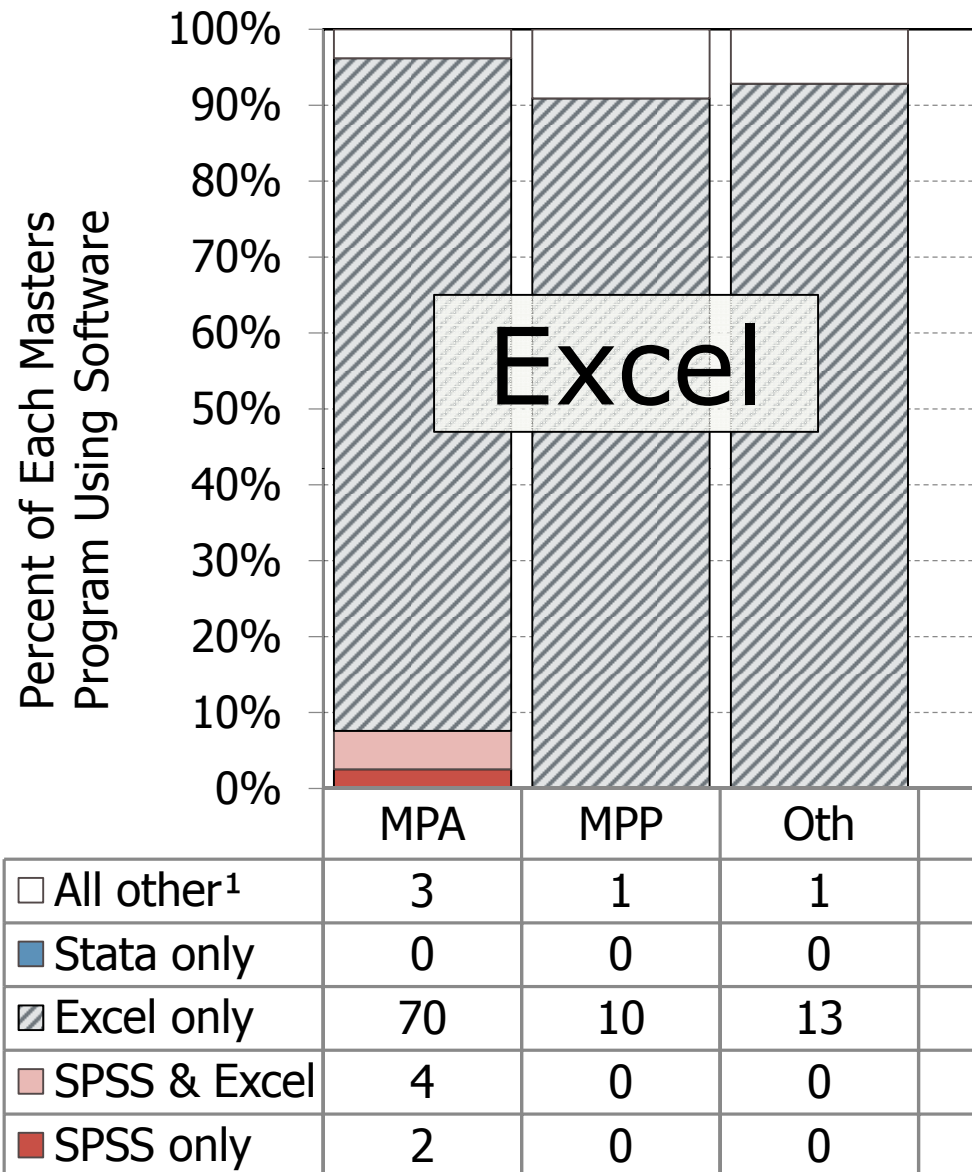MPA (n=98); MPP (n=16); Other Masters (n=17)

No course

Software & no lab

Software & lab

	MPA	MPP	Oth
☐ No class offered	9	4	2
☐ Class; no software	10	1	1
▨ Software; no lab	55	6	12
■ Software & lab	24	5	2

Intro Budget & Finance Course

Later Budget & Finance Course

Percent of Each Masters Program Type
MPA (n=98); MPP (n=16); Other Masters (n=17)

No course

No later class

Software & no lab

Software & no lab

Software & lab
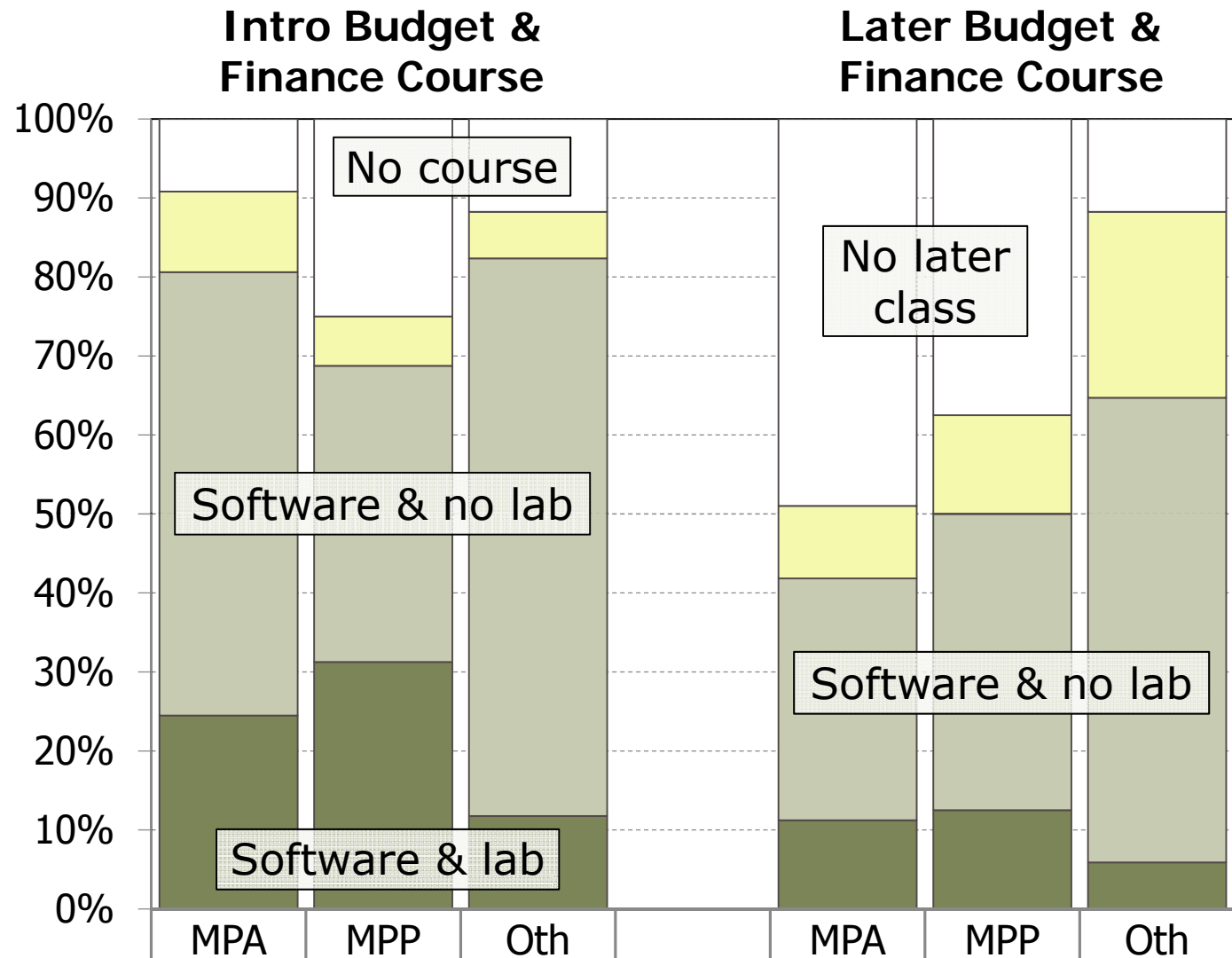
	MPA	MPP	Oth		MPA	MPP	Oth
☐ No class offered	9	4	2		48	6	2
☐ Class; no software	10	1	1		9	2	4
Software; no lab	55	6	12		30	6	10
■ Software & lab	24	5	2		11	2	1

Intro Budget & Finance Course

Percent of Each Masters Program Using Software

Excel

	MPA	MPP	Oth	
☐ All other¹	3	1	1	
■ Stata only	0	0	0	
▨ Excel only	70	10	13	
▨ SPSS & Excel	4	0	0	
■ SPSS only	2	0	0	

