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Who Is Losing Ground with Distance Learning in California?

Technical Appendices

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Niu Gao, Julien Lafortune, and Laura Hill

Appendix A. Census PULSE Household Survey

The new experimental **Household Pulse Survey (HPS)** is designed to quickly collect data on families that have been impacted by COVID-19. Weekly data collection began on April 23 and ended on July 21. Second-phase data collection starts in mid-August. Because most schools ended their school year by the first week of June, in this report we use PULSE data from April 23 to June 2.

The HPS asks individual about their experiences regarding employment status, spending patterns, food and housing insecurity, physical and mental health, access to health care and educational disruption. It is designed to produce estimates at three levels—15 largest Metropolitan Statistical Areas (MSAs), state, and national level. The final HPS weights were created by adjusting the household-level base weights to account for nonresponse, adults per household, and coverage (Table A1). Additional adjustment is done to control the sample estimates to two sets of independent population controls: educational attainment estimates from the 2018 1-year American Community Survey estimates by age and sex, and the July 1, 2020 Hispanic origin/race by age and sex estimates from the Census Bureau’s Population Estimates Program (PEP). The coverage ratio is included in Table A2 and A3.

TABLE A1
HPS Sample Description

Measure	Week 1 (04/23- 05/05)	Week 2 (05/07 - 05/12)	Week 3 (05/14-05/19)	Week 4 (05/21-05/26)	Week 5 (05/28-06/02)
Sample Size	112,269	65,048	77,409	68,402	63,570
Number of Respondents	4,772	2,896	9,661	7,157	7,664
Weighted Response Rate	3.80%	1.30%	2.50%	3.30%	3.90%
Occupied Housing Coverage Ratio	0.91	0.93	0.93	0.94	0.94

SOURCES: Census Bureau, 2020.

NOTES: Sample includes all respondents in the HPS Household survey.

TABLE A2
Person level coverage ratio at the state level , age and sex

Week	Before/after Raking	Overall	Male	Female	Age 18-24	Age 25-29	Age 30-34	Age 35-39	Age 40-44	Age 45-49	Age 50-54	Age 55-64	Age 65+
1	Before	0.98	0.87	1.09	0.26	0.60	0.85	1.15	1.25	1.14	1.30	1.20	1.10
1	After	1.00	1.00	1.00	0.76	1.22	1.02	0.97	1.01	1.01	1.05	1.03	0.97
2	Before	0.95	0.84	1.05	0.12	0.48	0.59	1.08	1.04	1.23	1.27	1.29	1.20
2	After	1.00	1.00	1.00	0.40	1.34	1.22	1.01	1.09	0.94	1.08	1.13	0.90
3	Before	0.98	0.95	1.01	0.24	0.47	0.64	1.05	1.10	1.30	1.11	1.29	1.32
3	After	1.00	1.00	1.00	0.97	1.03	1.01	0.99	1.00	0.99	1.01	1.00	1.00
4	Before	0.98	0.88	1.07	0.24	0.36	0.68	1.02	1.01	1.43	1.14	1.32	1.29
4	After	1.00	1.00	1.00	0.95	0.99	1.05	0.99	1.02	0.99	1.01	1.00	1.00
5	Before	0.99	0.93	1.06	0.27	0.43	0.81	0.97	1.04	1.10	1.20	1.39	1.32
5	After	1.00	1.00	1.00	1.03	0.93	1.01	1.02	1.02	1.00	0.99	1.01	0.99

SOURCES: Census Bureau 2020.

TABLE A3

Person level coverage ratio at the state level, race/ethnicity and education

Week	Before/after Raking	Overall	Latino	White only	African American only	Other race	No HS diploma	HS diploma	Some college	Bachelors +
1	Before	0.98	0.66	1.34	0.77	0.94	0.19	0.47	1.06	1.66
1	After	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	Before	0.95	0.52	1.42	0.57	0.92	0.11	0.37	0.84	1.85
2	After	1.00	1.00	1.00	1.00	1.00	0.72	1.20	1.00	1.00
3	Before	0.98	0.45	1.64	0.52	0.78	0.08	0.37	0.90	1.92
3	After	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4	Before	0.98	0.56	1.46	0.77	0.85	0.12	0.33	0.91	1.91
4	After	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5	Before	0.99	0.55	1.51	0.73	0.86	0.19	0.33	0.96	1.88
5	After	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

SOURCES: Census Bureau 2020.

In this report we focus on responses to the following questions:

Distance learning

How has the coronavirus pandemic affected how the children in this household receive education for the 2020-2021 school year? Select all that apply.

- Classes normally taught in person at the school were canceled (1)
 - Classes normally taught in person moved to a distance-learning format using online resources, either self-paced or in real time (2)
 - Classes normally taught in person moved to a distance-learning format using paper materials sent home to children (3)
 - Classes normally taught in person changed in some other way—Please specify: (4)
-
- The coronavirus pandemic did not affect how children in this household receive education (5)

How often is a computer or other digital device available to children for educational purposes? Select only one answer.

