Child poverty by local school district and allocation of federal Title 1 funding

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Overview: research questions & method

- (Dis)agreement between confidentiality-protection approaches for estimates of local school district:
  - <u>poverty count</u> in age 5-17 child population, and
  - <u>qualification for</u> and <u>amount of</u> federal Title 1 funding ($15.5 billion in FY17)?

- Build rough, shared model of outcomes using district files, SAIPE child poverty rates, and program rules.

- District's child population count from DP and SF1 files.

- Characterize (dis)agreement in DP- and SF1-based estimates.

Overview: results

- District's # poor children: mean=8.6% (SD=13.2%) disagreement

- Is district qualified: little disagreement but some

- Rough $ funding to district: mean=9.0% (SD=19.5%) disagreement

- Disagreements much larger in % terms in smaller districts & states with smaller/fewer districts

Title 1: primary ed. $ for poor children
USDeptEd => states => districts => schools

Districts qualify based on the number and share of their 5-17 year-olds who are eligible. Main eligibility criterion: child poverty.

- Ignore other eligibility criteria: TANF, abuse/neglect, and foster care.
- 10,862 unified school districts. Drop 29: 0 pop. Ignore 2,757 elem. & sec. districts.

Grant types	Title 1 share	Qualify?
Basic	41%	10+ children eligible AND >2% of children
Concentration	9%	6,500+ children eligible OR >15% of children
Targeted & Educ Finance	50%	10+ children eligible AND >5% of children

Estimate district counts

#eligible = #poor = [SAIPE poverty rate] * [age 5-17 population]

2 versions of each district's [age 5-17 population]: built from standard 2010 Summary File 1 (SF1) and differentially-private data (DP).

Age 5-17 population: SF1 vs DP distributions across districts

	Mean	SD	Min	Max	25th ptile	50th ptile	75th ptile
Summary File 1	4,589.4	19,299	1	1,249,761	562	1,465	3,726
Differentially Private	4,589.6	19,349	2	1,250,387	568	1,460	3,725
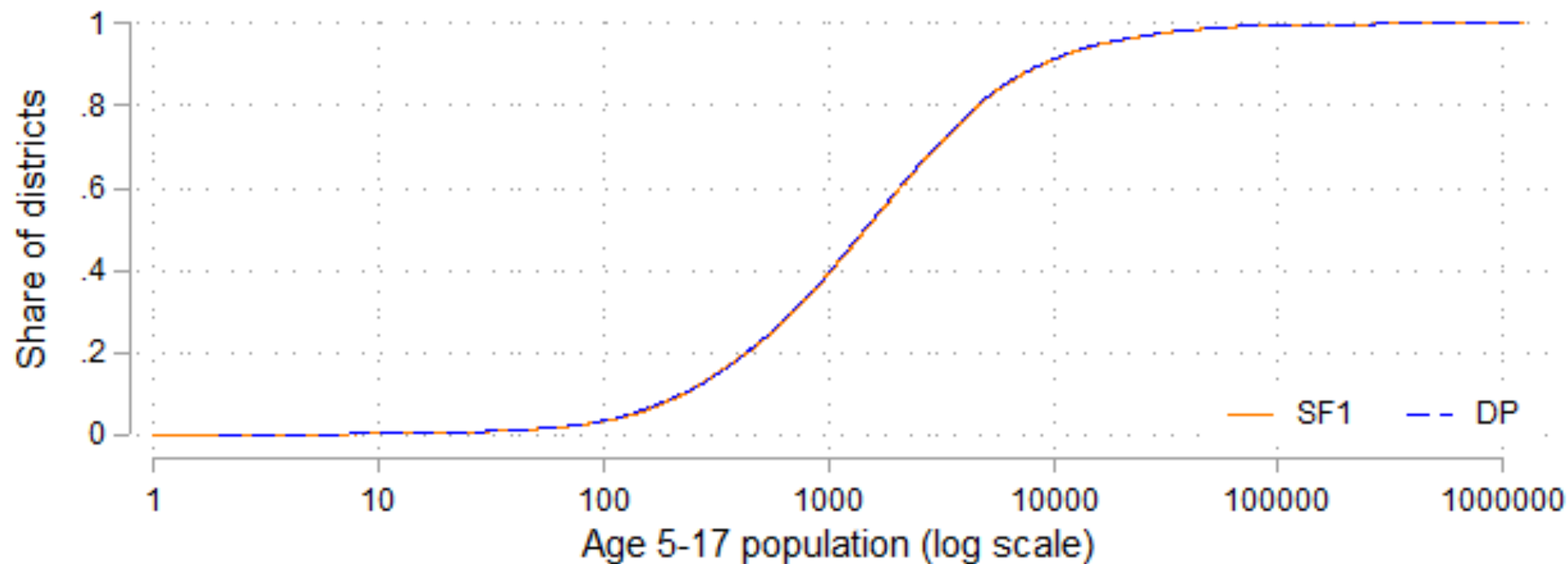
District % difference = $100*|P_{SF} - P_{DP}|/\bar{P}_{SF,DP}$:will apply shared district SAIPE poverty rate