¹ Note: "All other" includes other software and other comb

Intro Budget & Finance Course

Later Budget & Finance Course

Percent of Each Masters Program Using Software

Excel

Excel

	MPA	MPP	Oth		MPA	MPP	Oth
☐ All other¹	3	1	1		3	1	1
▧ Stata only	0	0	0		0	0	0
▨ Excel only	70	10	13		32	7	12
▨ SPSS & Excel	4	0	0		5	0	0
▮ SPSS only	2	0	0		1	0	0
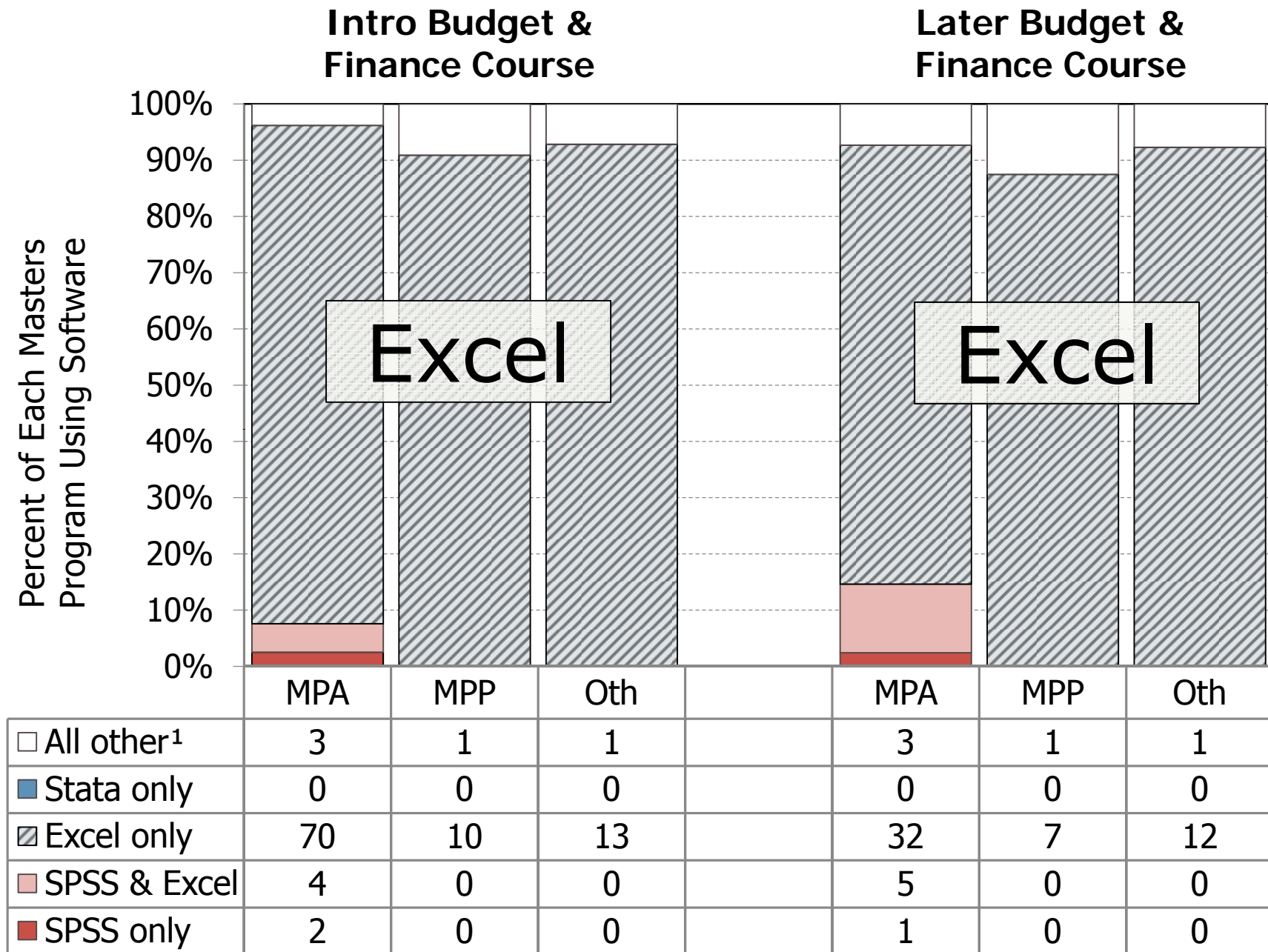
¹ Note: "All other" includes other software and other combinations of software; but none exceeded 3.