- Always available (1)
- Usually available (2)
- Sometimes available (3)
- Rarely available (4)
- Never available (5)

Is the computer or other digital device ...? Select all that apply.

- Provided by the children's school or school district to use outside of school (1)

- Provided by someone in the household or family, or it is the child's (2)
- Provided by another source (3)

How often is the Internet available to children for educational purposes? Select only one answer.

- Always available (1)
- Usually available (2)
- Sometimes available (3)
- Rarely available (4)
- Never available (5)

Are Internet services ...? Select all that apply.

- Paid for by the children's school or school district (1)
- Paid for by someone in the household or family (2)
- Paid for by another source (3)

During the last 7 days, about how many hours did the student have live contact either by phone or video with their teachers? Enter number of hours (if none, enter zero).

Including hours spent during weekdays and weekends, about how many hours did household members spend on ALL teaching activities with the children in this household during the last 7 days? Enter number of hours (if none, enter zero)

Food insufficiency

In the last 7 days, which of these statements best describes the food eaten in your household? Select only one answer.

- Enough of the kinds of food (I/we) wanted to eat (1)
- Enough, but not always the kinds of food (I/we) wanted to eat (2)
- Sometimes not enough to eat (3)
- Often not enough to eat (4)

During the last 7 days, did you or anyone in your household get free groceries or a free meal? Select only one answer.

- Yes (1)
- No (2)

Where did you get free groceries or free meals? Select all that apply.

- Free meals through the school or other programs aimed at children (1)
- Food pantry or food bank (2)
- Home-delivered meal service like Meals on Wheels (3)

- Church, synagogue, temple, mosque or other religious organization (4)
- Shelter or soup kitchen (5)
- Other community program (6)
- Family, friends, or neighbors (7)

Housing Insecurity

Did you pay your last month's rent or mortgage on time? Select only one answer.

- Yes (1)
- No (2)
- Payment was deferred (3)

How confident are you that your household will be able to pay your next rent or mortgage payment on time? Select only one answer.

- No confidence (1)
- Slight confidence (2)
- Moderate confidence (3)
- High confidence (4)
- Payment is/will be deferred (5)

Appendix B. Additional Tables and Figures

TABLE B1

Internet access, by household characteristics

	All	No college degree	College plus	Low income	High income	Asian	African American	Latino	White
Missing/not reported	0.0014 (0.0006)	0.0013 (0.0008)	0.0017 (0.0011)	0.0024 (0.0015)	0.0004 (0.0003)	0.0009 (0.0007)		0.0021 (0.0013)	0.0003 (0.0003)
Always available	0.7103 (0.0183)	0.6681 (0.0223)	0.8344 (0.0144)	0.5724 (0.0326)	0.8690 (0.0114)	0.8405 (0.0235)	0.6125 (0.0549)	0.6709 (0.0278)	0.7444 (0.0337)
Usually available	0.2121 (0.0135)	0.2402 (0.0168)	0.1297 (0.0126)	0.2917 (0.0284)	0.1140 (0.0109)	0.1312 (0.0225)	0.2169 (0.0449)	0.2514 (0.0245)	0.1747 (0.0165)
Sometimes available	0.0556 (0.0093)	0.0667 (0.0123)	0.0229 (0.0063)	0.0995 (0.0190)	0.0116 (0.0025)	0.0197 (0.0078)	0.0670 (0.0215)	0.0553 (0.0106)	0.0733 (0.0257)
Rarely available	0.0104 (0.0025)	0.0124 (0.0033)	0.0045 (0.0021)	0.0156 (0.0051)	0.0024 (0.0012)	0.0023 (0.0015)	0.0266 (0.0104)	0.0152 (0.0048)	0.0021 (0.0009)
Never available	0.0102 (0.0042)	0.0114 (0.0055)	0.0067 (0.0024)	0.0185 (0.0093)	0.0026 (0.0012)	0.0053 (0.0036)	0.0770 (0.0492)	0.0051 (0.0027)	0.0051 (0.0028)
Observations	7,529	3,189	4,340	1,636	3,991	1,252	404	1,998	3,554

SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Sample includes Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 2. Household income is based on 2019 income: low income: < \$50,000, high income: > \$100,000. 3. Race/ethnicity is based on the household member who completed the PULSE survey. 4. Standard errors in brackets. 5. Households with missing/non-reported responses are excluded from analyses.