Mean	SD	Min	Max	25th ptile	50th ptile	75th ptile
8.6	13.2	0	190.2	1.8	4.6	10.2
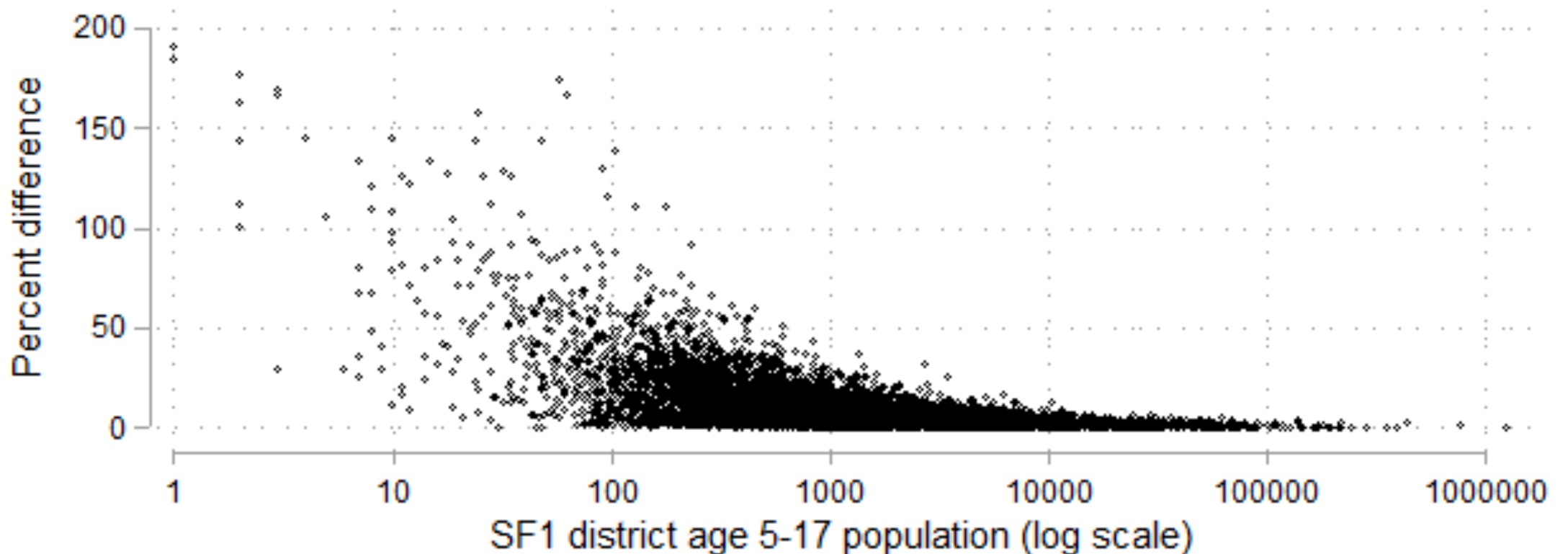
Distribution of population %-difference