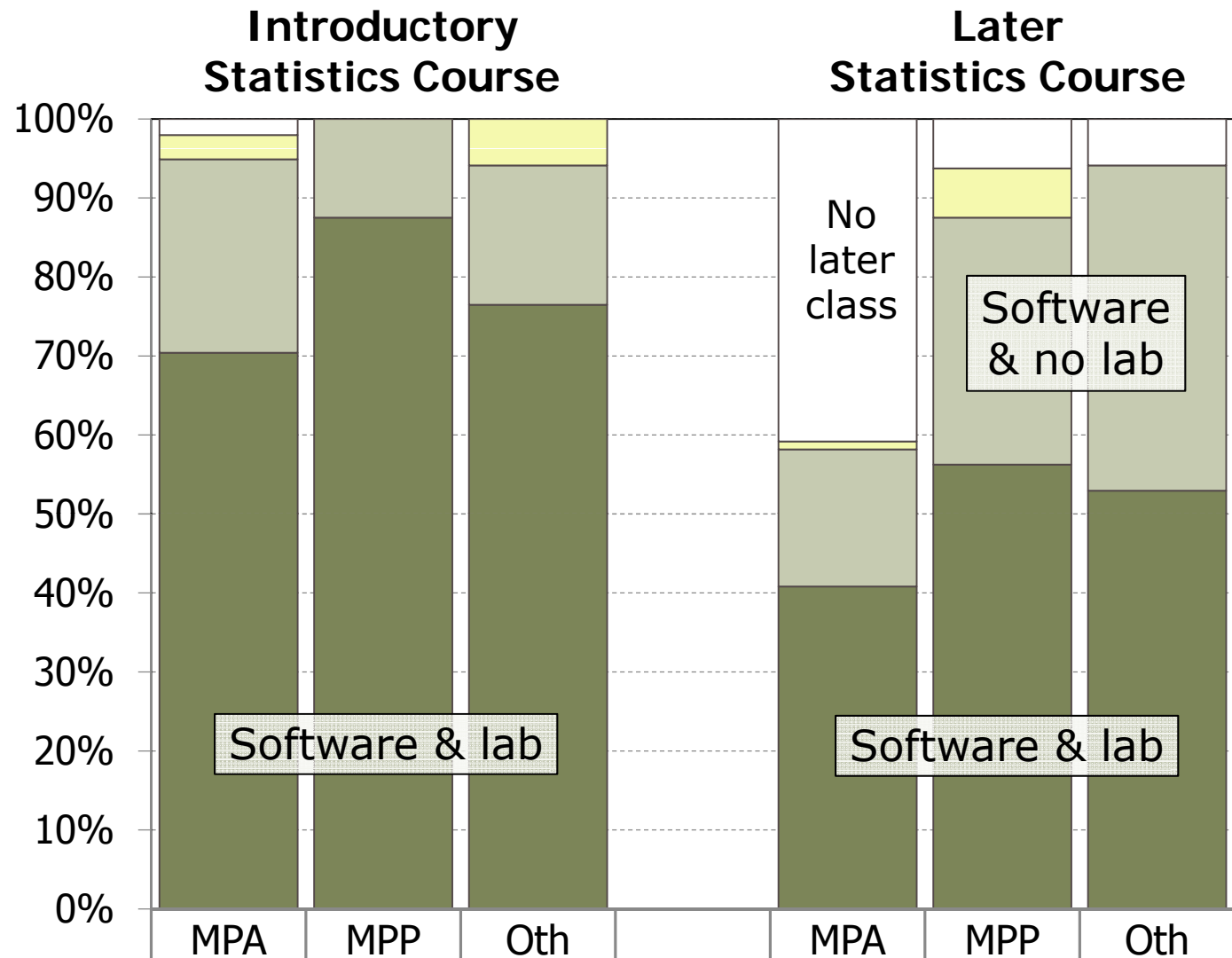## Introductory Statistics Course

Percent of Each Masters Program Type
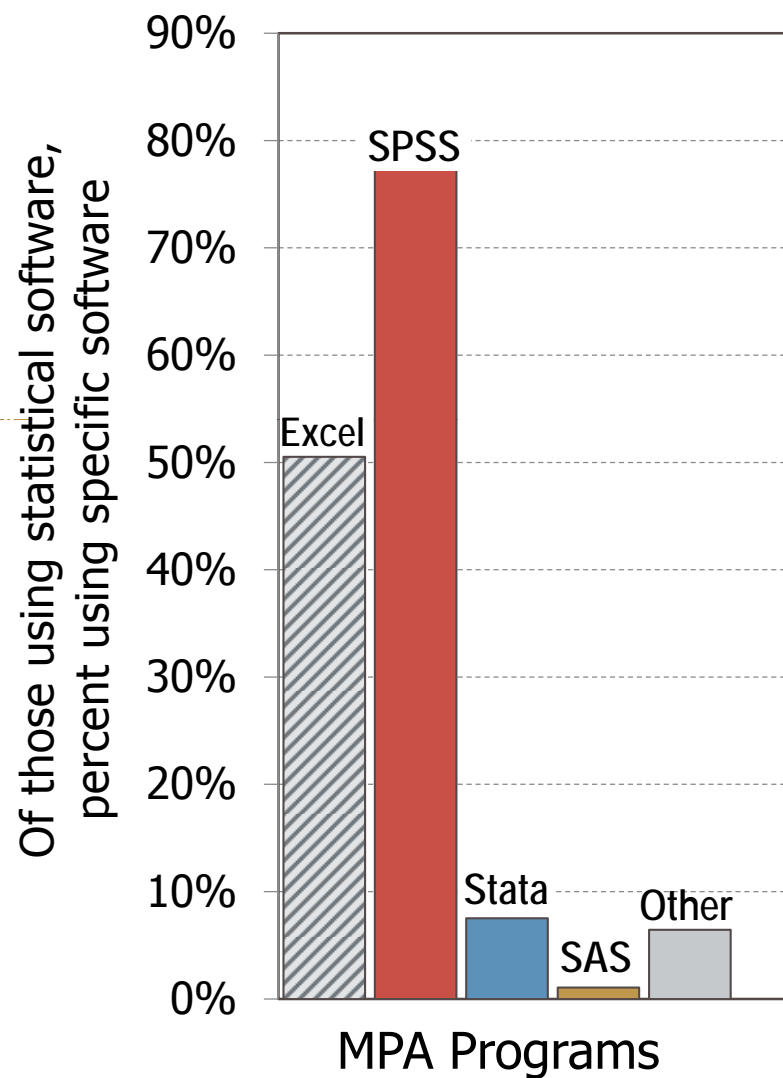MPA (n=98); MPP (n=16); Other Masters (n=17)
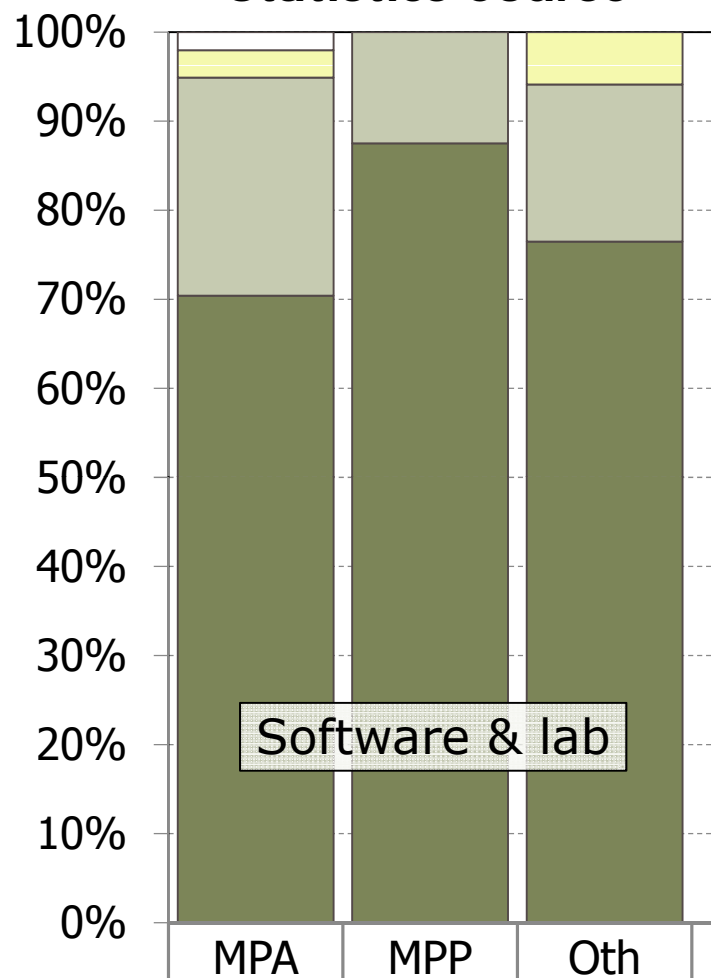
	MPA	MPP	Oth
☐ No class offered	2	0	0
☐ Class; no software	3	0	1
☐ Software; no lab	24	2	3
■ Software & lab	69	14	13

Introductory Statistics Course

Later Statistics Course

Percent of Each Masters Program Type
MPA (n=98); MPP (n=16); Other Masters (n=17)

No later class

Software & no lab

Software & lab

Software & lab

	MPA	MPP	Oth		MPA	MPP	Oth
☐ No class offered	2	0	0		40	1	1
☐ Class; no software	3	0	1		1	1	0
▣ Software; no lab	24	2	3		17	5	7
■ Software & lab	69	14	13		40	9	9

