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## Technical Appendices

# Enrollment in Health and Nutrition Safety Net Programs among California's Children

Laurel Beck, Caroline Danielson, and Shannon McConville  
with research support from Marisol Cuellar and Landon Gibson

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# Appendix A.

## Data Sources for Regression Analyses

We rely on a variety of different data sources to describe safety net program use and build our analytic, county-level data file used in the regression analyses. More details about the different data sources and variable construction are provided below.

### Safety net program caseload

The means-tested programs we focus on in the report are Medi-Cal, CalFresh, school lunch (the National School Lunch Program), and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). In these appendices we also include analyses of CalWORKs and Healthy Families. The program caseload data used in the first and second sections of the report are derived from state administrative sources and reflect the monthly caseload total in July of a given year, except in the case of the school lunch program, which reflect monthly enrollment as of October of a given year. Specific data sources for each safety net program are provided in Table A1 and Table A2 below.

The dependent variables in the regressions shown in Appendix C are ratios of the number of children enrolled in a given program to a population. In all cases, the numerators of the ratios come from the administrative caseload data. We define the denominator to be the typical age-eligible population.<sup>1</sup> The denominators used to construct the participation rate among all children (Table A1) in all cases except the school lunch program are drawn from National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) program, which provides county-level population counts by single year of age. The denominator for participation among all children for the school lunch program is based on the total school enrollment reported in the California Department of Education data files.

**Table A1. Dependent variables — participation rate among all children**

Dependent Variable	Program	Source
Certified Eligibles / Estimated Population 0–18	Medi-Cal	DHCS, Medi-Cal Beneficiaries by Age and Gender By County
Children enrolled / Estimated Population 0–18	CalFresh	DSS, caseload counts derived from the Medi-Cal Eligibility Determination System (MEDS)
Free and Reduced Price Meal Enrollment / Total School Enrollment	School Lunch	CDE, Student Poverty – FRPM Data
Infants and Children Issued a Voucher / Estimated Population 0–5	WIC	DPH, Specialized reports of Certified Participants by local agency
Children receiving a >\$10 benefit / Estimated Population 0–18	CalWORKs	DSS, CA 237 CW CalWORKs Cash Grant Caseload Movement Report
Currently Enrolled / Estimated Population 0–18	Healthy Families	MRMIB, Monthly Healthy Family Program Report 2A

NOTE: Medi-Cal county-level caseload counts for children in 2012 are based on the July 2012 totals provided in DHCS, Medi-Cal Certified Eligibles, Summary Pivot Table, Most Recent 24 Months, December 2013.

<sup>1</sup> Some children who are 18 or older remain eligible for CalWORKs and Medi-Cal as dependents, depending on their living arrangements and other factors. Some teen parents under 18 are ineligible for CalWORKs as dependents.

The caseload numerators shown in Table A2 are identical to those in Table A1. However, the denominators used to construct the participation rates among low-income children are derived from the American Community Survey, 1 year Summary Files, which provide detailed population counts for geographic areas with more than 65,000 total population and include information on household income.

**Table A2. Dependent variables— participation rate among low-income children**

Dependent Variable	Program	Source
Certified Eligibles / Estimated Population 0–17 below 150% FPL	Medi-Cal	DHCS
Children enrolled / Estimated Population 0–17 below 150% FPL	CalFresh	DSS
Free and reduced price meal enrollment / Estimated Population 6–17 Below 200% FPL	School Lunch	CDE
Infants and Children Issued a Voucher / Estimated Population 0–6 Below 200% FPL	WIC	DPH
Children receiving a >\$10 benefit / Estimated Population 0–17 Below 100% FPL	CalWORKs	DSS
Enrolled / Estimated Population 0–17 Between 200 and 300% FPL	Healthy Families	MRMIB

NOTE: Medi-Cal county-level caseload counts for children in 2012 are based on the July 2012 totals provided in DHCS, Medi-Cal Certified Eligibles, Summary Pivot Table, Most Recent 24 Months, December 2013. The populations used in the denominator are 0–17 rather than 0–18 due to data restrictions in the ACS, 1-year summary files.

## County-level Covariates

We used several different sources to create the county-level measures listed in Table A3. We group independent variables into categories intended to capture different aspects of counties that could explain variation in safety net participation rates among children. These groups are aimed at broadly measuring a county’s level of need, population composition, opportunities for enrollment, county administrative resources, and political climate.

We assemble county administrative funding allocations for Medi-Cal, CalFresh, and CalWORKs from two sources, and we combine them into a total amount for the fiscal year prior to the observed program caseload. So for example, the county funding allocation attached to the program caseload for July 2012 is based on funding provided in fiscal year 2011–2012. We then divide the total by the total county population below 150% FPL—a rough approximation of the population that would be served by the programs, were they fully enrolled. There is evidence that counties tend to pool funds across safety net programs to cover shared administrative costs (Logan and Klerman, 2008; Rosenstein, et al., 2012).

Medi-Cal allocations made up over half of total state administrative allocations for CalFresh, CalWORKs, and Medi-Cal in every year between 2005 and 2012. We use the initial allocations made at the beginning of the fiscal year rather than adjusted allocations that are determined toward the end of the fiscal year. While it could be the case that counties expect to be reimbursed for documented expenditures according to funding formulas, there is evidence that this has not been always the case in recent years (Rosenstein, et al., 2012). In other words, it is reasonable to suppose that counties acted in accordance with the level of state funding initially allocated for their administrative costs.