TABLE B2

Device access, by household characteristics

	All	No college degree	College plus	Low income	High income	Asian	African American	Latino	White
Missing/not reported	0.0043 (0.0019)	0.0051 (0.0026)	0.0018 (0.0010)	0.0052 (0.0028)	0.0024 (0.0023)	0.0002 (0.0002)	0.0007 (0.0009)	0.0058 (0.0029)	0.0051 (0.0031)
Always available	0.6749 (0.0198)	0.6236 (0.0247)	0.8259 (0.0129)	0.5164 (0.0344)	0.8542 (0.0140)	0.7944 (0.0262)	0.5783 (0.0642)	0.6100 (0.0287)	0.7442 (0.0356)
Usually available	0.1863 (0.0129)	0.2058 (0.0167)	0.1289 (0.0119)	0.2527 (0.0223)	0.1064 (0.0118)	0.1386 (0.0224)	0.1569 (0.0437)	0.2223 (0.0216)	0.1540 (0.0188)
Sometimes available	0.0979 (0.0135)	0.1196 (0.0177)	0.0341 (0.0069)	0.1574 (0.0265)	0.0322 (0.0069)	0.0491 (0.0122)	0.1391 (0.0455)	0.1153 (0.0219)	0.0866 (0.0256)
Rarely available	0.0189 (0.0063)	0.0243 (0.0084)	0.0029 (0.0010)	0.0341 (0.0150)	0.0014 (0.0006)	0.0137 (0.0072)	0.0229 (0.0092)	0.0301 (0.0128)	0.0036 (0.0017)
Never available	0.0178 (0.0048)	0.0217 (0.0062)	0.0064 (0.0026)	0.0343 (0.0101)	0.0034 (0.0017)	0.0040 (0.0034)	0.1021 (0.0526)	0.0165 (0.0043)	0.0066 (0.0030)
Observations	7,566	3,207	4,359	1,636	3,991	1,259	406	2,009	3,569

SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Sample includes Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 2. Household income is based on 2019 income: low income: < \$50,000, high income: > \$100,000. 3. Race/ethnicity is based on the household member who completed the PULSE survey. 4. Standard errors in brackets. 5. Households with missing/non-reported responses are excluded from analyses.

TABLE B3

Live contacts with teachers, per child, per week, by household characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All	No college degree	College plus	Low income	High income	Asian	African American	Latino	White
Average hours	3.0547 (0.1335)	2.9144 (0.1692)	3.4523 (0.1954)	2.3612 (0.1830)	3.5877 (0.2379)	3.6574 (0.3396)	2.6047 (0.4932)	2.6740 (0.2414)	3.1137 (0.1976)
% with 0 hour	0.2161 (0.0150)	0.2443 (0.0191)	0.1361 (0.0139)	0.2838 (0.0290)	0.1351 (0.0130)	0.1165 (0.0219)	0.3741 (0.0544)	0.2556 (0.0256)	0.1714 (0.0230)
% with 0.1–2 hours	0.4241 (0.0180)	0.4185 (0.0231)	0.4400 (0.0211)	0.3974 (0.0267)	0.4576 (0.0187)	0.4669 (0.0378)	0.3712 (0.0475)	0.4161 (0.0272)	0.4247 (0.0314)
% with 2.1–4 hours	0.1470 (0.0104)	0.1342 (0.0146)	0.1833 (0.0165)	0.1448 (0.0213)	0.1755 (0.0152)	0.1830 (0.0262)	0.1105 (0.0306)	0.1438 (0.0213)	0.1492 (0.0156)
% with 4.1–6 hours	0.0825 (0.0115)	0.0826 (0.0148)	0.0823 (0.0113)	0.0937 (0.0224)	0.0630 (0.0063)	0.0716 (0.0153)	0.0145 (0.0061)	0.0711 (0.0146)	0.1315 (0.0331)
% with 6.1–8 hours	0.0375 (0.0054)	0.0361 (0.0074)	0.0412 (0.0084)	0.0275 (0.0084)	0.0360 (0.0068)	0.0437 (0.0151)	0.0212 (0.0110)	0.0421 (0.0100)	0.0352 (0.0077)
% with 8.1–10 hours	0.0300 (0.0040)	0.0236 (0.0042)	0.0484 (0.0088)	0.0156 (0.0047)	0.0426 (0.0074)	0.0301 (0.0085)	0.0367 (0.0171)	0.0192 (0.0060)	0.0367 (0.0072)
% > 10 hours	0.0628 (0.0070)	0.0606 (0.0094)	0.0687 (0.0099)	0.0372 (0.0089)	0.0901 (0.0143)	0.0882 (0.0215)	0.0717 (0.0230)	0.0522 (0.0111)	0.0512 (0.0073)
Observations	7,238	3,013	4,225	1,576	3,927	1,195	378	1,897	3,457

SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Sample includes Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 2. Household income is based on 2019 income: low income: < \$50,000, high income: > \$100,000. 3. Race/ethnicity is based on the household member who completed the PULSE survey. 4. Standard errors in brackets. 5. Households with missing/non-reported responses are excluded from analyses.

