United States Department of Agriculture, Economic Research Service

STAR METRICS Statistical Study
Preliminary Results

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STAR METRICS institutions are representative of the whole

STAR METRICS institutions come from a wide range of institutions.

This range includes schools with $1M in annual federal research awards (typical for the population as a whole). It also includes leading research universities with more than $100M in annual federal R&D funds.

Together, SM institutions accounted for 25% of $40B total federal R&D expenditures at universities in 2011.

STAR METRICS is a new measurement of STEM workforce

STAR METRICS is different than the HERD Survey

[HERD: Higher Education Research and Development Survey, NSF/NCSES]

- STAR METRICS shows more individuals supported by federal funds
- STAR METRICS shows a different composition of jobs

Estimated differences are ***not*** an artifact of sample selection

- SM/Other institutions show the same relationship to HERD data
- SM institutions show a different relationship with SM data

STAR METRICS provides more information about graduate, undergraduate, and other researchers in the STEM pipeline

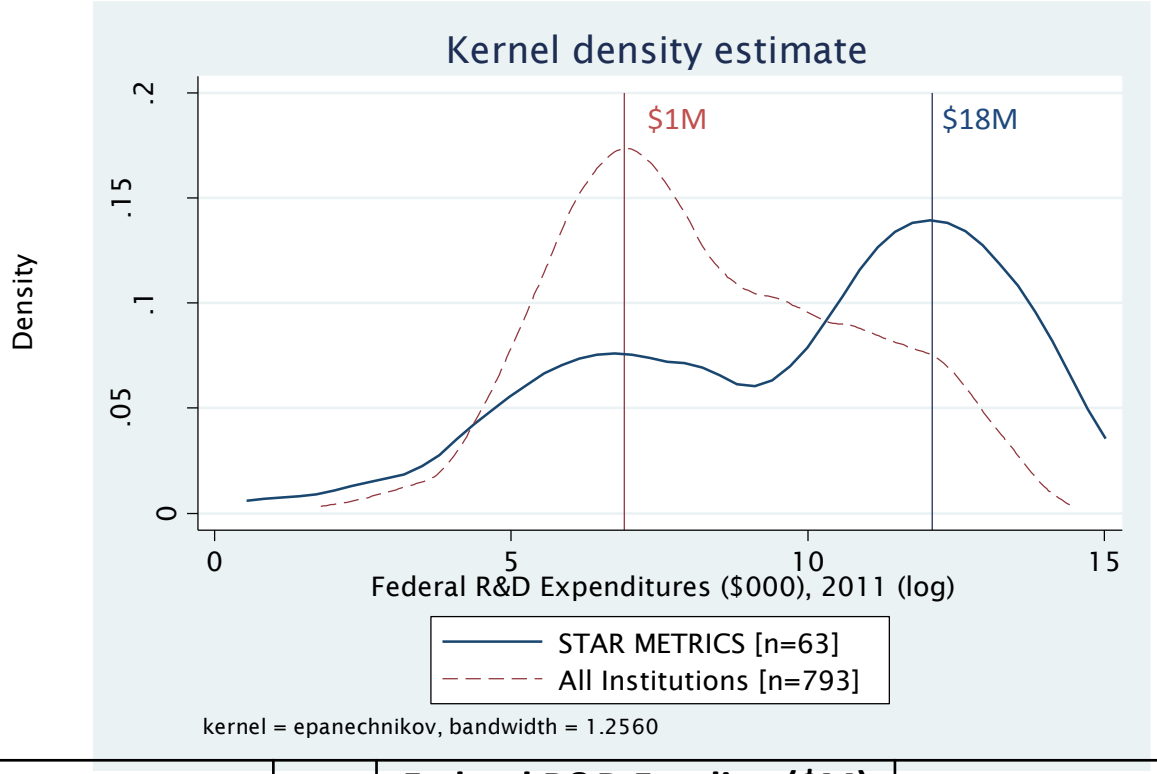
STAR METRICS data are rich, complex, and largely untapped