Table A3. Independent variables

Covariates	Name	URL	Reference period
<b>Enrollment opportunities</b>			
Social service employment per capita	County Business Practices	<a href="http://www.census.gov/econ/cbp/">http://www.census.gov/econ/cbp/</a>	Annual
Percent of parents non-English speaking	American Community Survey	<a href="http://www.census.gov/acs/www/">http://www.census.gov/acs/www/</a>	Annual
County child clinic patients per capita	California Office of Statewide Health Planning and Development	<a href="http://www.oshpd.ca.gov/">http://www.oshpd.ca.gov/</a>	Annual
Child hospital discharges per capita	Lucile Packard Foundation for Children's Health	kidsdata.org	Annual
<b>County administration</b>			
FTE public welfare workers per county population below 150% FPL	Census of Governments, Local Government Employment and Payroll Surveys	<a href="http://www.census.gov/govs/apes/">http://www.census.gov/govs/apes/</a>	Annual
CalFresh outreach index	California Department of Social Services, CalFresh Operations and Access Annual Reports	<a href="http://www.cdss.ca.gov/research/P351.htm">http://www.cdss.ca.gov/research/P351.htm</a>	Annual
State administrative funding allocations to counties for Medi-Cal, CalFresh, and CalWORKs	California Department of Health Care Services, Medi-Cal Local Assistance Estimates; Department of Social Services, County Fiscal Letters	<a href="http://www.dhcs.ca.gov/dataandstats/reports/mceestimates/Pages/default.aspx">http://www.dhcs.ca.gov/dataandstats/reports/mceestimates/Pages/default.aspx</a> <a href="http://www.dss.cahwnet.gov/letters/notices/PG960.htm">http://www.dss.cahwnet.gov/letters/notices/PG960.htm</a>	Annual
<b>Need</b>			
Unemployment rate	Bureau of Labor and Statistics	<a href="http://www.bls.gov/">http://www.bls.gov/</a>	July
Child poverty rate	American Community Survey	<a href="http://www.census.gov/acs/www/">http://www.census.gov/acs/www/</a>	Annual
Percent of births—low birth weight	Lucile Packard Foundation for Children's Health	kidsdata.org	Annual
<b>Population</b>			
Percent of children Hispanic	Surveillance, Epidemiology, and End Results	<a href="http://seer.cancer.gov/resources/">http://seer.cancer.gov/resources/</a>	Annual
Percent of children black	Surveillance, Epidemiology, and End Results	<a href="http://seer.cancer.gov/resources/">http://seer.cancer.gov/resources/</a>	Annual
Percent of children under age 1	Surveillance, Epidemiology, and End Results	<a href="http://seer.cancer.gov/resources/">http://seer.cancer.gov/resources/</a>	Annual
Percent of children ages 1 to 4	Surveillance, Epidemiology, and End Results	<a href="http://seer.cancer.gov/resources/">http://seer.cancer.gov/resources/</a>	Annual
Percent of children ages 5 to 12	Surveillance, Epidemiology, and End Results	<a href="http://seer.cancer.gov/resources/">http://seer.cancer.gov/resources/</a>	Annual
<b>Political climate</b>			
Percent of voters registered Republican	California Office of Secretary of State,	<a href="http://www.sos.ca.gov/">http://www.sos.ca.gov/</a>	Annual

We focus our discussion in the report on the variables grouped into the enrollment opportunities, county administration categories, and local employment conditions captured under the need category above. We describe each of these variables in more detail in Appendix B and Appendix C.

All model covariates are observed at the county level, with the exception of the unemployment rates, which are aggregated at the Labor Market Area (LMA) level. As shown in Table A4, California has 47 LMAs and 58 counties. While most counties are unique LMAs, some counties in close proximity with integrated labor markets are grouped into a single LMA, such as Los Angeles and Orange counties. We argue that

aggregating the measure of the economy to the level of the LMA more accurately captures the economic opportunities available to residents of a given county.<sup>2</sup>

**Table A4. California counties and Labor Market Areas**

Labor Market Area	Counties in LMA	Labor Market Area	Counties in LMA
Alpine County	Alpine	Fresno	Fresno
Amador	Amador	Hanford-Corcoran	Kings
Calaveras County	Calaveras	Los Angeles-Long Beach-Santa Ana	Los Angeles, Orange
Colusa County	Colusa	Madera-Chowchilla	Madera
Glenn County	Glenn	Merced	Merced
Mariposa County	Mariposa	Modesto	Stanislaus
Modoc County	Modoc	Napa	Napa
Mono County	Mono	Oxnard-Thousand Oaks-Ventura	Ventura
Plumas County	Plumas	Redding	Shasta
Sierra County	Sierra	Riverside-San Bernardino-Ontario	Riverside, San Bernardino
Siskiyou County	Siskiyou	Sacramento-Arden-Arcade-Roseville	El Dorado, Placer, Sacramento, Yolo
Trinity County	Trinity	Salinas	Monterey
Bishop	Inyo	San Diego-Carlsbad-San Marcos	San Diego
Clearlake	Lake	San Francisco-Oakland-Fremont	Alameda, Contra Costa, Marin, San Francisco, San Mateo
Crescent City	Del Norte	San Jose-Sunnyvale-Santa Clara	San Benito, Santa Clara
Eureka-Arcata-Fortuna	Humboldt	San Luis Obispo-Paso Robles	San Luis Obispo
Phoenix Lake-Cedar Ridge	Tuolumne	Santa Barbara-Santa Maria-Goleta	Santa Barbara
Red Bluff	Tehama	Santa Cruz-Watsonville	Santa Cruz
Susanville	Lassen	Santa Rosa-Petaluma	Sonoma
Truckee-Grass Valley	Nevada	Stockton	San Joaquin
Ukiah	Mendocino	Vallejo-Fairfield	Solano
Bakersfield-Delano	Kern	Visalia-Porterville	Tulare
Chico	Butte	Yuba City	Sutter, Yuba
El Centro	Imperial		

<sup>2</sup> Estimates (not presented here) using county-level instead of LMA-level unemployment rates yield similar coefficients.

## Regression analysis sample selection

In the regression analysis presented in section 2 of the report, we include only the 35 counties with the largest child populations over the period 2005–2012. In some cases, program caseloads were available for a longer time period, but we only had information on children’s enrollment in CalFresh for the period from 2005 forward. In addition, several covariates used were only available at the county level from 2005 forward.