TABLE B4

Hours of parent involvement, per child, per week, by household characteristics

VARIABLES	All	No college degree	College plus	Low income	High income	Asian	African American	Latino	White
Average hours	6.4829 (0.2098)	6.0840 (0.2504)	7.6130 (0.2948)	5.7320 (0.4028)	7.1968 (0.3035)	5.7571 (0.3632)	7.3281 (0.8307)	5.6211 (0.2913)	7.6971 (0.3485)
% with 0 hours	0.1303 (0.0114)	0.1395 (0.0144)	0.1040 (0.0156)	0.1450 (0.0212)	0.1219 (0.0159)	0.1809 (0.0286)	0.1031 (0.0217)	0.1465 (0.0196)	0.0895 (0.0104)
% with 0.1–2 hours	0.2159 (0.0151)	0.2244 (0.0206)	0.1919 (0.0152)	0.2158 (0.0258)	0.1911 (0.0167)	0.2290 (0.0308)	0.2335 (0.0510)	0.2477 (0.0251)	0.1617 (0.0224)
% with 2.1–4 hours	0.1789 (0.0132)	0.1884 (0.0169)	0.1520 (0.0122)	0.2111 (0.0262)	0.1437 (0.0101)	0.1541 (0.0205)	0.1573 (0.0381)	0.2030 (0.0269)	0.1730 (0.0139)
% with 4.1–6 hours	0.1315 (0.0125)	0.1369 (0.0160)	0.1159 (0.0103)	0.1345 (0.0203)	0.1208 (0.0143)	0.1224 (0.0277)	0.0616 (0.0191)	0.1303 (0.0198)	0.1593 (0.0261)
% with 6.1–8 hours	0.0798 (0.0068)	0.0800 (0.0089)	0.0793 (0.0070)	0.0788 (0.0140)	0.1049 (0.0113)	0.0623 (0.0140)	0.1100 (0.0382)	0.0688 (0.0115)	0.0975 (0.0135)
% with 8.1–10 hours	0.0852 (0.0067)	0.0656 (0.0073)	0.1407 (0.0160)	0.0690 (0.0108)	0.1104 (0.0116)	0.0970 (0.0198)	0.1195 (0.0284)	0.0571 (0.0093)	0.1005 (0.0133)
% with >10 hours	0.1784 (0.0100)	0.1651 (0.0131)	0.2160 (0.0120)	0.1457 (0.0184)	0.2071 (0.0157)	0.1544 (0.0199)	0.2150 (0.0434)	0.1465 (0.0143)	0.2184 (0.0183)
Observations	7,209	2,997	4,212	1,567	3,918	1,189	377	1,887	3,444

SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Sample includes Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 2. Household income is based on 2019 income: low income: < \$50,000, high income: > \$100,000. 3. Race/ethnicity is based on the household member who completed the PULSE survey. 4. Standard errors in brackets. 5. Households with missing/non-reported responses are excluded from analyses.

TABLE B5

Food insufficiency, by household characteristics

VARIABLES	All	No college degree	College plus	Low income	High income	Asian	African American	Latino	White
Did not have sufficient food to eat (sometimes or often)	0.1402	0.1714	0.0472	0.2495	0.0274	0.0415	0.3737	0.1528	0.0779
	(0.0120)	(0.0146)	(0.0134)	(0.0225)	(0.0100)	(0.0111)	(0.0686)	(0.0176)	(0.0137)
Received free food from school	0.1362	0.1597	0.0661	0.1865	0.0539	0.0986	0.1207	0.1922	0.0805
	(0.0116)	(0.0152)	(0.0078)	(0.0202)	(0.0084)	(0.0181)	(0.0244)	(0.0208)	(0.0168)
Observations	7,607	3,236	4,371	1,630	3,981	1,265	409	2,025	3,582

SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Sample includes Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 2. Household income is based on 2019 income: low income: < \$50,000, high income: > \$100,000. 3. Race/ethnicity is based on the household member who completed the PULSE survey. 4. Standard errors in brackets. 5. Households with missing/non-reported responses are excluded from analyses.

TABLE B6

Housing insecurity by household characteristics

	All	No college degree	College plus	Low income	High income	Asian	African American	Latino	White
Missed rent/mortgage last month	0.1811	0.2147	0.0808	0.2851	0.086	0.1298	0.2503	0.1761	0.1808
	(0.0156)	(0.0197)	(0.0111)	(0.0308)	(0.0131)	(0.0256)	(0.0450)	(0.0226)	(0.0392)
No confidence in ability to pay next month	0.2978	0.3617	0.1066	0.4888	0.08	0.2436	0.3230	0.3579	0.2065
	(0.0169)	(0.0218)	(0.0109)	(0.0322)	(0.0114)	(0.0273)	(0.0510)	(0.0277)	(0.0340)
Observations	6,794	2,954	3,840	1,464	3,536	1,067	380	1,840	3,214

SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Sample includes Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 2. Household income is based on 2019 income: low income: < \$50,000, high income: > \$100,000. 3. Race/ethnicity is based on the household member who completed the PULSE survey. 4. Standard errors in brackets. 5. Households with missing/non-reported responses are excluded from analyses.