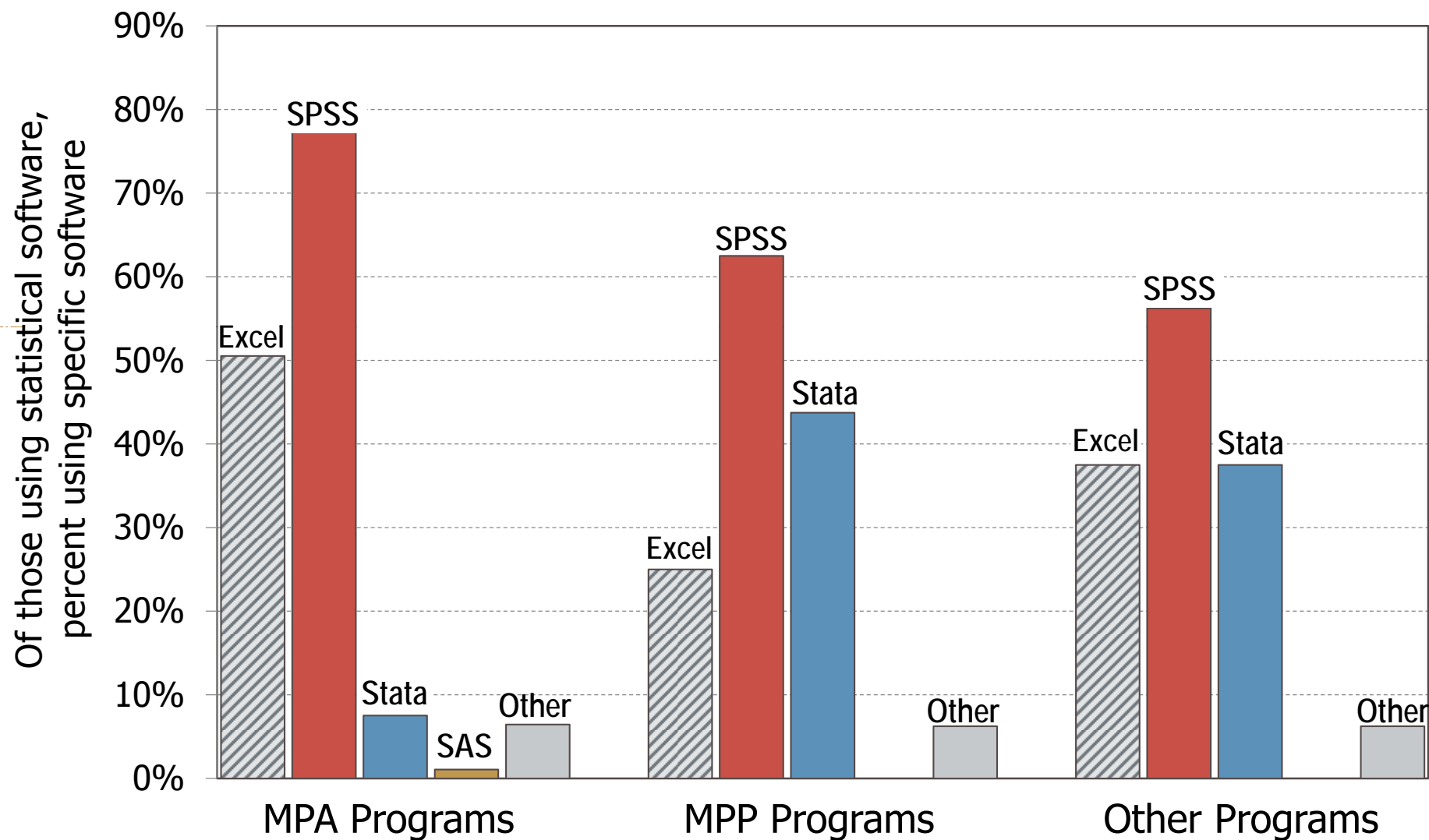# Introductory Statistics Course

Note: Totals for each type of Masters program sum to more than 100% because some courses employ more than one statistical software package; most often SPSS is coupled with Excel.
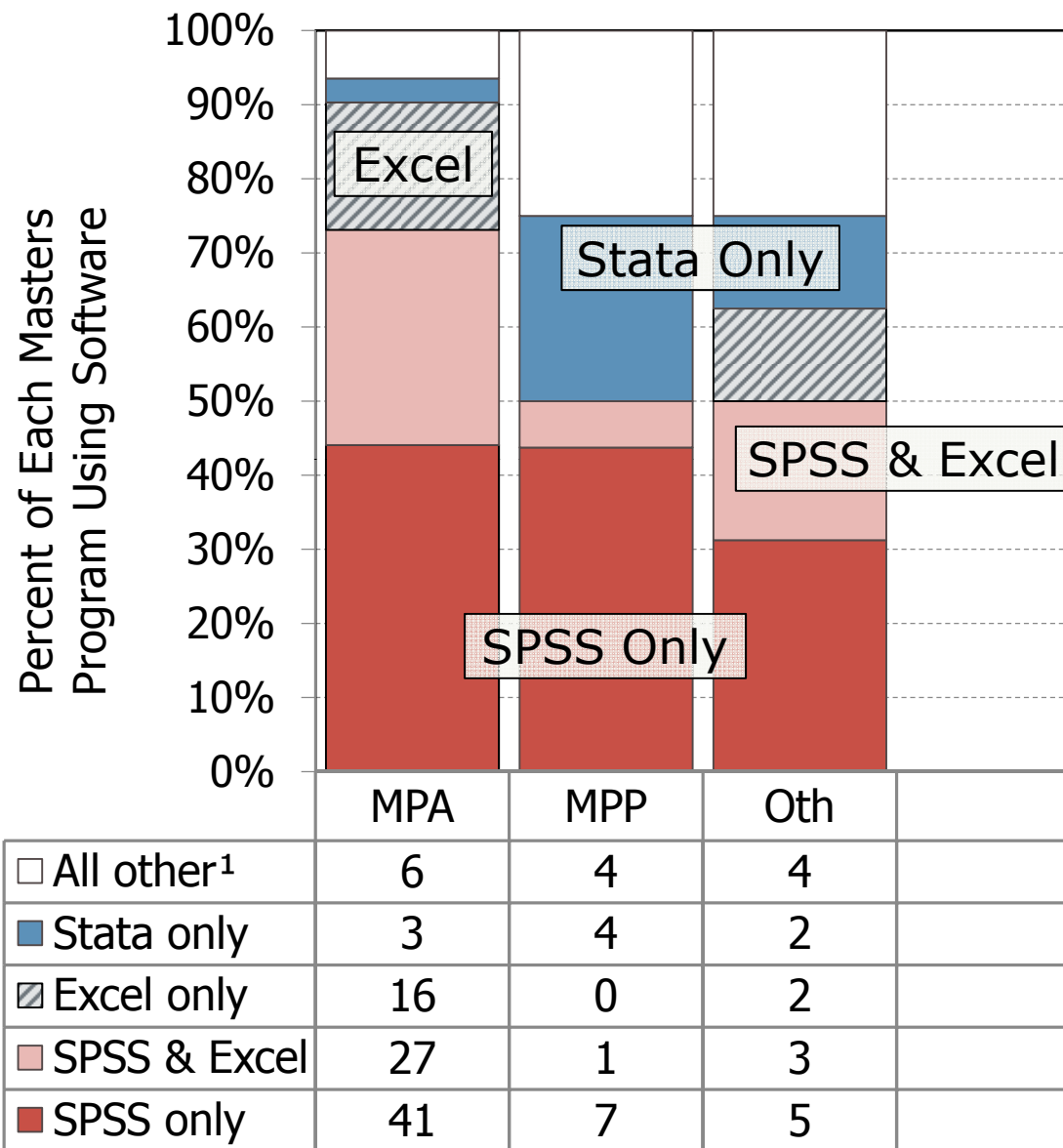
Introductory Statistics Course

Note: Totals for each type of Masters program sum to more than 100% because some courses employ more than one statistical software package; most often SPSS is coupled with Excel.

Introductory Statistics Course
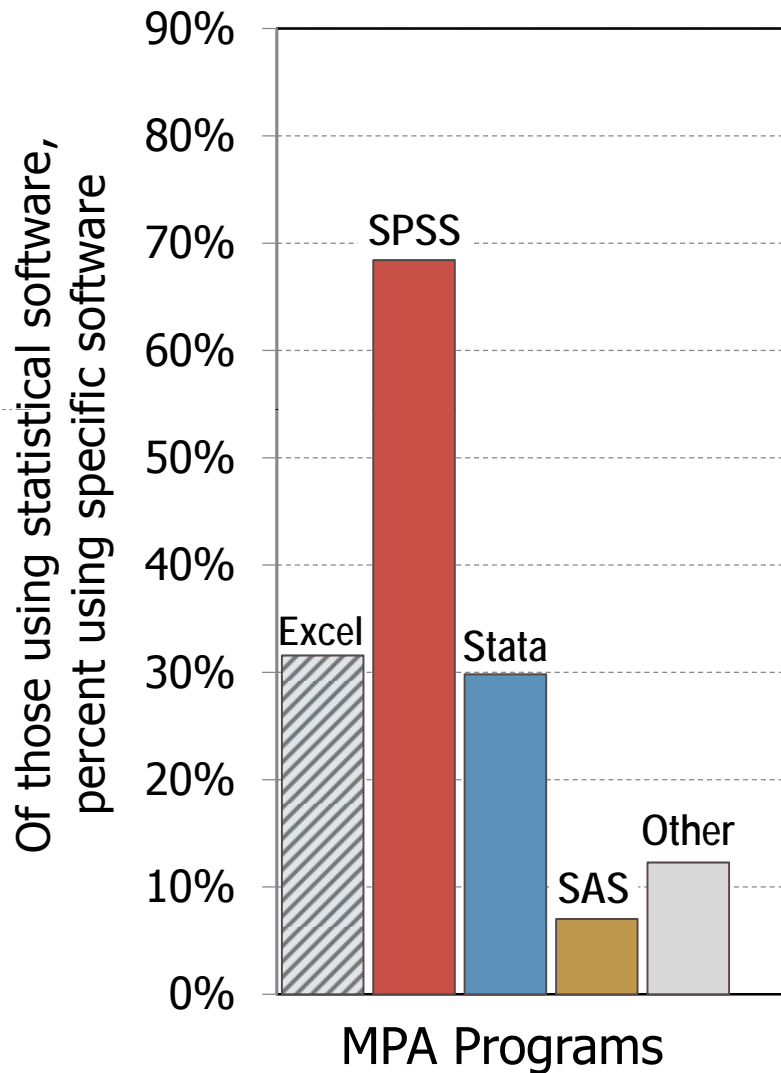

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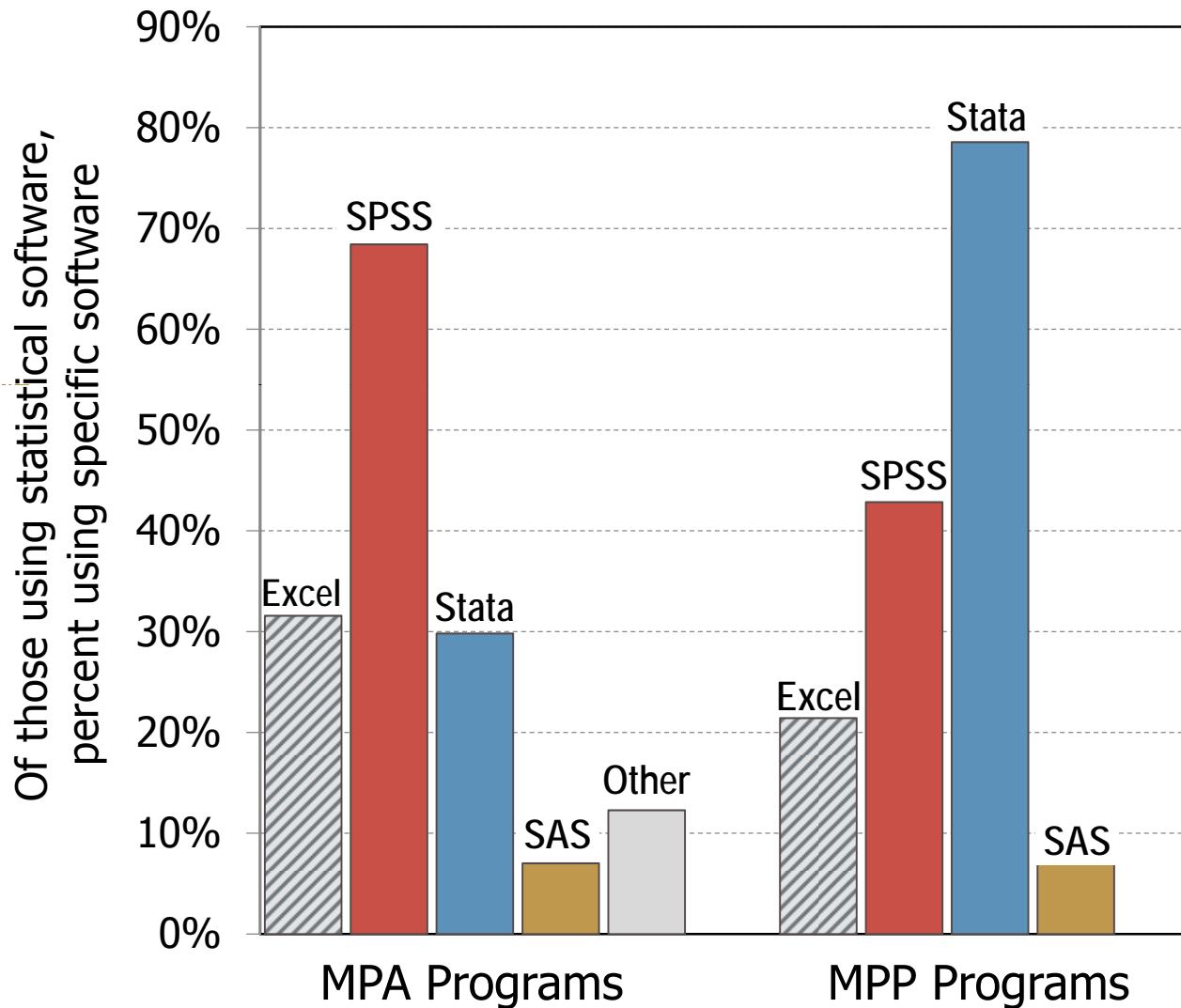
Introductory Statistics Course

Percent of Each Masters Program Using Software

Excel

Stata Only

SPSS & Excel

SPSS Only

	MPA	MPP	Oth	
☐ All other¹	6	4	4	
■ Stata only	3	4	2	
▨ Excel only	16	0	2	
▨ SPSS & Excel	27	1	3	
■ SPSS only	41	7	5	

¹ Note: "All other" includes other software (e.g., SAS, R) and other combinations of software; but none exceeded 3.