California's 35 largest counties comprised 97.8 percent of the child population in the state. Appendix Table A5 lists counties alphabetically, along with child population and share of the state’s child population in 2012. Shaded rows denote counties we drop for the large county analysis.

There are two main reasons to drop the smallest counties. First, they contain a very small share of the state’s child population. Second, several covariates in our multivariate regression models are not available at all, or are only available for a few years of our main analysis time period (2005–2012).

**Table A5. Child population by county, 2012**

County	Population 0–18	Share of state's child population	County	Population 0–18	Share of state's child population
Alameda	343,246	3.7%	Orange	734,631	8.0%
Alpine	231	0.0%	Placer	85,361	0.9%
Amador	5,955	0.1%	Plumas	3,370	0.0%
Butte	45,305	0.5%	Riverside	621,038	6.7%
Calaveras	8,311	0.1%	Sacramento	361,613	3.9%
Colusa	6,288	0.1%	San Benito	15,796	0.2%
Contra Costa	259,839	2.8%	San Bernardino	586,445	6.3%
Del Norte	5,970	0.1%	San Diego	726,268	7.9%
El Dorado	39,053	0.4%	San Francisco	111,319	1.2%
Fresno	277,928	3.0%	San Joaquin	201,160	2.2%
Glenn	7,716	0.1%	San Luis Obispo	50,208	0.5%
Humboldt	26,563	0.3%	San Mateo	161,339	1.7%
Imperial	50,686	0.5%	Santa Barbara	97,606	1.1%
Inyo	3,876	0.0%	Santa Clara	434,326	4.7%
Kern	255,815	2.8%	Santa Cruz	54,902	0.6%
Kings	41,880	0.5%	Shasta	38,950	0.4%
Lake	13,298	0.1%	Sierra	497	0.0%
Lassen	5,808	0.1%	Siskiyou	8,907	0.1%
Los Angeles	2,360,255	25.5%	Solano	99,066	1.1%
Madera	43,129	0.5%	Sonoma	105,390	1.1%
Marin	52,560	0.6%	Stanislaus	145,520	1.6%
Mariposa	3,093	0.0%	Sutter	25,541	0.3%
Mendocino	19,225	0.2%	Tehama	15,544	0.2%
Merced	80,491	0.9%	Trinity	2,376	0.0%
Modoc	1,977	0.0%	Tulare	145,180	1.6%
Mono	2,940	0.0%	Tuolumne	9,133	0.1%
Monterey	113,819	1.2%	Ventura	208,588	2.3%
Napa	31,352	0.3%	Yolo	44,953	0.5%
Nevada	17,924	0.2%	Yuba	20,659	0.2%

SOURCE: SEER estimates for 2012.

# Appendix B.

## Methodology for Regression Analyses

The regression results presented in Appendix C are based on the following framework:

$$y_{c,t} = \frac{C}{P} = \alpha + X_{c,t}\beta + Z_{c,t}\gamma + W_{c,t}\delta + V_{c,t}\theta + T_{c,t}\pi + \mu_c + f(c, t, \tau) + \varepsilon_{c,t}$$

In the equation, the outcome variable  $y$  is the enrollment rate, the number of children aged 18 and under enrolled in a given safety net program ( $C$ ), divided by the total number of children in the county ( $P$ ). We present results for the participation rate among all children in a given county, as well as detailed results for the participation rate among low-income children (defined as below 150% of the federal poverty line). Model estimates are provided in Appendix C.

We present results for six programs (but focus on the first four programs): Medi-Cal, CalFresh, school lunch, the WIC, Healthy Families, and CalWORKs. The  $c$  subscript references the 35 counties in the analysis and the  $t$  subscript identifies the years analyzed (2005–2012).

The right-hand side of the above equation is a standard OLS fixed effects regression framework. We divide the covariates into four conceptually coherent groups: indicators of need ( $X$ ), composition of the child population ( $Z$ ), indicators of enrollment opportunities ( $W$ ), and indicators of county administration. ( $V$ ). We also include a measure of the political climate ( $T$ ).

$X_{c,t}$  comprises county characteristics including the unemployment rate, the ratio of employed people to the adult working-age population, and the fraction of children born in the last year who were classified as low birth weight. While the employment to population ratio is similar to the unemployment rate, it incorporates adults not measured as being in the workforce, whether due to retirement, disability, military employment, homemaking, or being a discouraged worker. The proxies for the state of the economy aim to capture the level of economic need among families in the county. The low birth weight variable is also correlated with economic need, but is a direct measure of medical need among infants in the population. Low birth-weight infants are more likely to have high medical needs and higher engagement with the health system, which is especially important for the Medi-Cal program, as providers are a major point of enrollment for beneficiaries. Finally, when we model the ratio of participation to the entire child population, we also include child poverty rates (see Table C1 and the accompanying discussion).

The matrix  $Z_{c,t}$  describes the racial/ethnic distribution and age composition of the 18 and under population. We include the fraction of children in a given county who identify as black or Hispanic. We also look at the fraction of children under 18 who fall into four age groups: less than 1 year old, 1 to 4 years old, 5 to 12 years old, and 13 to 18 years old. The youngest children may be those most likely to be enrolled in health and nutrition programs because their mothers have contact with health professionals at the point of birth and often during pregnancy. Eligibility also often changes with age.

$W_{c,t}$  consists of our four access variables. The first is the number of workers employed in social assistance industries (NAICS 624 excluding child day care) per 1,000 residents estimated to have family income under 150 percent of FPL in the county. These workers are in the private non-profit or for-profit sectors (e.g., they are not county employees). We expect that higher employment in this sector would coincide with higher



rates of enrollment. The second is the fraction of households with a parent who does not speak English, which may impede the family's ability to connect with or utilize safety net programs. Our final two measures of access to enrollment opportunities are based on medical providers as major points of enrollment for Medi-Cal. To measure engagement with the medical system, we include the number of hospital discharges of children by county, as well as a measure of unique child patients per state-licensed primary care clinics within the county. Each clinic reports these counts separately, so a child who visits two distinct clinics is counted twice.