by district **child population** decile
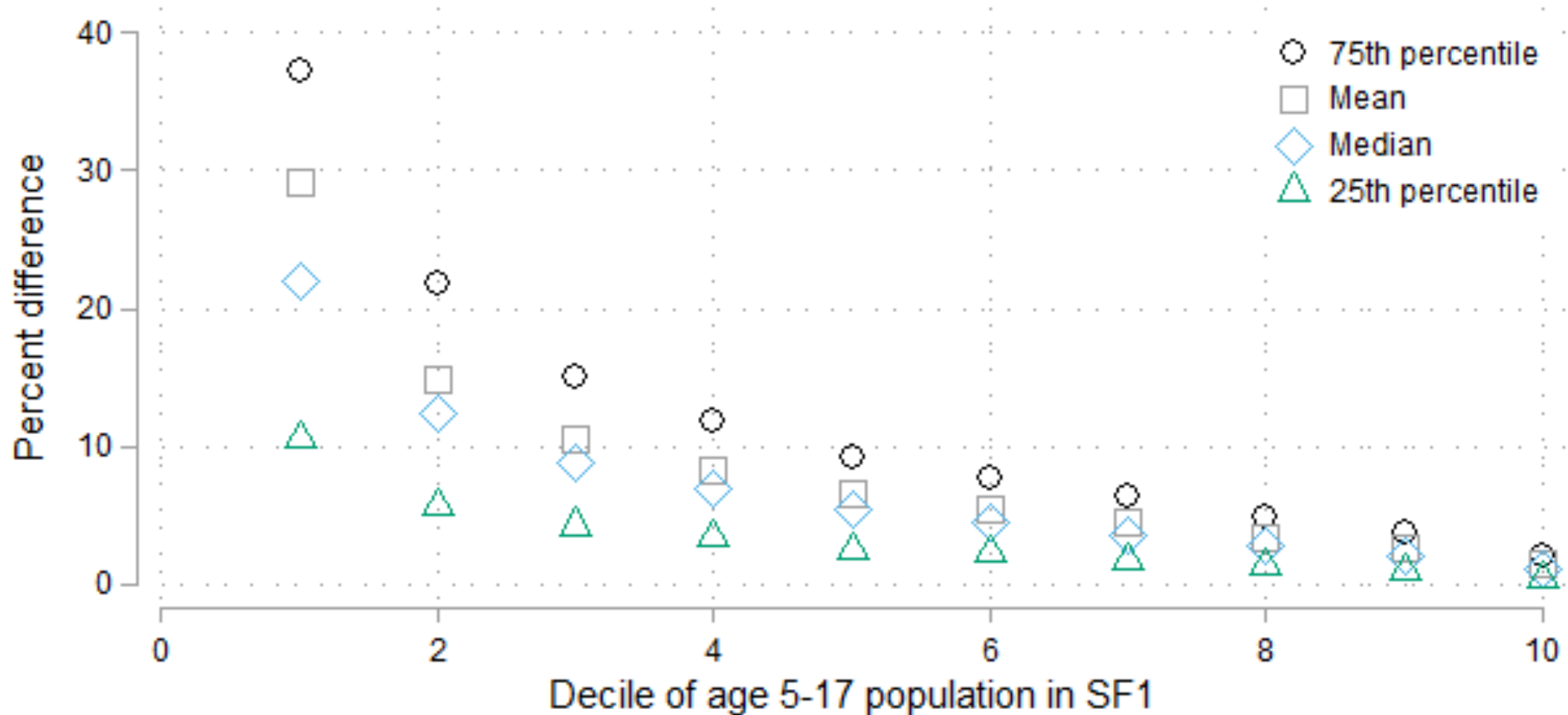
Distribution of population %-difference by district **child poverty** decile