Later Statistics Course

MPA Programs

Of those using statistical software, percent using specific software
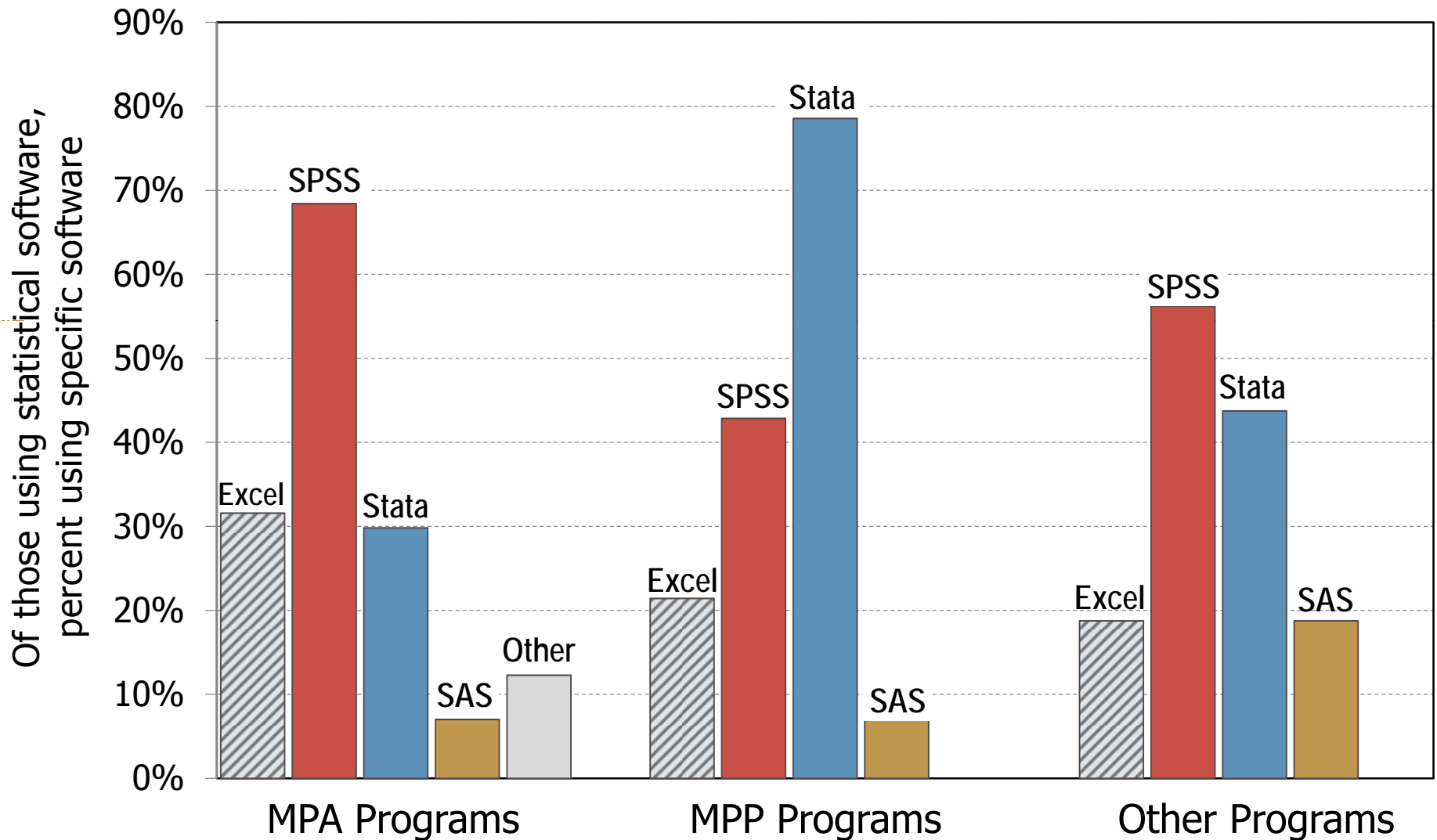
- Excel
- SPSS
- Stata
- SAS
- Other

Note: Totals for each type of Masters program sum to more than 100% because some courses employ more than one statistical software package; most often SPSS is coupled with Excel.
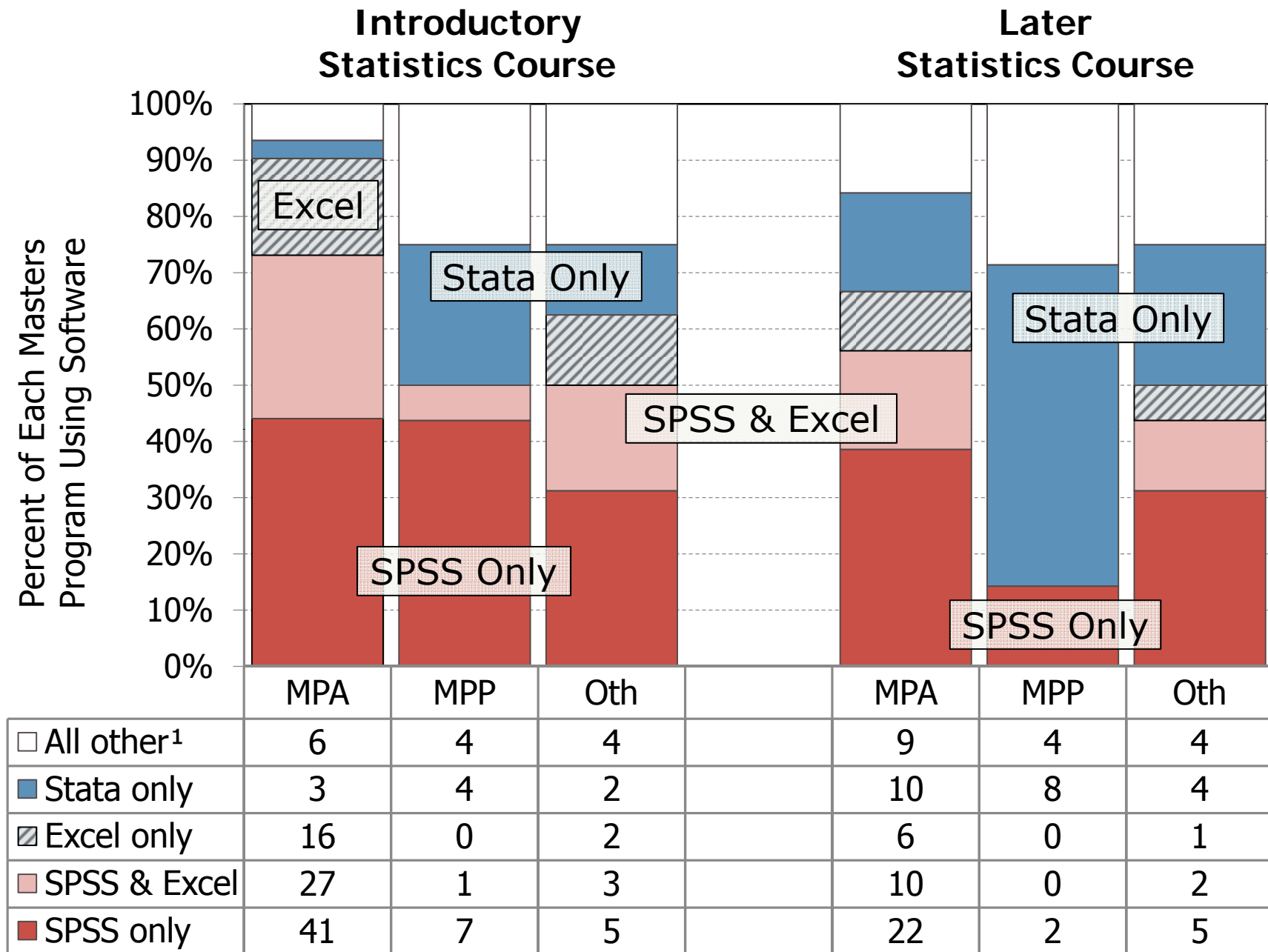
Later Statistics Course

Note: Totals for each type of Masters program sum to more than 100% because some courses employ more than one statistical software package; most often SPSS is coupled with Excel.