TABLE B7

Regressions of number of hours of live instruction by teachers per week (per child) on other variables

	(1)	(2)	(3)	(4)	(5)	(6)
Parent hours (per child)	0.18***				0.17***	0.17***
	(0.022)				(0.022)	(0.022)
Internet always available		0.57*			-0.59	-0.58
		(0.336)			(0.454)	(0.451)
Device always available			1.55***		1.37***	1.39***
			(0.319)		(0.389)	(0.403)
Low-income				-1.18***	-0.72**	-0.79**
				(0.324)	(0.325)	(0.374)
No college degree						0.25
						(0.340)
N	7176	7176	7176	7091	7091	7091

SOURCES: Authors' calculation using 2020 Census PULSE Household Survey.

NOTES: Dependent variable is number of live hours of contact per week with a teacher, per child in household. Regressions include only variables reported in table. Standard errors are calculated using replicate weights provided in the data, and are reported in parentheses. *p<.1, ** p<.05, ***p<.01. Sample includes Californian households surveyed between April 23 and June 2, and excludes missing/non-reported responses.

TABLE B8

Regressions of number of hours of parental support per week (per child) on other variables

	(1)	(2)	(3)	(4)
African American	-0.37	-0.23	-0.46	-0.44
	(0.871)	(0.845)	(0.647)	(0.658)
Asian	-1.94***	-1.99***	-2.02***	-2.02***
	(0.474)	(0.493)	(0.480)	(0.487)
Latino	-2.11***	-1.92***	-1.42***	-1.45***
	(0.439)	(0.418)	(0.439)	(0.446)
Teacher contact hours (per child)		0.27***	0.27***	0.26***
		(0.061)	(0.063)	(0.062)

No college degree			-0.84*	-0.96**
			(0.467)	(0.476)
Low-income			-0.53	-0.61
			(0.530)	(0.524)
Single parent			-0.19	-0.19
			(0.461)	(0.458)
Recent job loss				0.63
				(0.414)
N	6655	6572	6554	6553

SOURCES: Authors' calculation using 2020 Census PULSE Household Survey.

NOTES: Dependent variable is number of hours of parental involvement in home-based educational activities per week, per child in household. Regressions include only variables reported in table. Standard errors are calculated using replicate weights provided in the data, and are reported in parentheses. *p<.1, ** p<.05, ***p<.01. Sample includes Californian households surveyed between April 23 and June 2, and excludes missing/non-reported responses.

TABLE B9

Regression of food insufficiency and missed rent/mortgage payments on other variables

	Food insufficiency			Missed rent / mortgage		
	(1)	(2)	(3)	(4)	(5)	(6)
African American	0.30***	0.23***	0.23***	0.07	-0.01	-0.01
	(0.063)	(0.063)	(0.064)	(0.059)	(0.070)	(0.062)
Asian	-0.04**	-0.04**	-0.04**	-0.05	-0.07*	-0.08**
	(0.018)	(0.017)	(0.018)	(0.044)	(0.040)	(0.039)
Latino	0.07***	-0.00	-0.00	-0.00	-0.09*	-0.10*
	(0.022)	(0.024)	(0.023)	(0.048)	(0.055)	(0.052)
No college degree		0.06***	0.05***		0.09***	0.06**
		(0.016)	(0.016)		(0.027)	(0.025)
Low-income		0.15***	0.15***		0.16***	0.14***
		(0.023)	(0.023)		(0.042)	(0.040)

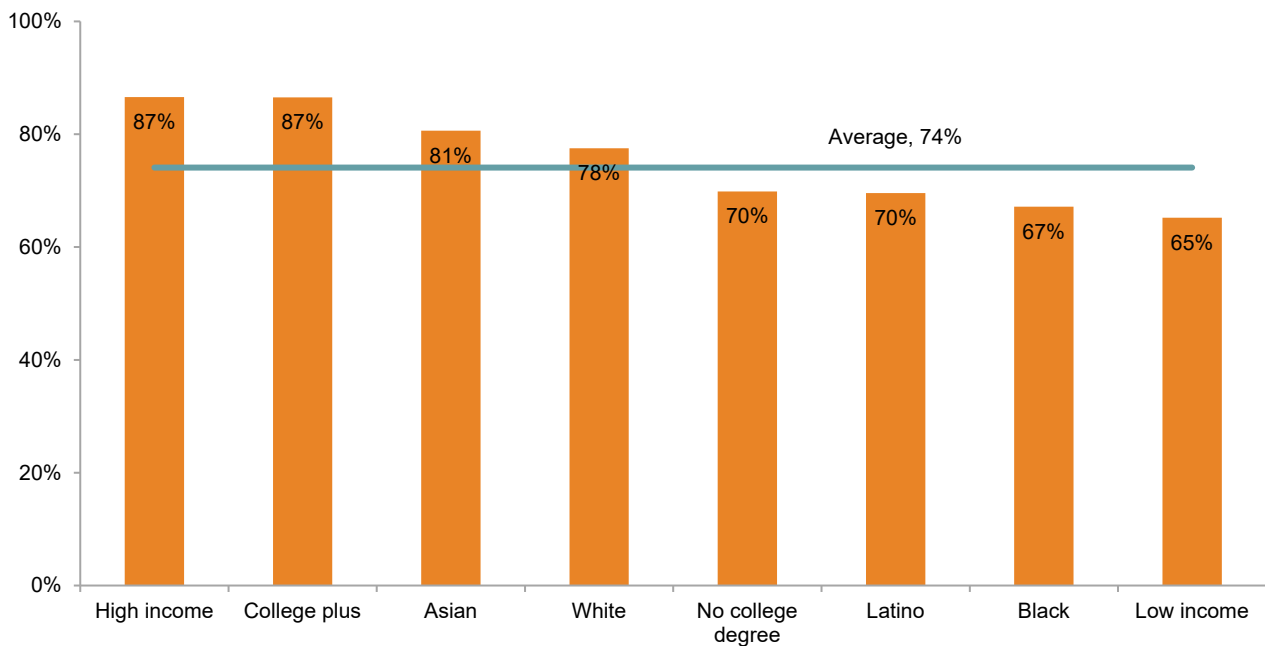
Recent job loss			0.06**			0.17***
			(0.022)			(0.028)
N	7037	6741	6740	6276	6024	6023