Data permit numerous model specifications that require significant exploration

Institution-level analysis does not use all available information

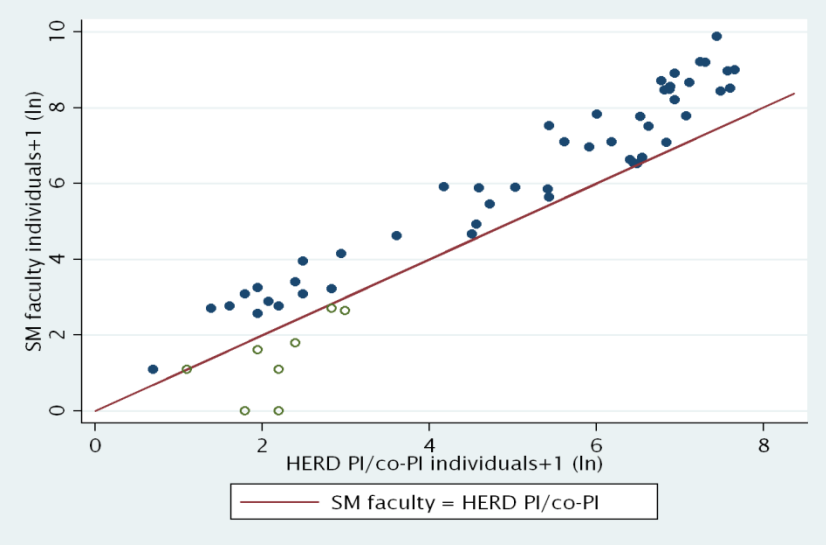
- Analysis at the award/individual/research network levels
- Links to research outputs such as publications, patents, innovations, firm creation

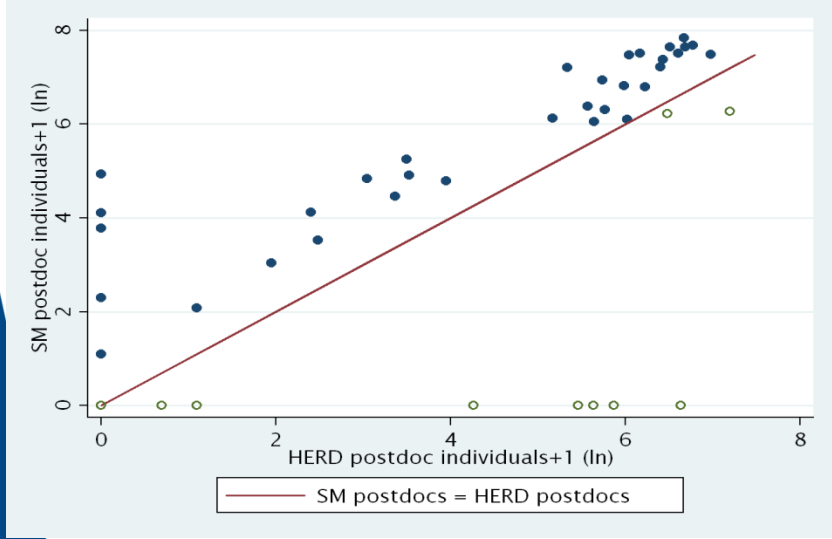
Are SM universities representative?



Year 2011	N	Federal R&D Funding ($M)			Sum ($M)	% of HERD Total (est. $40,765M)
		Median	Mean	SD		
SM Institutions	63	41.9	162.1	216.3	10,212	25.1%
HERD Institutions ($1M+)	800	2.5	49.9	133.2	39,939	98.0%

Differences in Measurement (I)