Later Statistics Course

Of those using statistical software, percent using specific software

90% —
80% —
70% —
60% —
50% —
40% —
30% —
20% —
10% —
0% —

MPA Programs: Excel, SPSS, Stata, SAS, Other
MPP Programs: Excel, SPSS, Stata, SAS
**Other Programs**: Excel, SPSS, Stata, SAS

Note: Totals for each type of Masters program sum to more than 100% because some courses employ more than one statistical software package; most often SPSS is coupled with Excel.
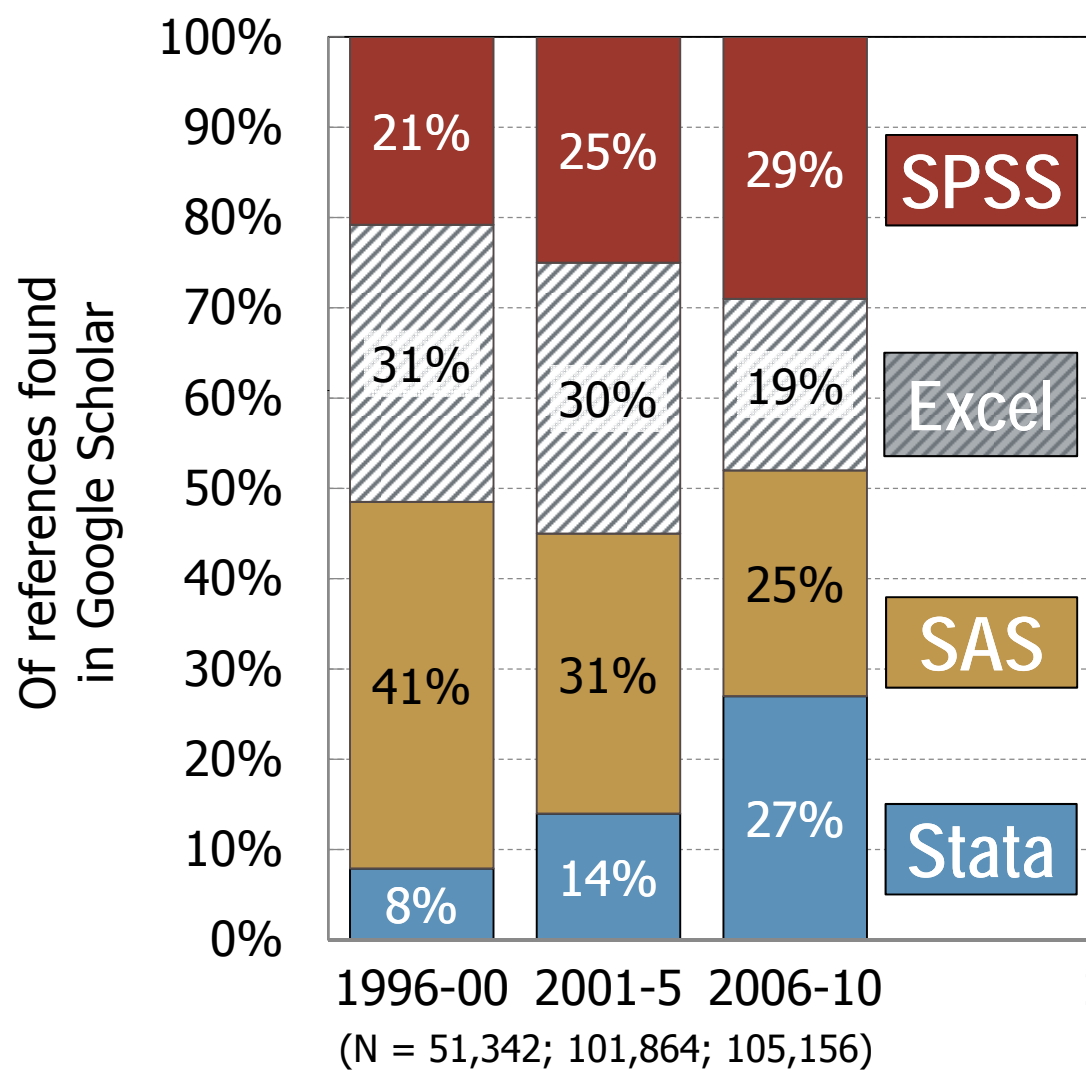
Introductory Statistics Course / Later Statistics Course

Percent of Each Masters Program Using Software

	MPA	MPP	Oth		MPA	MPP	Oth
☐ All other[1]	6	4	4		9	4	4
■ Stata only	3	4	2		10	8	4
▨ Excel only	16	0	2		6	0	1
▨ SPSS & Excel	27	1	3		10	0	2
■ SPSS only	41	7	5		22	2	5

[1] Note: "All other" includes other software (e.g., SAS, R) and other combinations of software; but none exceeded 3.
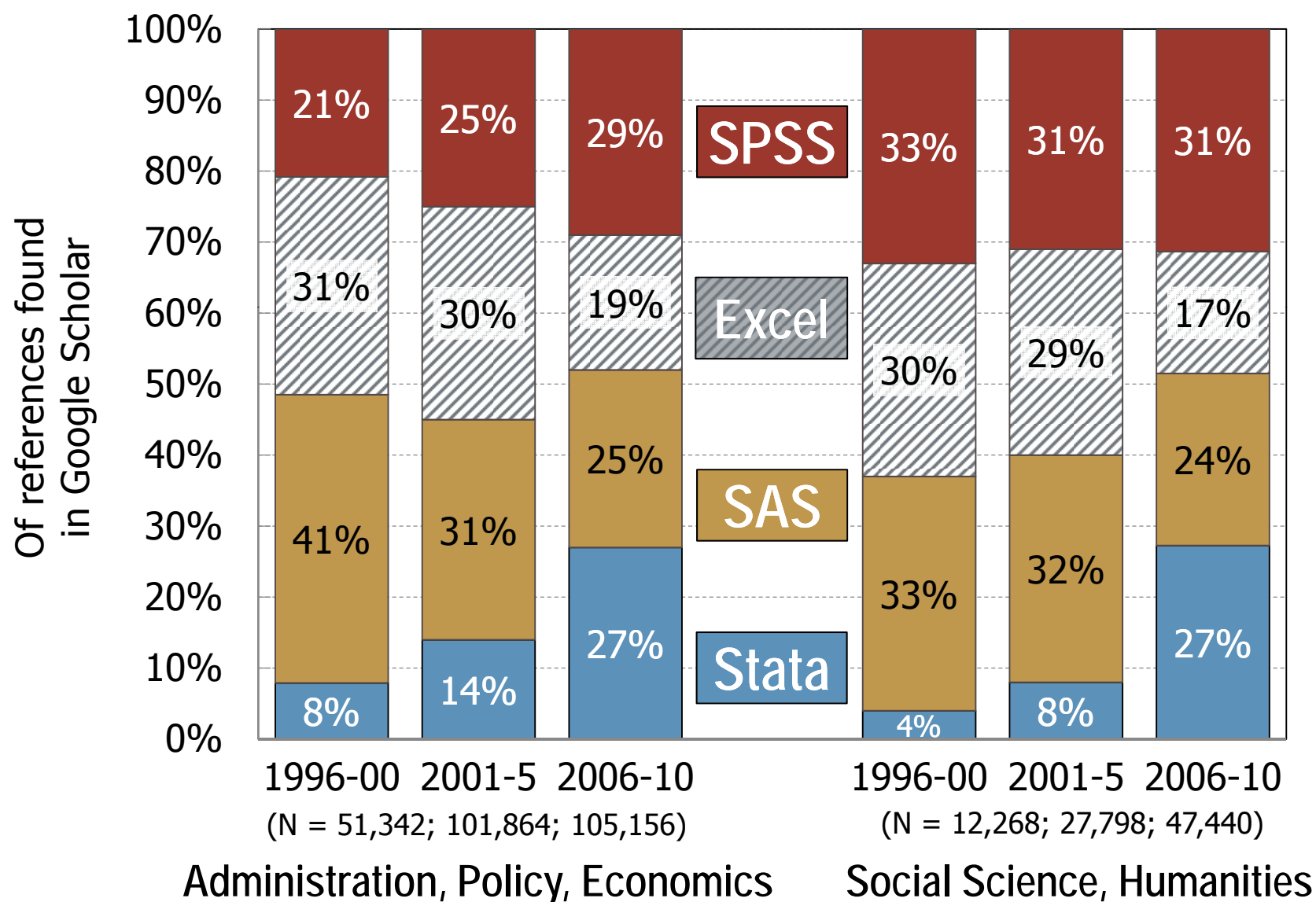
Perceived Trends in Software Importance
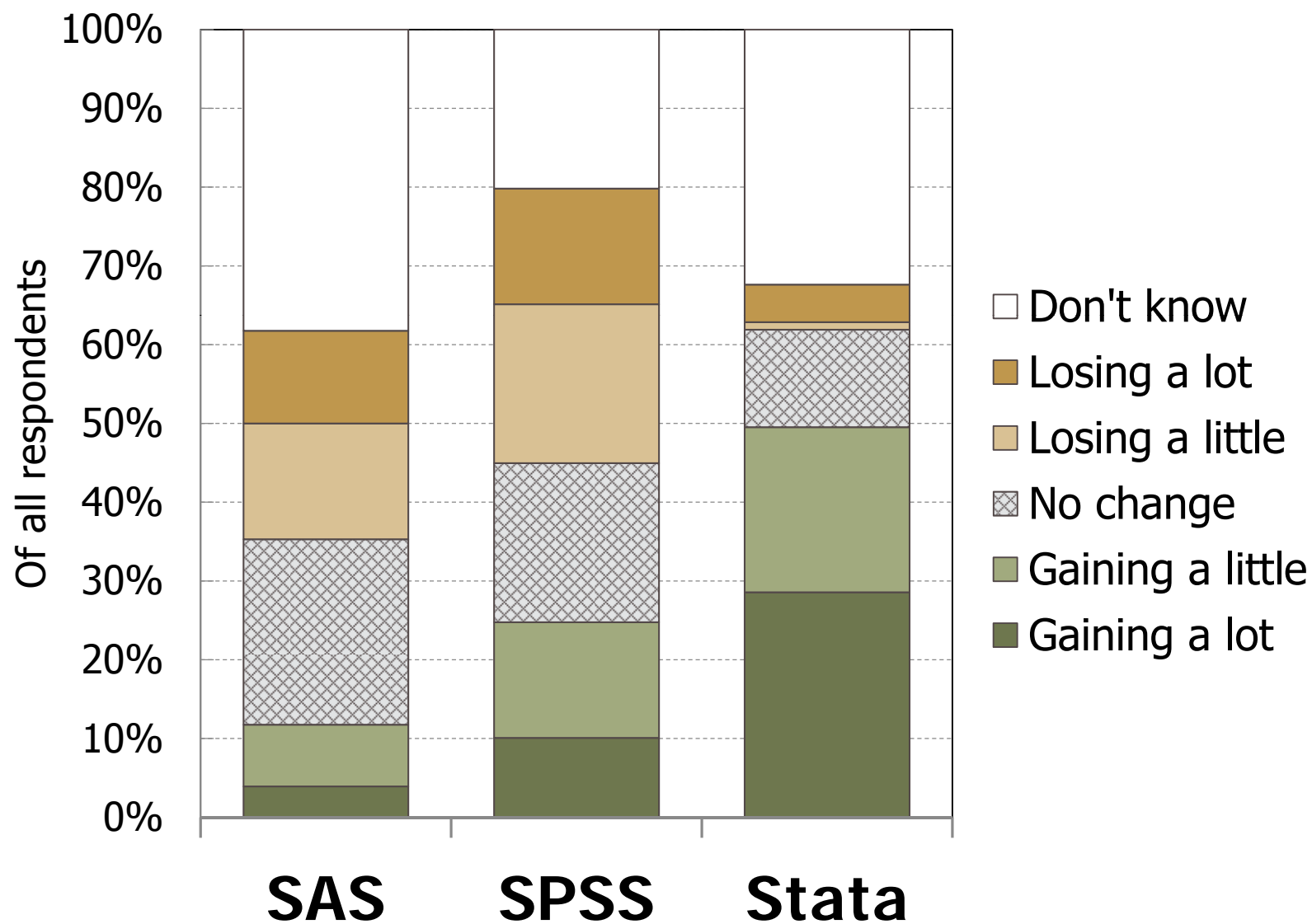
Software Trends in Google Scholar