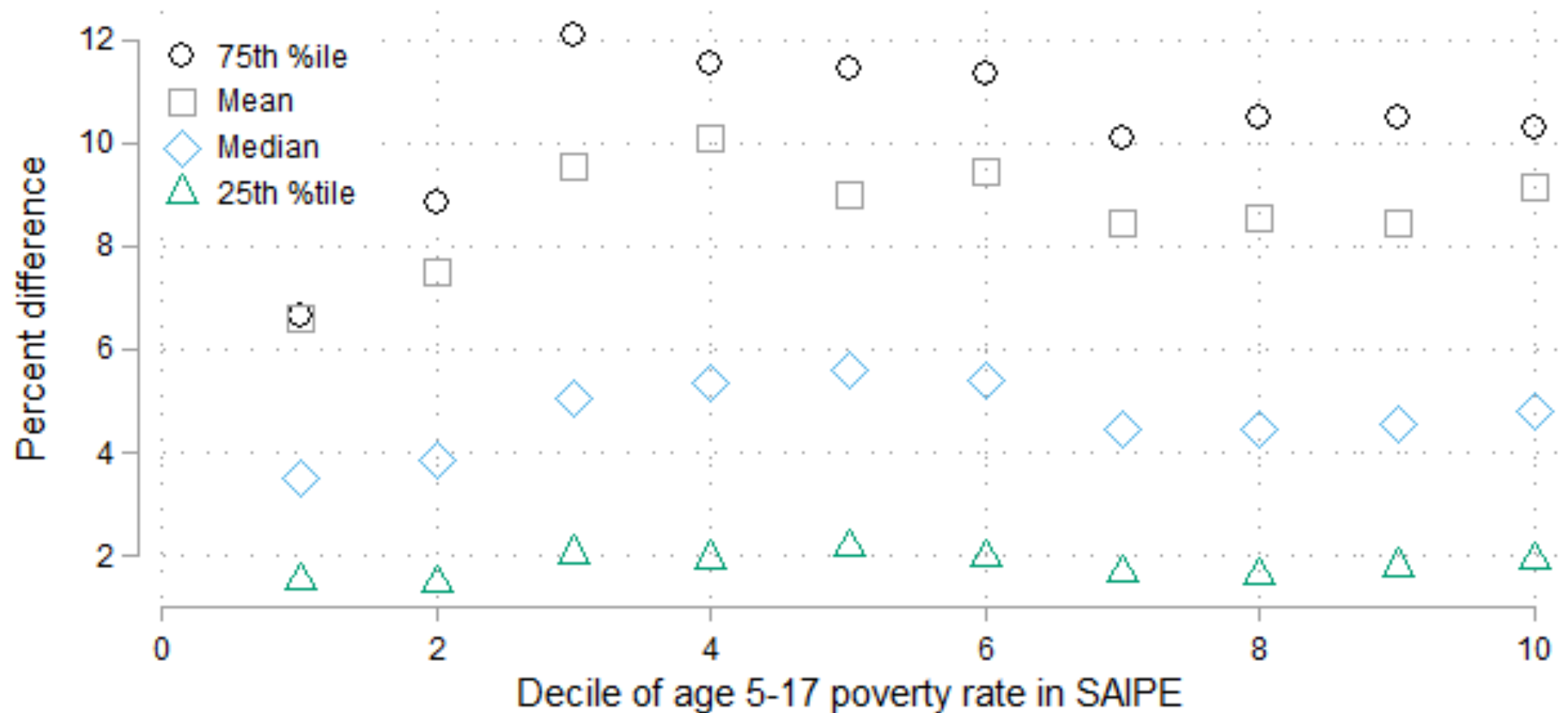
Differences in count of children in poverty
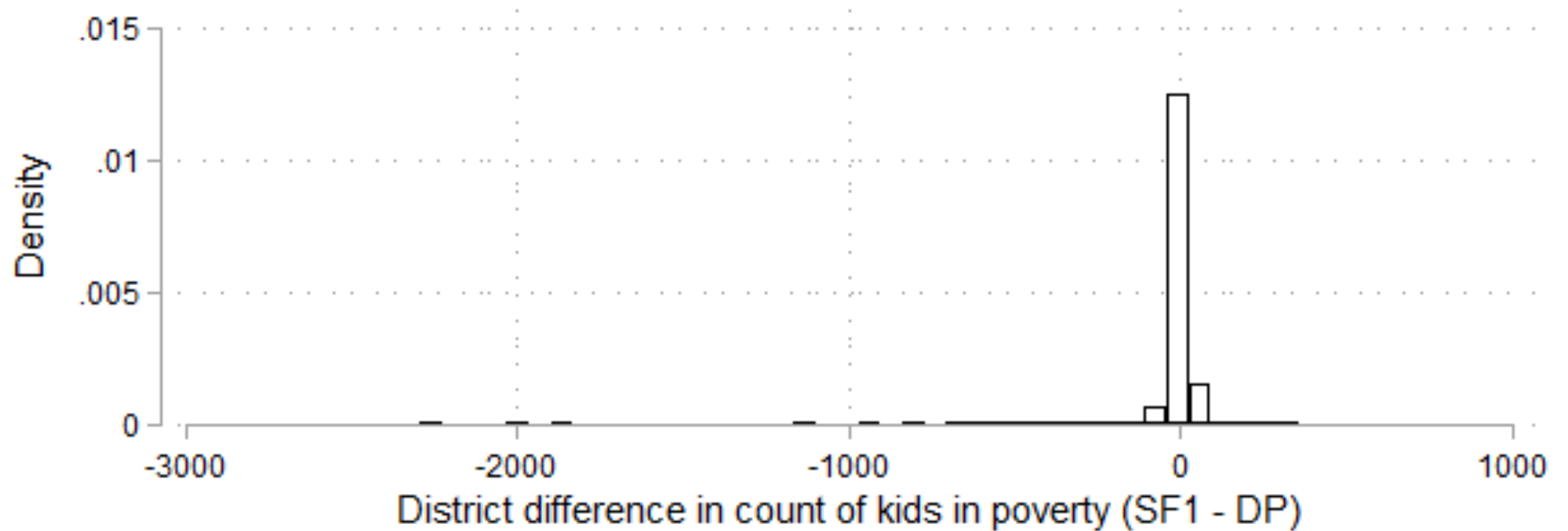
Districts' Title I qualification