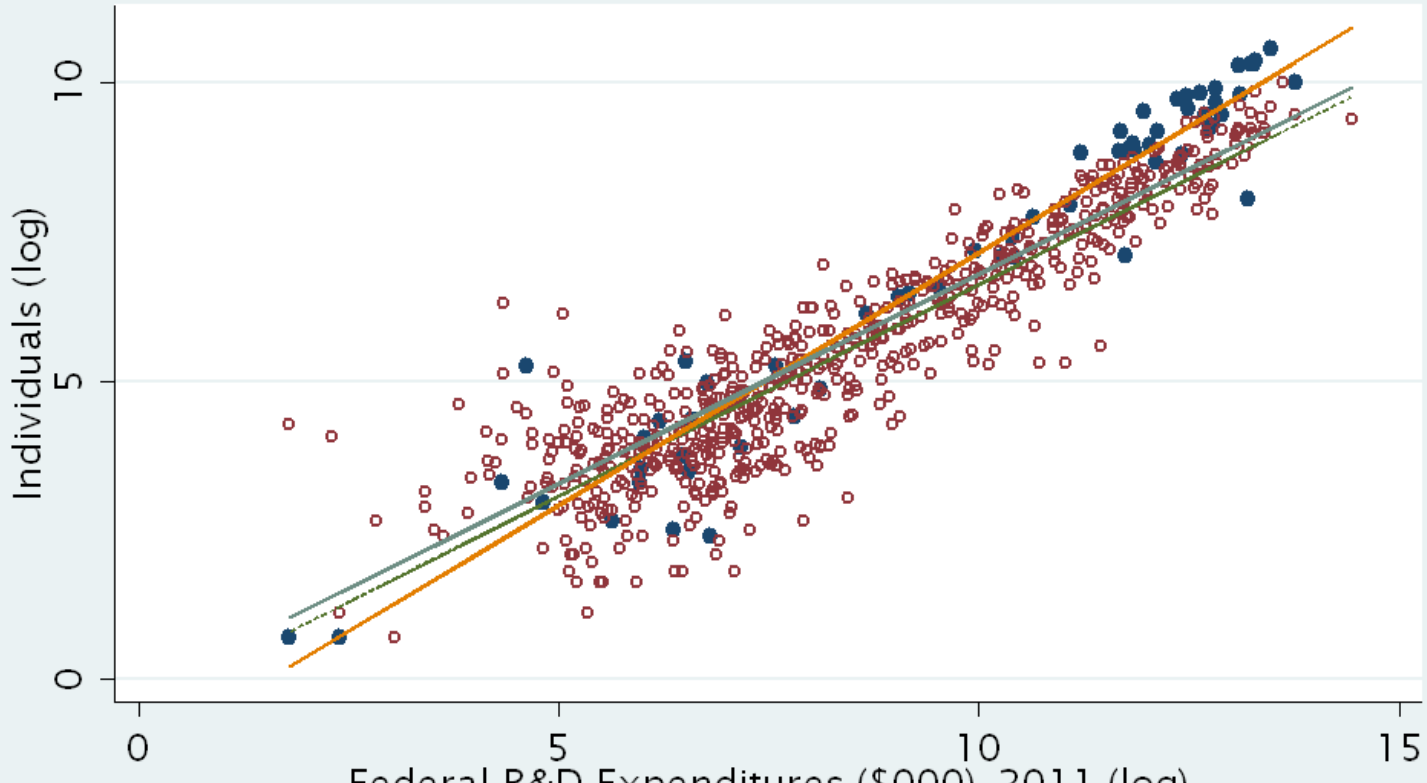
- Institution, SM greater than HERD
- Institution, SM equal to HERD
- Institution, SM less than HERD

STAR METRICS usually identifies more individuals supported by federal awards at each institution than HERD

Totals are presented as logarithms; differences are big at high levels

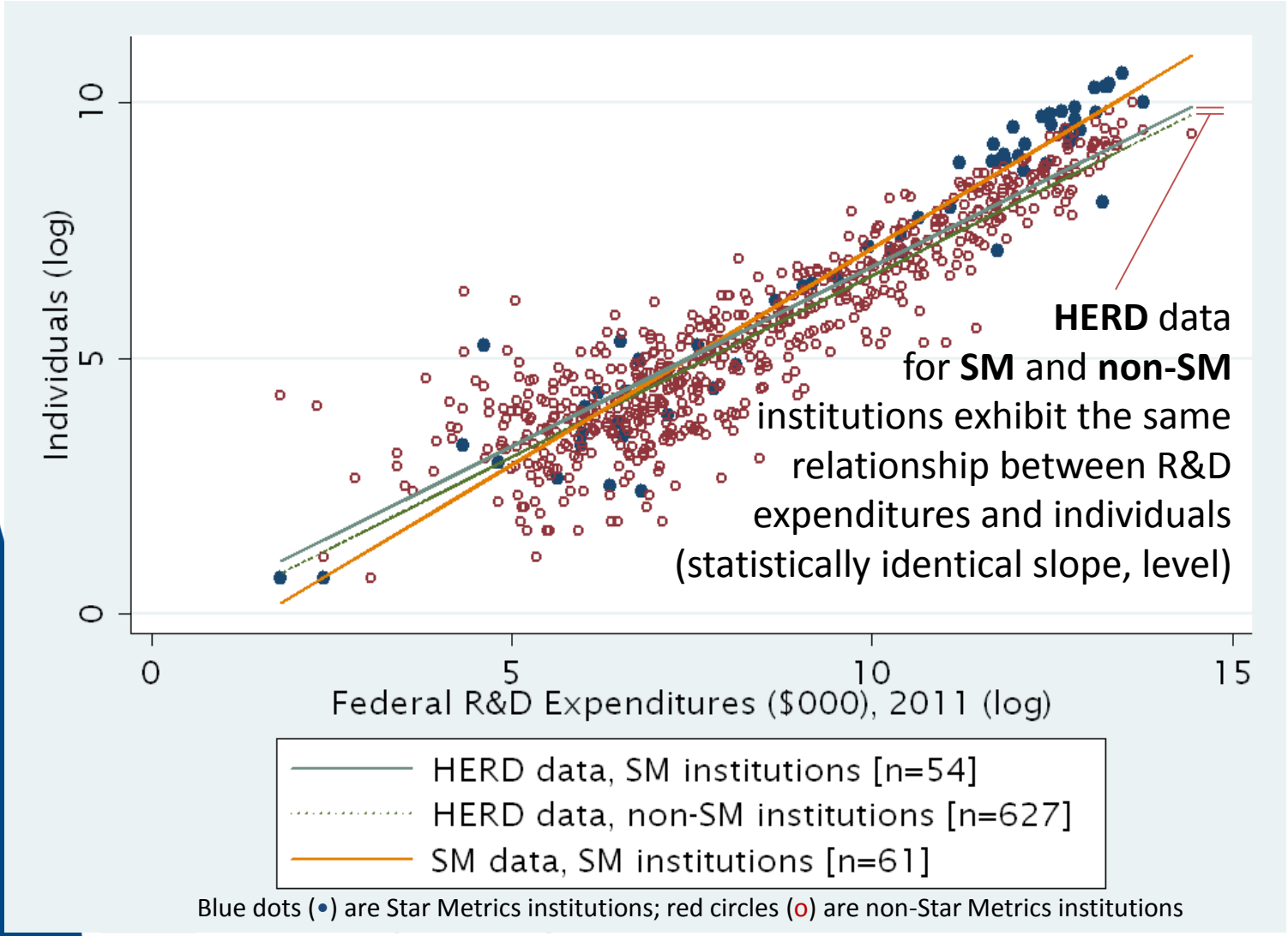
Caveat: SM measures all faculty, HERD measures PI and co-PI faculty; but effect is similar for postdoc individuals