Statistical Software for Students

Prior Research on Merits

Academic Practices

Employer Preferences

- ✓ USAJobs.gov
- ✓ Idealist.org
- ✓ 10 state govts.
- ✓ 10 city govts.
- ✓ 5 consulting firms
- ✓ 4 policy research
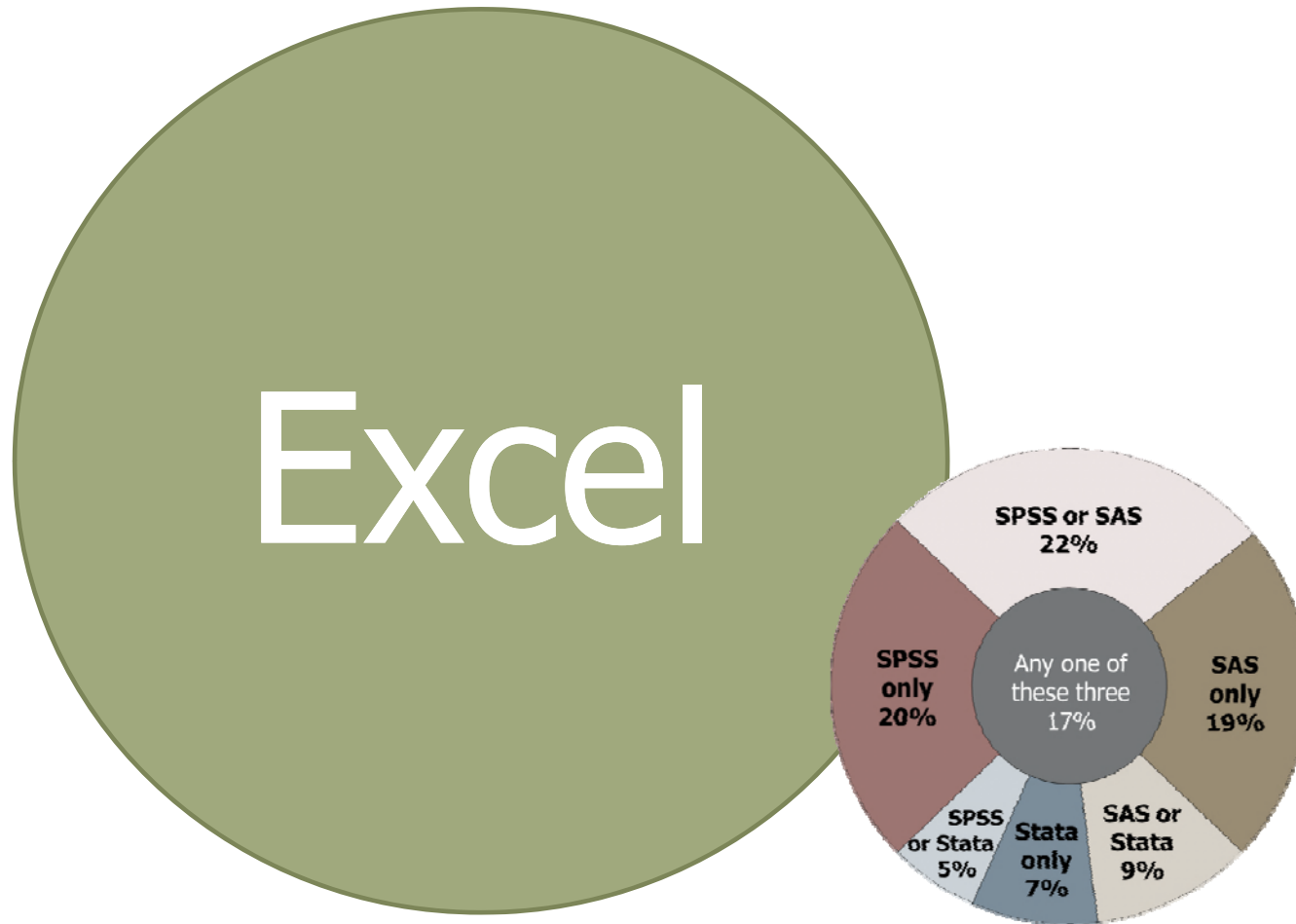
- ✓ PolicyJobs.net
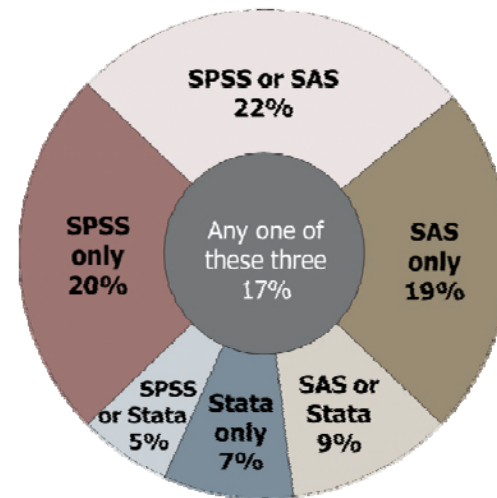- ✓ NACElink.com
- ✓ GW Trachtenberg "Career Central"

Software Skills Requested by Employers

- Specific software. Only two out of ten said "such as," "e.g.," or "etc."