Grant type	Title 1 share	Qualify?
Basic	41%	10+ children eligible AND >2% of children

		DP		
		No	Yes	Total
SF1	**No**	1.5%	0.4%	1.9%
	Yes	0.4%	97.7%	98.1%
	Total	1.9%	98.1%	

1.5/1.9 = 0.79
79% agree on No

97.7/98.1 = 0.996
99.6% agree on Yes

Districts' Title I qualification

- In bottom quintile of population, a lower share qualify for basic grant but agreement rates are similar

		DP		
		No	Yes	Total
SF1	No	7.3%	2.0%	9.3%
	Yes	2.0%	88.7%	90.7%
	Total	9.3%	90.7%	

78% agree on No

97.7% agree on Yes

Districts' Title I qualification

Grant type	Title 1 share	Qualify?
Concentration	9%	6,500+ children eligible OR >15% of children

		DP		
		No	Yes	Total
SF1	No	98.2%	0.03%	98.2%
	Yes	0.01%	1.8%	1.8%
	Total	98.2%	1.8%	

100% agree on No

99.4% of SF1 Yes= DP Yes

98.3% of DP Yes= SF1 Yes

Districts' Title I qualification

Grant type	Title 1 share	Qualify?
Targeted & Educ Finance	50%	10+ children eligible AND >5% of children

		DP		
		No	Yes	Total
SF1	No	5.0%	0.4%	5.3%
	Yes	0.4%	94.2%	94.6%
	Total	5.4%	94.6%	

94.3% agree on No

99.6% agree on Yes

Super-simple district funding model: ignores cross-district variation in per-child funding

Figure 2.1. Title I, Part A total allocation per formula-eligible child and difference between school district locales with the highest and lowest allocations, by state or jurisdiction: 2015

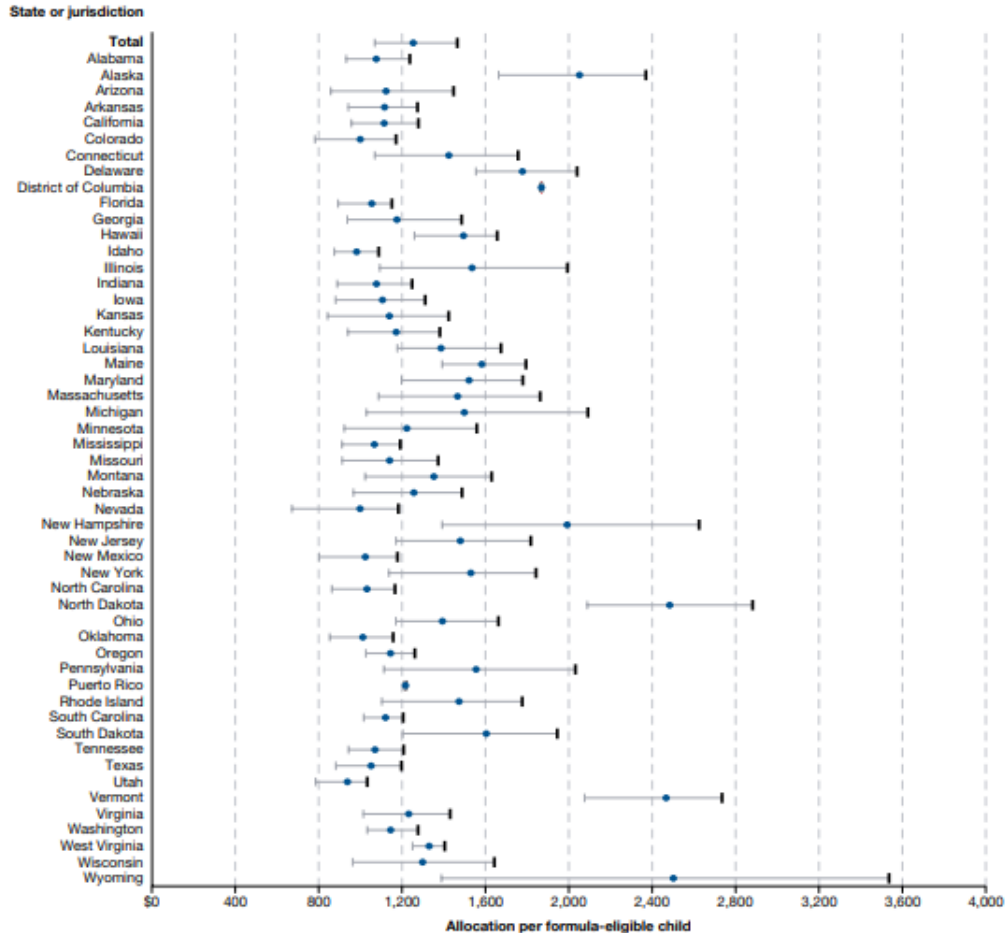Figure 2.2. Range of average Title I, Part A total allocations per formula-eligible child, by locale type: 2015