SOURCES: Authors' calculation using 2020 Census PULSE Household Survey.

NOTES: Dependent variables are whether household reports sometimes or rarely having sufficient food (columns 1-3) and whether the household missed their rent/mortgage payment last month (columns 4-6). Regressions include only variables reported in table. Standard errors are calculated using replicate weights provided in the data, and are reported in parentheses. *p<.1, ** p<.05, ***p<.01. Sample includes Californian households surveyed between April 23 and June 2, and excludes missing/non-reported responses.

FIGURE B1

Classes moved to distance learning, using online resources

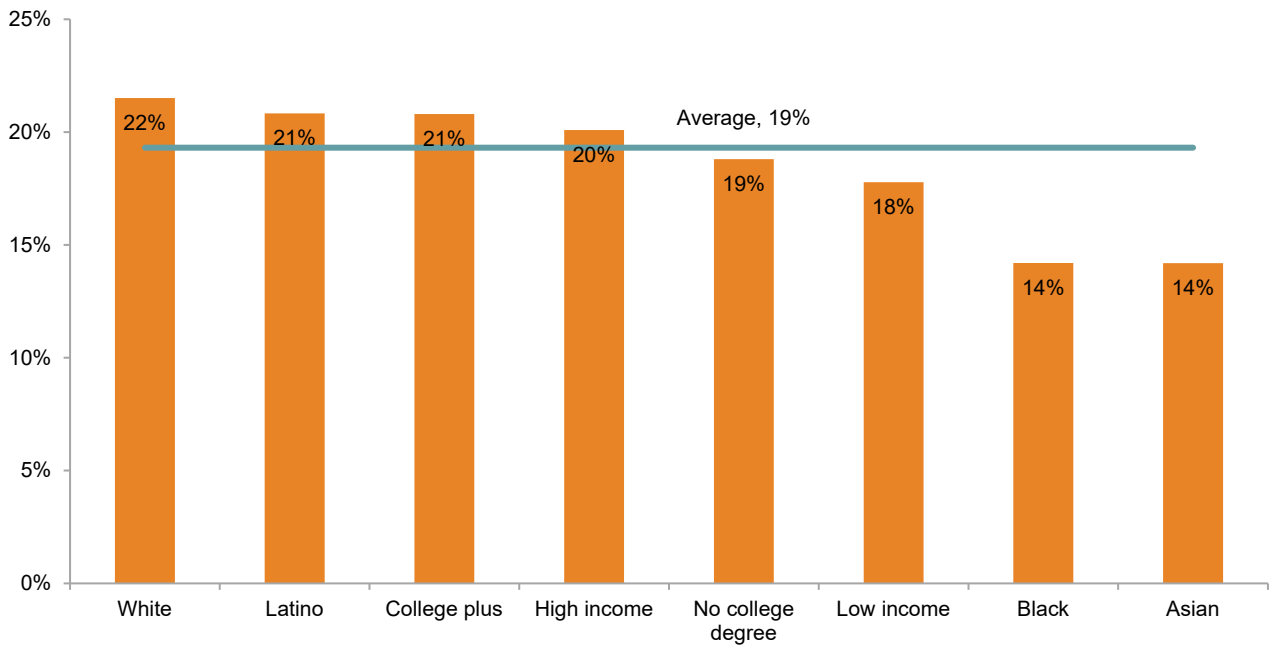


SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Sample includes 7,529 Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 2. Household income is based on 2019 income: low income: < \$50,000, high income: > \$100,000. 3. Race/ethnicity is based on the household member who completed the PULSE survey. 4. Households with missing/non-reported responses are excluded from analyses.