The matrix  $V_{c,t}$  includes variables that reflect local administration. The first of these is the number of full-time equivalent (FTE) public welfare workers employed by the county, per 1,000 county residents below 150% FPL in the county. Similar to the social service variable in the enrollment opportunities group, our prior expectation would be that more welfare workers would lead to higher participation rates. We also include a measure of state administrative funding allocations for a given county in the Medi-Cal, CalFresh and CalWORKs programs. The coefficients on the administrative spending variables should be interpreted as the percentage-point change in enrollment due to an additional \$100 allocated per person below 150% FPL in the county. Finally, to measure county engagement in the CalFresh program, we construct an index on a 0–4 scale of whether the county engages in various outreach efforts: local media public service announcements (PSAs), noncitizen outreach, and outstationed workers, and whether the county offers enrollment in ten or more types of locations. Because this is not a percentage or per capita variable, the coefficient should be interpreted as the percentage-point change in enrollment due to a county participating in one additional outreach effort. We include this covariate in the regressions for all programs because CalFresh outreach efforts may be correlated with outreach for other safety net programs, and in order to make the estimates directly comparable across programs.

In addition to the variables described above, our preferred models include the fraction of registered voters who are registered as Republicans ( $T$ ). This could be correlated with program enrollment in two different ways. First, people in politically conservative communities may have different attitudes towards safety net programs, or face greater stigma when participating. Second, these counties may run their programs differently in ways we cannot observe in our data.

Our preferred set of models include indicators for each county,  $\mu_c$ . We restrict our analysis to counties with more than 25,000 children in 2012. These 35 counties accounted for 97.8% of the child population in 2012 (see Table A5). The  $f(c, t, \tau)$  term is a flexible control for time trends. The models presented in the paper and below include indicators for each year 2005–2012. We also ran estimates including individual linear time trends for each county, but these linear trends absorbed any covariates that were increasing over time. Finally, the  $\varepsilon_{c,t}$  term represents standard errors clustered at the county level. The fixed effects models capture the effect of a change in an independent variable within a county over time.

By including a rich set of covariates, along with county and year fixed effects, we aim to isolate factors that drive program participation. However, there is the possibility of endogeneity. For example, if a county's low unemployment rate causes people to move there in search of better economic opportunities, then our estimates of the effect of the unemployment rate will be biased downwards relative to the true causal effect.



# Appendix C.

## Detailed Regression Model Results

In this section, we present regression estimates from models of the drivers of two participation outcomes. The first outcome is the ratio of participation to the entire population 18 and under in a given county. The second is the ratio of participation to the population of low-income children (as described in Table A2 and the accompanying text).

For the Medi-Cal, CalFresh, Healthy Families, and CalWORKs programs, the numerator of the outcome variable is the count of children 18 and under participating in the program in the month of July of the given year. The estimates for school lunch (or NSLP) and WIC are slightly different. The school lunch estimates are the participation rate as a fraction of total school enrollment. Also, the school lunch counts are observed in October of the specified year. WIC benefits are only available for children under age 5, so we estimate participation rates within that subpopulation. School lunch and WIC are not administered by counties, but rather by school districts and local WIC agencies, respectively.

Each set of models includes the four groups of covariates, described in Table A3. All four subgroups are included in our preferred model, in addition to a measure of the political climate in the county. The models presented in Tables C1 through C11 are estimated using an ordinary least squares (OLS) approach, with indicators for each of the 35 counties with more than 25,000 children, and for the years 2005–2012 (coefficients for county and year dummies are not presented here). Standard errors are clustered at the county level.

It is important to note that our estimates are capturing changes within counties over time. As seen above, there is wide variation in participation rates across counties, largely due to time-invariant characteristics such as whether a county is largely urban or rural. The county-level fixed effects we include will absorb these constant factors, effectively isolating the effects of control variables that change from year to year.

### Results—overall participation

Table C1 presents the results of our preferred model in estimating drivers of overall participation rates for all children and include county and year fixed effects. The crux of these results is that economic need appears to be a major driver of variation in overall participation, which is not surprising. Counties with higher unemployment rates see higher participation rates in all programs but school lunch and Healthy Families. The unemployment rate is actually negatively related to overall participation in Healthy Families, which could be due to the program's higher income eligibility cut-off. In other words, children may have moved from eligibility for Healthy Families into eligibility for Medi-Cal during the economic downturn at a faster rate than children moved into eligibility for Healthy Families from a higher income. Other factors relating to enrollment opportunities and county administration do not appear to be significantly related to overall participation.

## Results—Participation among low-income children

Tables C2–C7 present detailed analysis of the factors associated with participation rates among children below specific poverty level thresholds which are rough proxies for those who might be eligible for the particular program over the course of the year. The true eligible population is difficult to approximate with our data for two reasons. The first is that our data are based on annual income levels, while program eligibility is evaluated on a monthly basis. The second is that eligibility criteria vary by age for Medi-Cal, NSLP, and WIC, further complicating matters. We choose the poverty cutoffs to be as narrow as possible while not underestimating the likely eligible population.

Tables C2–C7 and C10–C11 each contain five columns of results. For each safety net program, we run regressions separately estimating the relationship between each of our four categories of control variables. The final column in each table is our preferred model, which combines all the covariates, in addition to the fraction of voters who are registered as Republicans, into one regression. Although the coefficients are not presented here, all of the regressions contain county and year fixed effects.

While we saw above that the primary drivers of overall participation rates in counties are economic need and population composition factors, we see in Tables C2 and C3 that the unemployment rate is actually negatively associated with participation among the low-income child population. This may be due to lower participation rates among the newly eligible, or strains on the administrative capacity of counties due to deteriorating economic conditions.

Tables C2 through C7 also show that raising county personnel and state administrative funding levels is associated with greater participation among low income children in all but the Healthy Families programs (and with mixed significance in school lunch). The fact that county-level factors are associated in the expected positive direction with school lunch and WIC, which are not county-administered, is plausibly interpreted as the interconnected pathways to enrollment in the programs in practice.