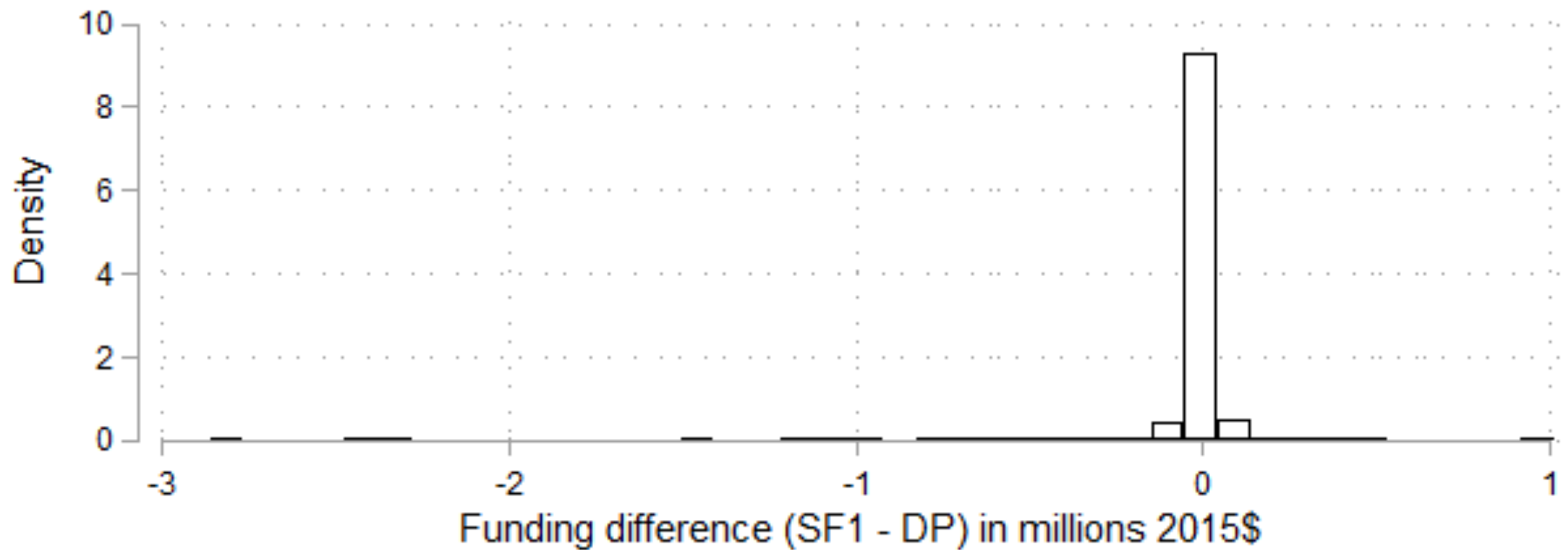Snyder, T., Dinkes, R., Sonnenberg, W., and Cornman, S. (2018). Study of the Title I, Part A Grant Program Mathematical Formulas (2019-016). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved [12/4/19] from https://nces.ed.gov/pubs2019/2019016.pdf
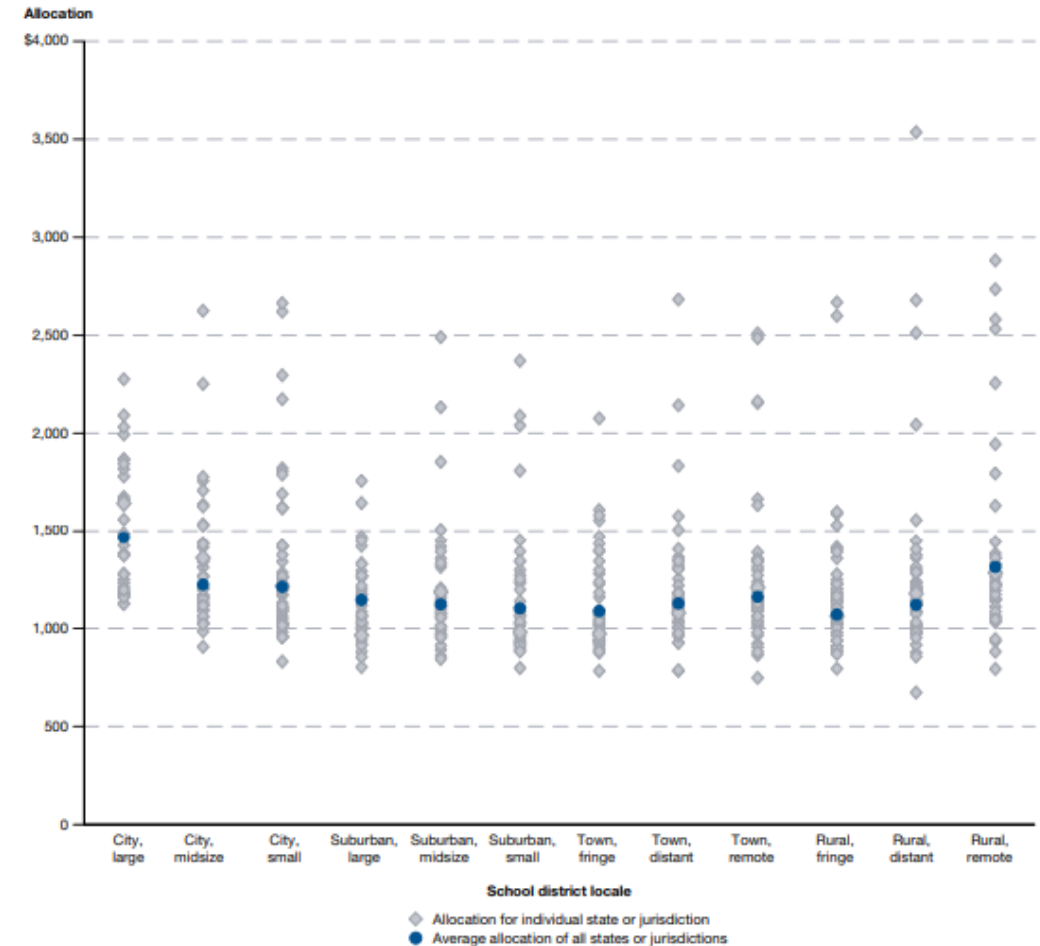
Super-simple district funding model: per-child mean by program only