FIGURE B2

Classes moved to distance learning, using paper packets

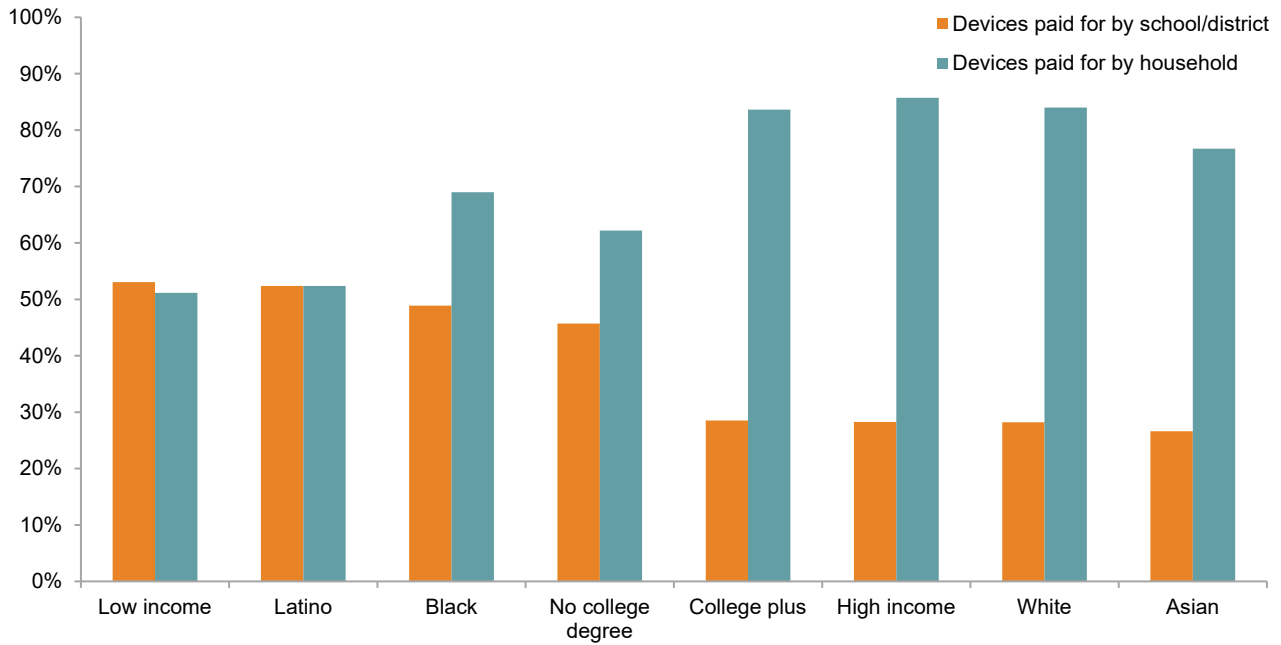


SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Sample includes 7,529 Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 2. Household income is based on 2019 income: low income: < \$50,000, high income: > \$100,000. 3. Race/ethnicity is based on the household member who completed the PULSE survey. 4. Households with missing/non-reported responses are excluded from analyses.