Differences in Measurement (II)



Blue dots (•) are Star Metrics institutions; red circles (o) are non-Star Metrics institutions

Differences in Measurement (II)



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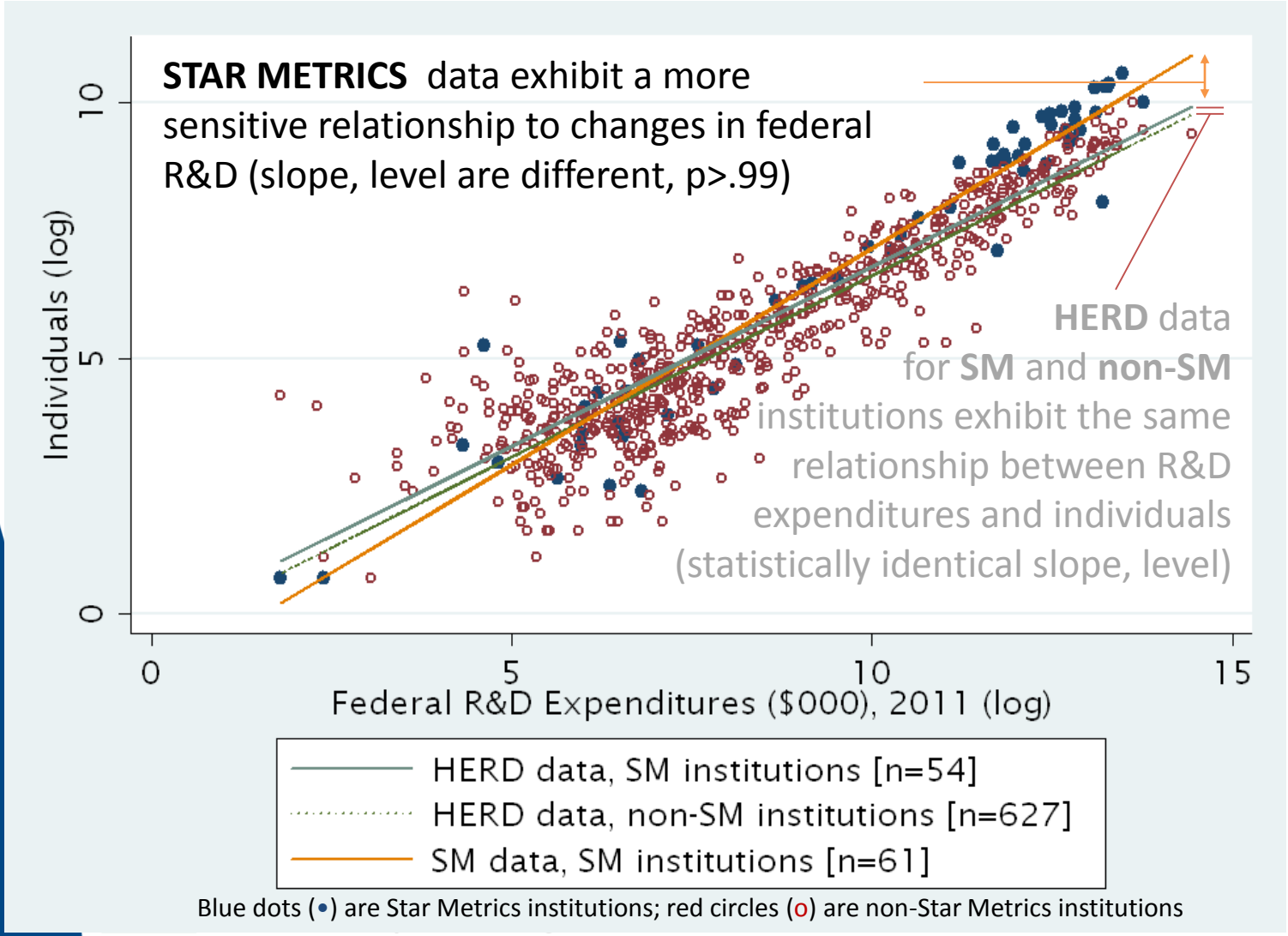