## Results—Robustness checks

In Table C8 and Table C9 we explore whether our results are contingent on the variable specifications we use in our preferred model. We saw above that our OLS estimates consistently find that higher levels of welfare worker FTEs and state administrative funding are associated with higher rates of participation among low-income children. In Table C8 and Table C9, we check that those results are robust to different models of Medi-Cal and CalFresh participation.

The first column of Table C8 and Table C9 displays the results of our preferred Medi-Cal and CalFresh models (from the last column of Table C2 and Table C3). These show positive and statistically significant coefficients for the FTE welfare and total administrative spending variables. In the second and third columns, we show that each of those variables are significant when the other is excluded, and at about the same magnitude.

In the middle three columns of Table C8 and Table C9 we include different specifications of the administrative spending variable. First, we run three models where we separately include the administrative allocations (per person below 150% FPL) for Medi-Cal, CalFresh, and CalWORKs. We find that an increase in state funding allocations in any of the three programs is positively associated with Medi-Cal and CalFresh participation. However, the estimates for CalFresh and CalWORKs administrative allocations are significant only at a 10% level (in the case of Medi-Cal) or are insignificant (in the case of CalFresh), so the magnitude of

the effects is less precisely estimated. In sum, these estimates suggest that resources designated for Medi-Cal are important for both programs and drive the estimates in the preferred model.

Finally, in the last two columns of Table C8 and Table C9, we use different denominators for the total state administrative funding variable. The outcome variable is still the level of participation among low-income children in the county. First, we look at spending relative to the entire population, not just the number of people below 150% FPL. We find that the coefficient becomes negative and insignificant for Medi-Cal (although it is significant at the 5% level for CalFresh participation in Table C9). This negative coefficient is expected if the population below 150% FPL grew faster than the total population as funding levels increased, which is true in many counties over our time period. In the final column, we replace the denominator with the base eligible population provided in the DHCS Medi-Cal Local Assistance Estimates (the source for the Medi-Cal administrative funding) that likely reflects current caseload levels with some growth factor applied. The base eligible population is considerably smaller than our estimates of the population below 150% FPL. When this denominator is included for the administrative spending variable, the coefficient becomes small and negative, but statistically significant for both the Medi-Cal and CalFresh programs.

Because of our stated concerns in approximating the population eligible for safety net programs, we run additional regressions looking at the rate of participation among children below 300% FPL (Table C10 and Table 11). This should be an overestimate of the potentially eligible, so we expect our estimates to be less precise. The results are very similar for the Medi-Cal estimates for the under 150% FPL population, with county welfare FTE personnel, state administrative funding, and fraction of children who are infants displaying positive relationships with enrollment. However, the coefficient on the unemployment rate is no longer significant.

In contrast, the results in Table C11 are more similar to the overall participation results for CalFresh in Table C1 than the low-income participation results in Table C3. For the under 300% FPL population, we see that the unemployment rate, the fraction of children who are Hispanic, and the fraction of county voters registered Republican are all significantly related to CalFresh participation. We also see significant effects of the fraction of children who are infants and the rate of welfare workers per 1,000 people below 150% FPL. These mixed results are likely because of lower income cutoffs for eligibility for the CalFresh program than Medi-Cal, meaning that we are overestimating the eligible population by a larger margin.

**Table C1**  
**Participation Rates—All children**

	Medi-Cal	CalFresh	School lunch	WIC	Healthy Families	Cal-WORKs
Number of FTE welfare employees per 1000 people under 150% FPL	0.0388* (0.0219)	0.0274 (0.0393)	0.137** (0.0540)	-0.0323 (0.0499)	0.0250 (0.0175)	0.0338* (0.0187)
Program administrative spending (100\$ per person under 150% FPL)	-0.236 (0.312)	0.363 (0.345)	-1.215** (0.588)	0.658* (0.364)	-0.389*** (0.135)	-0.242 (0.153)
CalFresh Index	-0.0428 (0.110)	-0.0166 (0.0811)	0.146 (0.145)	0.247* (0.141)	0.113* (0.0637)	0.0342 (0.0576)
Number of social service workers per 1000 people under 150% FPL	0.0174 (0.0135)	-0.00287 (0.00972)	0.0570*** (0.0170)	-0.0111 (0.0196)	-0.00492 (0.00694)	0.0105 (0.00644)
Fraction of households with non-English speaking parent	0.0266 (0.0230)	0.0152 (0.0251)	-0.0589 (0.0752)	0.0381 (0.0429)	0.0222 (0.0162)	-0.0113 (0.0132)
Number of child clinic patients per capita under 18	0.00982 (0.00646)	-0.0383 (0.0405)	0.00742 (0.0125)	-0.0947** (0.0460)	-0.00255 (0.00276)	0.00561* (0.00297)
Number of child hospital discharges per capita under 18	0.466 (0.581)	0.660 (0.645)	2.115* (1.222)	0.128 (0.871)	-0.766*** (0.237)	0.0754 (0.296)
Unemployment Rate (LMA)	0.564*** (0.107)	1.087*** (0.144)	0.387 (0.359)	0.697*** (0.199)	-0.282*** (0.0577)	0.384*** (0.0735)
Fraction of children below 100% FPL	1.45e-05 (1.08e-05)	2.65e-05** (1.22e-05)	7.51e-07 (1.23e-05)	-1.58e-06 (1.97e-05)	1.31e-07 (3.07e-06)	2.27e-05*** (4.64e-06)
Fraction of children between 100 and 200% FPL	2.42e-05 (1.51e-05)	1.39e-05 (1.22e-05)	-9.38e-07 (-2.21E-05)	2.96e-05 (1.98e-05)	-8.75e-06* (4.52e-06)	5.69e-06 (7.71e-06)
Ratio of number of people employed to working-age population	0.0144* (0.00805)	0.0193** (0.00708)	-0.0358** (0.0162)	0.00536 (0.0103)	-0.00331 (0.00239)	0.000784 (0.00300)
Fraction of births which were low birth weight	0.253** (0.112)	0.288** (0.128)	0.307 (0.415)	-0.179 (0.267)	-0.0535 (0.0832)	0.0474 (0.0767)
Fraction of children who are Hispanic	0.694*** (0.195)	0.696*** (0.194)	1.219*** (0.326)	0.577* (0.312)	0.271*** (0.0930)	0.406*** (0.0944)
Fraction of children who are African American	0.114 (0.443)	-0.903** (0.390)	0.396 (0.630)	0.504 (0.724)	0.613*** (0.161)	-0.617* (0.317)
Fraction of children under 1	0.359 (0.428)	0.273 (0.591)	-0.0374 (0.864)	-2.525*** (0.850)	-0.00574 (0.225)	-0.240 (0.228)
Fraction of children ages 1 to 4	0.00727 (0.389)	0.273 (0.321)	0.264 (0.457)	-0.0949 (0.582)	-0.396* (0.200)	-0.368** (0.172)
Fraction of children ages 5 to 12	0.0466 (0.254)	0.0184 (0.326)	-0.276 (0.535)	-0.304 (0.489)	-0.468*** (0.122)	-0.164 (0.132)
Fraction of voters registered Republican	-0.273 (0.170)	-0.601*** (0.178)	0.194 (0.231)	0.129 (0.333)	0.132*** (0.0471)	-0.147 (0.0993)
Constant	-26.60** (12.40)	-44.56* (23.54)	-30.00 (35.93)	26.02 (33.66)	17.97** (7.980)	-6.167 (10.27)
County Fixed Effects	X	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X	X
Observations	266	266	266	266	266	266
R-squared	0.996	0.992	0.989	0.991	0.977	0.993
Number of counties	35	35	35	35	35	35