$$Funding = \#Poor * [\$550 * 1(QualifyBasic) + \$134 * 1(QualifyConc.) + \$564 * 1(QualifyTargetedAndEdFin)]$$
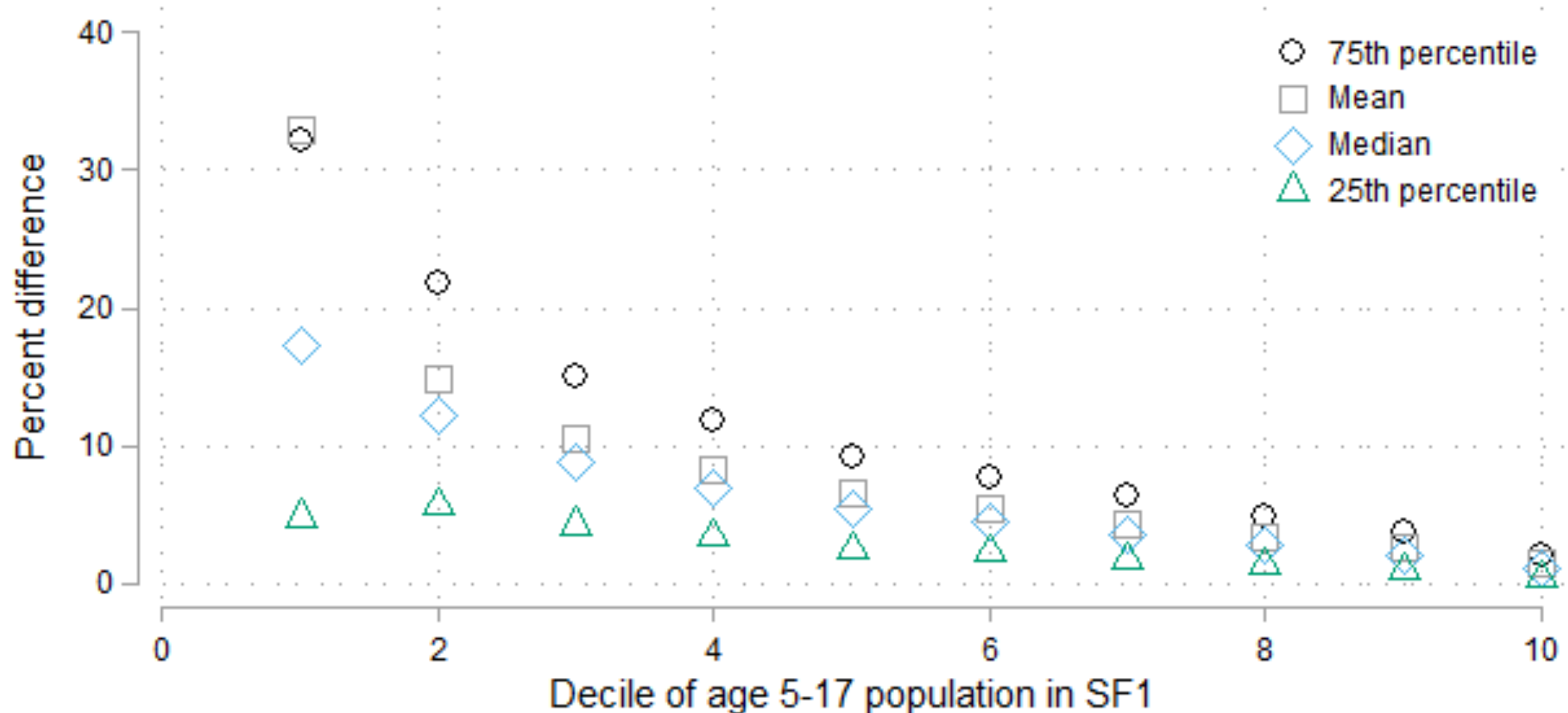
Figure 1.1. Title I, Part A total final allocation, number of formula-eligible children, and allocation per formula-eligible child, by grant type: 2015