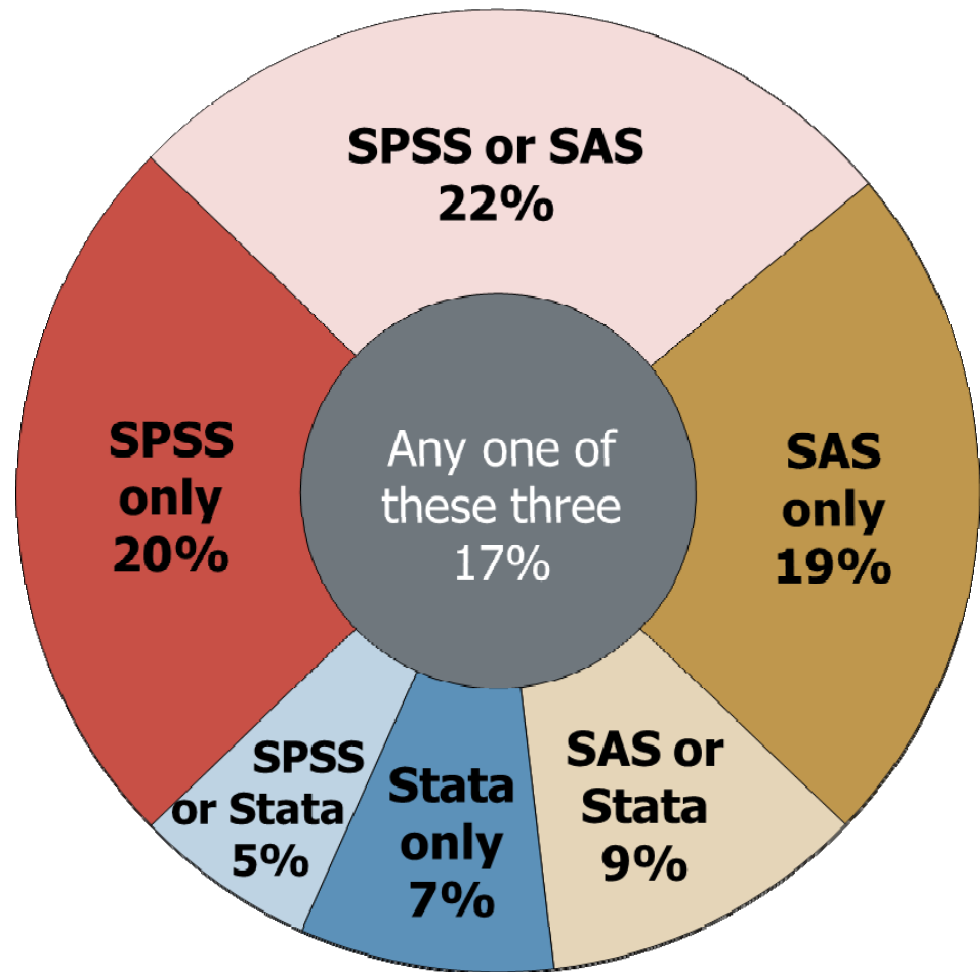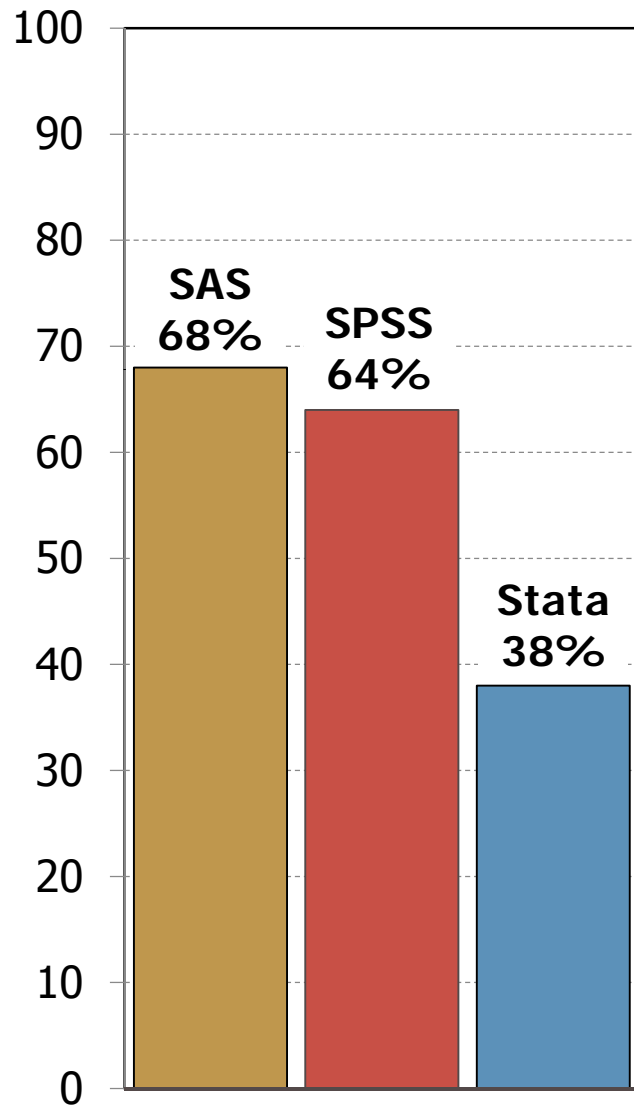- But only 2% specified "proficiency" or "mastery"; others just asked for "familiarity with" or "experience with."
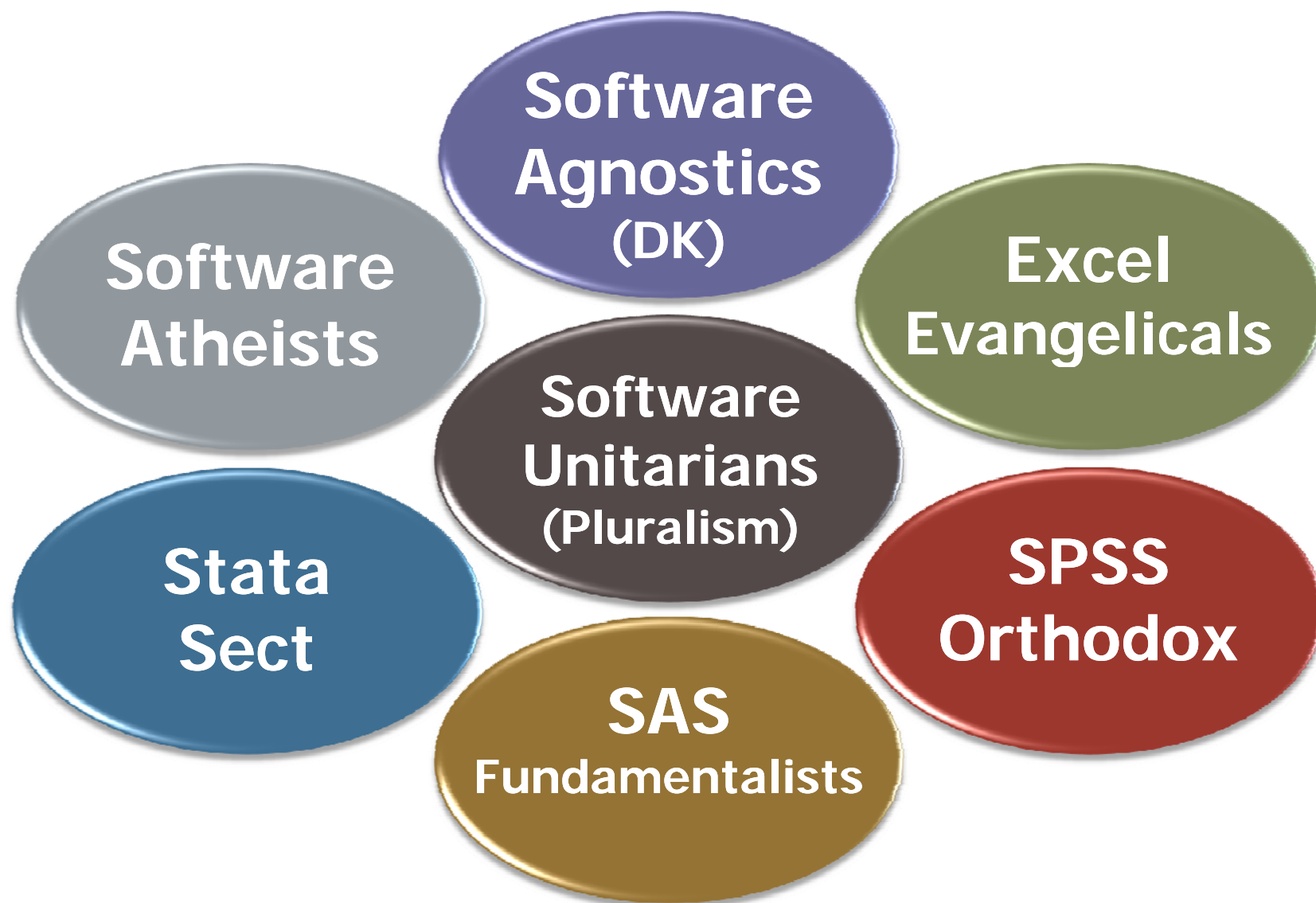
Software Skills Requested by Employers

Excel

SPSS or SAS 22%

SAS only 19%

SAS or Stata 9%

Stata only 7%

SPSS or Stata 5%

SPSS only 20%

Any one of these three 17%

Software Skills Requested by Employers

Software Skills Requested by Employers

Bar chart:
- SAS 68%
- SPSS 64%
- Stata 38%

Pie chart:
- SPSS or SAS 22%
- SAS only 19%
- SAS or Stata 9%
- Stata only 7%
- SPSS or Stata 5%
- SPSS only 20%
- Any one of these three 17%

Statistical Software & Religious Differences

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Software Agnostics (DK)

Software Atheists

Excel Evangelicals

Software Unitarians (Pluralism)

Stata Sect

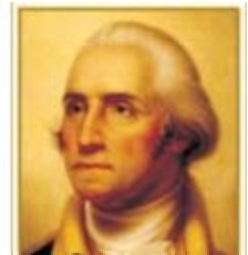SPSS Orthodox

SAS Fundamentalists

Modal Type: GW Trachtenberg MPA & MPP

- Intro budget & finance: Lab & <u>Excel</u>

- Later budget & finance (MPA): <u>Excel</u>

- Intro statistics (MPA/MPP): Lab & <u>SPSS</u>

- Next statistics (MPP): Lab & <u>Stata</u>

THE GEORGE WASHINGTON UNIVERSITY

THE TRACHTENBERG SCHOOL OF PUBLIC POLICY AND PUBLIC ADMINISTRATION

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