Robust Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table C2**  
**Medi-Cal—Participation among children below 150% FPL**

	Local Admin	Access	Need	Population	Preferred
Number of FTE welfare employees per 1000 people under 150% FPL	0.998** (0.371)				0.886** (0.381)
Program administrative spending (100\$ per person under 150% FPL)	20.00*** (3.399)				20.41*** (3.455)
CalFresh Index	-0.635 (0.920)				-0.319 (1.027)
Number of social service workers per 1000 people under 150% FPL		0.461*** (0.158)			0.183 (0.131)
Fraction of households with non-English speaking parent		-0.870 (0.542)			-0.305 (0.342)
Number of child clinic patients per capita under 18		0.0132 (0.0744)			0.0233 (0.0840)
Number of child hospital discharges per capita under 18		-9.840* (5.744)			-6.987 (5.934)
Unemployment Rate (LMA)			-0.634 (0.913)		-2.125*** (0.742)
Ratio of number of people employed to working-age population			0.123 (0.119)		0.102 (0.0727)
Fraction of births which were low birth weight			-0.665 (2.659)		0.892 (2.792)
Fraction of children who are Hispanic				-1.033 (1.879)	-0.119 (1.396)
Fraction of children who are African American				-3.493 (4.232)	-5.936* (3.472)
Fraction of children under 1				12.21** (4.841)	9.614* (4.939)
Fraction of children ages 1 to 4				-1.288 (3.446)	-2.843 (3.113)
Fraction of children ages 5 to 12				3.291 (3.505)	1.041 (2.304)
Fraction of voters registered Republican					-0.853 (1.038)
Constant	74.90*** (7.353)	178.1*** (30.71)	123.2*** (19.26)	47.28 (241.5)	142.8 (141.1)
County Fixed Effects	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X
Observations	266	271	271	271	266
R-squared	0.688	0.575	0.544	0.553	0.725
Number of counties	35	35	35	35	35

Robust Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table C3**  
**CalFresh—Participation among children below 150% FPL**

	Local Admin	Access	Need	Population	Preferred
Number of FTE welfare employees per 1000 people under 150% FPL	0.723*** (0.206)				0.652*** (0.198)
Program administrative spending (100\$ per person under 150% FPL)	6.057*** (1.448)				6.933*** (1.312)
CalFresh Index	-0.179 (0.550)				0.0453 (0.533)
Number of social service workers per 1000 people under 150% FPL		0.205** (0.0898)			0.0990 (0.0768)
Fraction of households with non-English speaking parent		-0.233 (0.234)			-0.0655 (0.171)
Number of child clinic patients per capita under 18		-0.111 (0.161)			0.000288 (0.154)
Number of child hospital discharges per capita under 18		-3.984 (3.882)			-2.890 (3.987)
Unemployment Rate (LMA)			-0.293 (0.493)		-0.734* (0.429)
Ratio of number of people employed to working-age population			0.00177 (0.0556)		-0.00296 (0.0412)
Fraction of births which were low birth weight			0.493 (1.560)		0.784 (1.580)
Fraction of children who are Hispanic				0.215 (0.861)	0.680 (0.788)
Fraction of children who are African American				-1.650 (1.923)	-3.409 (2.020)
Fraction of children under 1				8.376*** (2.655)	7.175** (2.829)
Fraction of children ages 1 to 4				-4.680** (1.770)	-4.182** (1.747)
Fraction of children ages 5 to 12				-0.579 (1.706)	-0.747 (1.467)
Fraction of voters registered Republican					-0.915 (0.632)
Constant	22.81*** (3.782)	60.23*** (15.31)	40.51*** (11.74)	118.0 (110.8)	120.1 (81.07)
County Fixed Effects	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X
Observations	266	271	271	271	266
R-squared	0.862	0.834	0.823	0.837	0.885
Number of counties	35	35	35	35	35

Robust Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table C4**  
**National School Lunch Program—Participation among children below 200% FPL**