Number of formula-eligible children

Title I total funds allocated: $14.3 billion

Basic Grant: $6.4 billion (45%)

Basic Grant: 11.6 million

Basic Grant: $550/eligible child

Concentration Grant: $1.3 billion (9%)

Concentration Grant: 10.1 million

Concentration Grant: $134/eligible child

Targeted Grant: $3.3 billion (23%)

Targeted Grant: 11.6 million

Targeted Grant: $282/eligible child

Education Finance Incentive Grant: $3.3 billion (23%)

Education Finance Incentive Grant: 11.6 million

Education Finance Incentive Grant: $282/eligible child

Title I total allocation per formula-eligible child: $1,227

Total allocation and percentage of Title I total funds allocated[1]

Allocation per formula-eligible child[1]

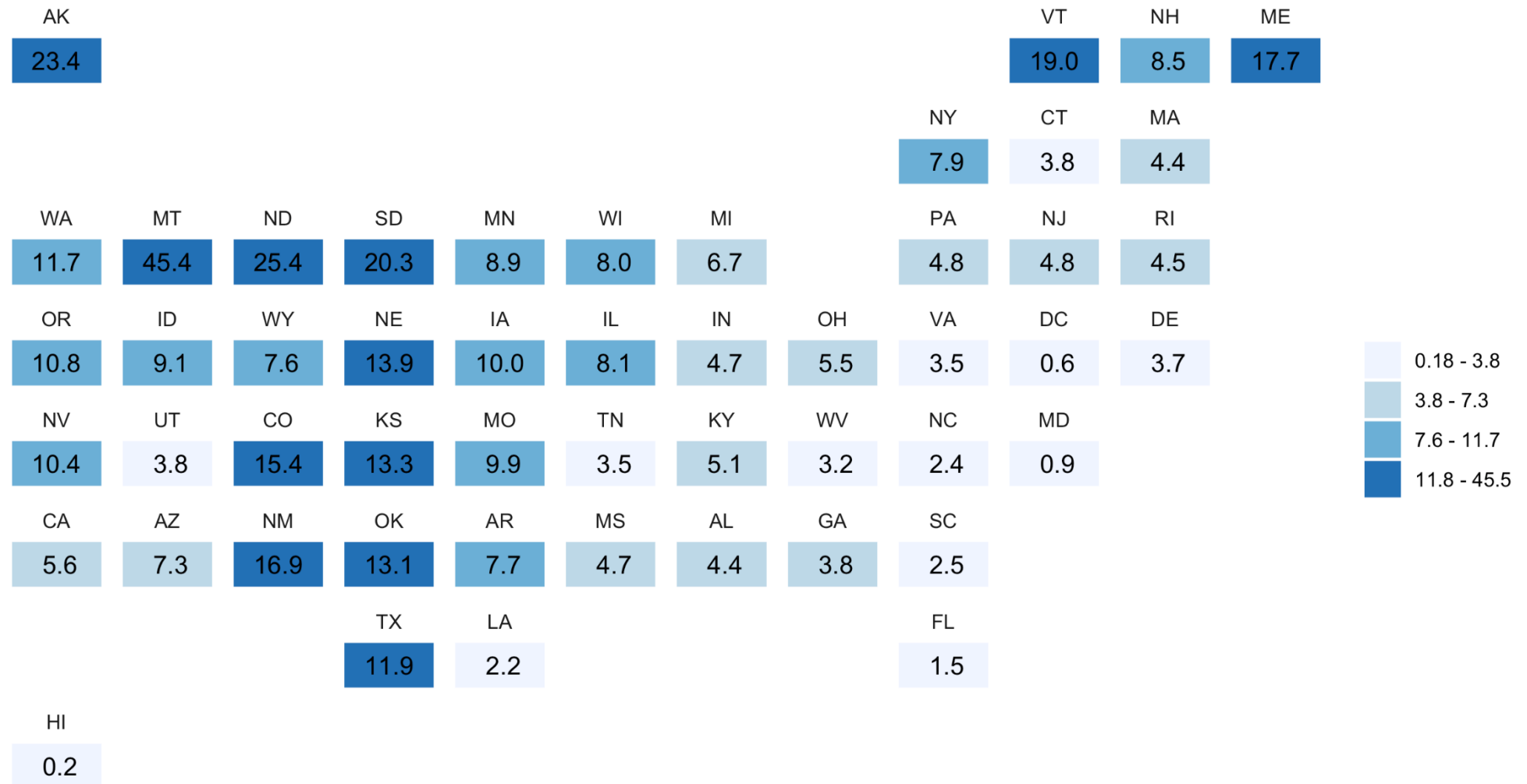# Differences in funding

Funding difference (SF1 - DP) in millions 2015$

Distribution of funding %-difference by district child population decile

Average funding %-disagreement by state

Distribution of funding %-difference by district **child poverty rate** decile