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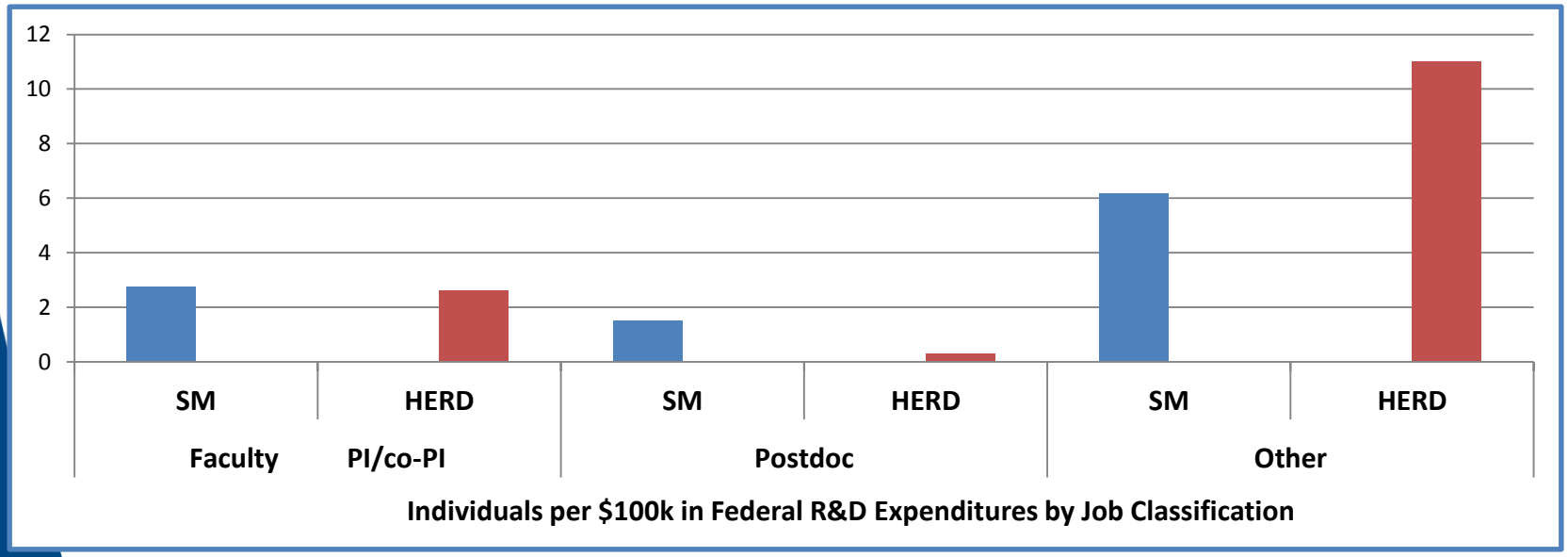
Differences in Measurement (III)



Composition of scientific workforce supported by federal R&D

- SM Postdoc employment per $100k is higher;
- SM 'Other' employment per $100k is lower.
- Remember: SM sample drawing from higher-funded institutions

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