	Local Admin	Access	Need	Population	Preferred
Number of FTE welfare employees per 1000 people under 150% FPL	1.358*** (0.377)				1.407*** (0.359)
Program administrative spending (100\$ per person under 150% FPL)	14.15*** (4.834)				12.94*** (3.780)
CalFresh Index	1.344 (1.199)				1.142 (1.368)
Number of social service workers per 1000 people under 150% FPL		0.316* (0.162)			0.183 (0.124)
Fraction of households with non-English speaking parent		-1.233* (0.642)			-1.028** (0.427)
Number of child clinic patients per capita under 18		-0.0195 (0.0864)			-0.0323 (0.0707)
Number of child hospital discharges per capita under 18		3.402 (6.249)			4.165 (5.795)
Unemployment Rate (LMA)			-1.110 (1.372)		-2.270** (0.953)
Ratio of number of people employed to working-age population			0.0793 (0.0632)		0.0416 (0.0695)
Fraction of births which were low birth weight			0.183 (2.443)		2.901 (2.130)
Fraction of children who are Hispanic				-0.439 (2.597)	1.325 (1.429)
Fraction of children who are African American				-4.375 (4.436)	-5.870 (3.511)
Fraction of children under 1				9.453 (8.407)	6.187 (8.022)
Fraction of children ages 1 to 4				3.243 (3.727)	1.809 (3.572)
Fraction of children ages 5 to 12				0.290 (2.812)	-0.270 (2.317)
Fraction of voters registered Republican					0.965 (1.233)
Constant	78.57*** (10.40)	159.4*** (36.16)	123.5*** (21.83)	66.32 (233.5)	-15.02 (148.9)
County Fixed Effects	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X
Observations	266	271	271	271	266
R-squared	0.574	0.473	0.435	0.450	0.627
Number of counties	35	35	35	35	35

Robust Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



**Table C5**  
**Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)—**  
**Participation among children below 200% FPL**

	Local Admin	Access	Need	Population	Preferred
Number of FTE welfare employees per 1000 people under 150% FPL	0.122 (0.203)				0.207 (0.188)
Program administrative spending (100\$ per person under 150% FPL)	7.277** (3.564)				5.399** (2.039)
CalFresh Index	0.637 (0.768)				0.937 (0.791)
Number of social service workers per 1000 people under 150% FPL		0.191 (0.153)			0.122 (0.139)
Fraction of households with non-English speaking parent		-0.643 (0.399)			-0.498 (0.304)
Number of child clinic patients per capita under 18		-0.245 (0.221)			-0.206 (0.203)
Number of child hospital discharges per capita under 18		-4.491 (3.943)			-5.237 (3.999)
Unemployment Rate (LMA)			0.590 (0.708)		-0.508 (0.737)
Ratio of number of people employed to working-age population			-0.0931* (0.0537)		-0.0892** (0.0400)
Fraction of births which were low birth weight			1.196 (1.794)		1.750 (1.953)
Fraction of children who are Hispanic				-2.794* (1.571)	-1.527 (1.298)
Fraction of children who are African American				-0.655 (2.596)	-1.833 (3.260)
Fraction of children under 1				9.200* (4.974)	7.468 (4.697)
Fraction of children ages 1 to 4				-2.144 (2.872)	-0.556 (2.897)
Fraction of children ages 5 to 12				1.087 (1.748)	1.439 (2.089)
Fraction of voters registered Republican					-0.504 (0.834)
Constant	79.13*** (7.089)	134.7*** (19.07)	95.48*** (15.91)	217.6* (127.3)	146.9 (129.9)
County Fixed Effects	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X
Observations	266	271	271	271	266
R-squared	0.756	0.755	0.742	0.756	0.791
Number of counties	35	35	35	35	35

Robust Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table C6**  
**Healthy Families—Participation among children between 200 and 300% FPL**

	Local Admin	Access	Need	Population	Preferred
Number of FTE welfare employees per 1000 people under 150% FPL	0.00858 (0.248)				-0.0324 (0.273)
Program administrative spending (100\$ per person under 150% FPL)	-7.464** (2.853)				-6.608** (2.567)
CalFresh Index	-0.603 (0.771)				-0.868 (0.801)
Number of social service workers per 1000 people under 150% FPL		-0.0871 (0.125)			-0.0298 (0.119)
Fraction of households with non-English speaking parent		0.528 (0.369)			0.330 (0.316)
Number of child clinic patients per capita under 18		0.00825 (0.0893)			-0.0122 (0.0775)
Number of child hospital discharges per capita under 18		0.312 (5.003)			-4.577 (5.585)
Unemployment Rate (LMA)			-0.450 (0.812)		-0.447 (0.697)
Ratio of number of people employed to working-age population			-0.0376 (0.0681)		-0.0350 (0.0662)
Fraction of births which were low birth weight			2.070 (2.079)		1.725 (2.228)
Fraction of children who are Hispanic				1.624 (1.681)	1.047 (1.478)
Fraction of children who are African American				3.896* (2.150)	5.148* (2.554)
Fraction of children under 1				1.363 (5.080)	3.393 (5.674)
Fraction of children ages 1 to 4				-1.971 (2.144)	-0.479 (2.119)
Fraction of children ages 5 to 12				-3.579* (1.842)	-3.372 (2.237)
Fraction of voters registered Republican					0.452 (0.826)
Constant	64.81*** (6.129)	26.32 (17.28)	37.17** (16.59)	93.18 (125.8)	68.30 (148.3)
County Fixed Effects	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X
Observations	266	271	271	271	266
R-squared	0.729	0.720	0.717	0.726	0.746
Number of counties	35	35	35	35	35

Robust Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table C7**  
**CalWORKs—Participation among children below 100% FPL**