FIGURE B3

Devices paid for by school/district and household

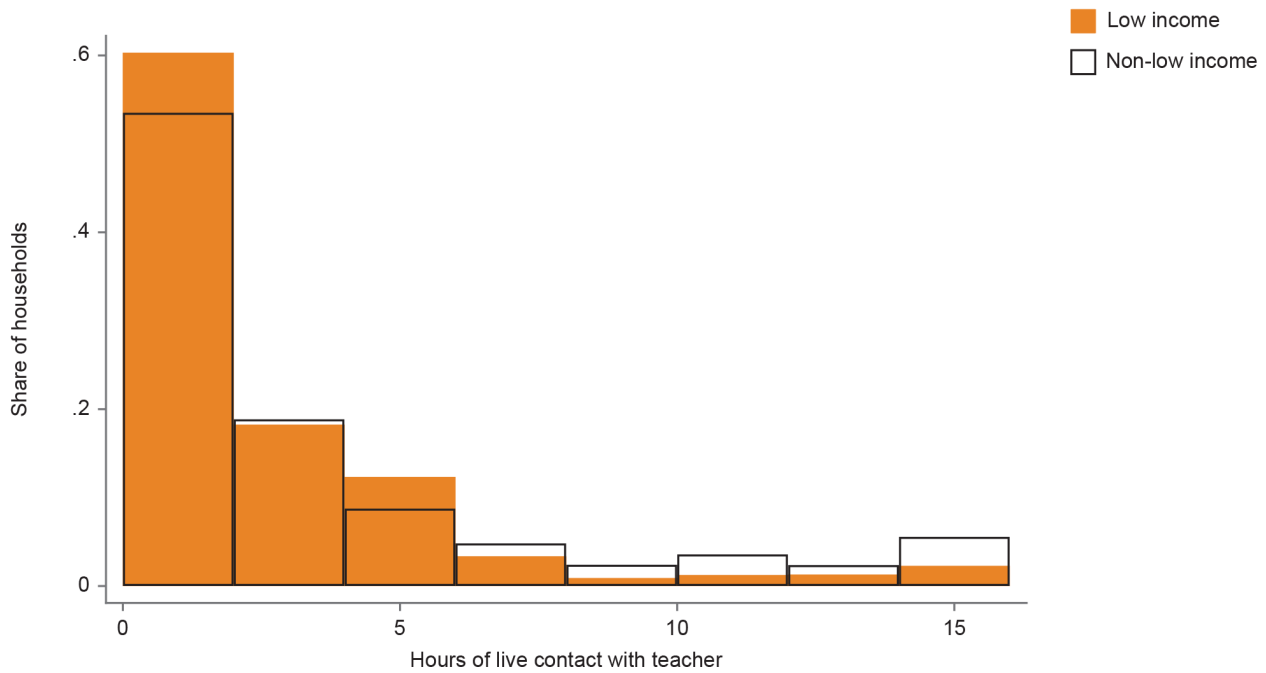


SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Sample includes 7,529 Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 2. Household income is based on 2019 income: low income: < \$50,000, high income: > \$100,000. 3. Race/ethnicity is based on the household member who completed the PULSE survey. 4. Households with missing/non-reported responses are excluded from analyses.

FIGURE B4

Distribution of live hours of teacher contact (per child, per week), low- vs non-low-income households

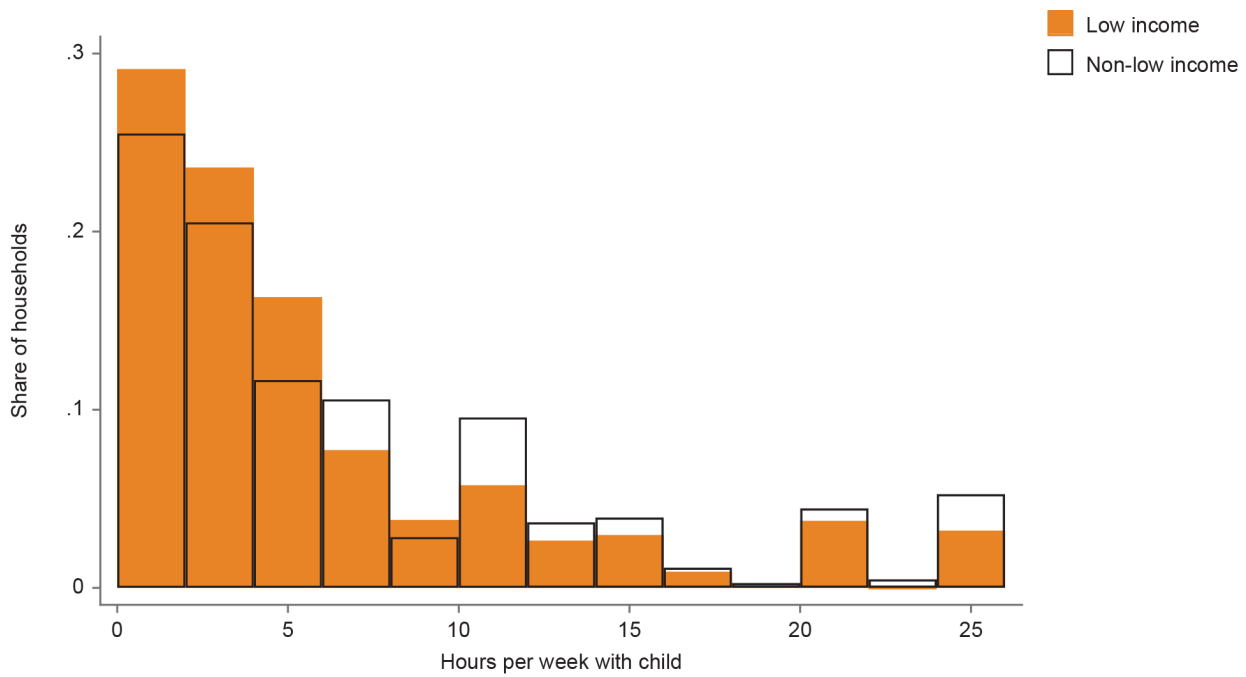


SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: 1. Data are grouped into bins of 2 hours, and are top-coded at 15 hours. 2. Sample includes 7,529 Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 3. Household income is based on 2019 income: low income: < \$50,000. 4. Households with missing/non-reported responses are excluded from analyses.

FIGURE B5

Distribution of live hours of parental instruction (per child, per week), low- vs non-low-income households



SOURCE: Authors' calculation using 2020 Census PULSE Household Survey.

NOTE: Data are grouped into bins of 2 hours, and are top-coded at 25 hours. 2. Sample includes 7,529 Californian households surveyed between April 23 and June 2. Children in those households attend public or private schools in California. 3. Household income is based on 2019 income: low income: < \$50,000. 4. Households with missing/non-reported responses are excluded from analyses.



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Public Policy Institute of California
500 Washington Street, Suite 600
San Francisco, CA 94111
T: 415.291.4400
F: 415.291.4401
PPIC.ORG

PPIC Sacramento Center
Senator Office Building
1121 L Street, Suite 801
Sacramento, CA 95814
T: 916.440.1120
F: 916.440.1121