	Local Admin	Access	Need	Population	Preferred
Number of FTE welfare employees per 1000 people under 150% FPL	0.507* (0.284)				0.396 (0.249)
Program administrative spending (100\$ per person under 150% FPL)	6.871*** (2.032)				8.277*** (1.787)
CalFresh Index	0.0470 (0.580)				0.346 (0.511)
Number of social service workers per 1000 people under 150% FPL		0.266** (0.0988)			0.130 (0.0853)
Fraction of households with non-English speaking parent		-0.284 (0.244)			-0.206 (0.209)
Number of child clinic patients per capita under 18		0.0491 (0.0533)			0.117*** (0.0425)
Number of child hospital discharges per capita under 18		-0.333 (3.983)			1.998 (3.774)
Unemployment Rate (LMA)			0.0174 (0.557)		-0.0594 (0.714)
Ratio of number of people employed to working-age population			-0.0212 (0.0544)		-0.0328 (0.0392)
Fraction of births which were low birth weight			2.199 (1.956)		1.970 (1.641)
Fraction of children who are Hispanic				1.419 (1.071)	1.941 (1.184)
Fraction of children who are African American				-2.248 (2.513)	-4.978** (2.398)
Fraction of children under 1				6.661** (2.729)	6.638** (3.210)
Fraction of children ages 1 to 4				-6.812*** (2.267)	-6.857*** (2.058)
Fraction of children ages 5 to 12				-1.236 (1.862)	-0.818 (1.738)
Fraction of voters registered Republican					-1.496* (0.811)
Constant	38.64*** (5.055)	60.13*** (13.57)	44.73*** (14.64)	147.6 (112.0)	119.3 (100.8)
County Fixed Effects	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X
Observations	266	271	271	271	266
R-squared	0.784	0.762	0.751	0.773	0.833
Number of counties	35	35	35	35	35

Robust Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table C8**  
**Medi-Cal—Robustness check: independent variable specifications**

	OLS - Preferred	No FTE Welfare	No Total Admin Spending	Only Medi-Cal Admin	Only CalFresh Admin	Only CalWORKs Admin	Total Admin per Total Pop	Medi-Cal Admin per Base Eligible
Number of FTE welfare employees per 1000 people under 150% FPL	0.998** (0.393)		1.734*** (0.507)	0.996** (0.369)	1.463*** (0.509)	1.566*** (0.473)	1.743*** (0.514)	1.809*** (0.511)
Total Program administrative spending (\$100 per person under 150% FPL)	19.13*** (3.645)	22.44*** (3.376)						
Medi-Cal administrative spending (\$100 per person under 150% FPL)				30.64*** (5.308)				
CalFresh administrative spending (\$100 per person under 150% FPL)					43.63* (23.03)			
CalWorks administrative spending (\$100 per person under 150% FPL) <sup>3</sup>						20.72* (11.01)		
Total Program administrative spending (\$100 per capita)							-28.40 (21.35)	
Total Medi-Cal Program administrative spending (\$100 per total eligible)								-0.0793*** (0.0275)
County Fixed Effects	X	X	X	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X	X	X	X
Observations	271	271	271	271	271	271	271	271
R-squared	0.719	0.704	0.655	0.721	0.677	0.669	0.659	0.663
Number of counties	35	35	35	35	35	35	35	35

Robust Standard errors in parentheses. All independent variables shown in the final column of Table C2 are included, but not reported

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>3</sup> The denominator for the “Medi-Cal administrative spending per total eligible population” variable comes from DSS County Fiscal Letters estimates (see Appendix B).

**Table C9**  
**CalFresh—Robustness check: independent variable specifications**

	OLS - Preferred	No FTE Welfare	No Total Admin Spending	Only Medi-Cal Admin	Only CalFresh Admin	Only CalWORKs Admin	Total Admin per Total Pop	Medi-Cal Admin per Base Eligible
Number of FTE welfare employees per 1000 people under 150% FPL	0.719*** (0.218)		0.956*** (0.263)	0.710*** (0.214)	0.863*** (0.269)	0.910*** (0.249)	0.962*** (0.275)	1.003*** (0.271)
Total Program administrative spending (\$100 per person under 150% FPL)	6.233*** (1.543)	8.604*** (1.560)						
Medi-Cal administrative spending (\$100 per person under 150% FPL)				10.43*** (2.478)				
CalFresh administrative spending (\$100 per person under 150% FPL)					14.89 (9.876)			
CalWorks administrative spending (\$100 per person under 150% FPL)						5.579 (4.592)		
Total Program administrative spending (\$100 per capita)							-31.10*** (10.81)	
Total Medi-Cal Program administrative spending (\$100 per total eligible) <sup>4</sup>								-0.0543*** (0.0155)
County Fixed Effects	X	X	X	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X	X	X	X
Observations	271	271	271	271	271	271	271	271
R-squared	0.881	0.870	0.871	0.882	0.875	0.873	0.878	0.877
Number of counties	35	35	35	35	35	35	35	35

Robust Standard errors in parentheses. All independent variables shown in the final column of Table C3 are included, but not reported

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>4</sup> The denominator for the “Medi-Cal administrative spending per total eligible population” variable comes from DSS County Fiscal Letters estimates (see Appendix B).

**Table C10**  
**Medi-Cal—Participation among children below 300% FPL**

	Local Admin	Access	Need	Population	Preferred
Number of FTE welfare employees per 1000 people under 150% FPL	0.352*** (0.116)				0.304** (0.121)
Program administrative spending (100\$ per person under 150% FPL)	2.098* (1.061)				2.359* (1.200)
CalFresh Index	-0.637* (0.360)				-0.732* (0.404)
Number of social service workers per 1000 people under 150% FPL		0.0923** (0.0422)			0.0485 (0.0317)
Fraction of households with non-English speaking parent		-0.0301 (0.121)			0.0914 (0.133)
Number of child clinic patients per capita under 18		0.0137 (0.0319)			0.0364 (0.0335)
Number of child hospital discharges per capita under 18		-0.799 (2.171)			-0.103 (2.228)
Unemployment Rate (LMA)			0.0482 (0.385)		0.00467 (0.410)
Ratio of number of people employed to working-age population			0.0319* (0.0183)		0.0255* (0.0150)
Fraction of births which were low birth weight			0.895 (0.883)		1.336 (0.880)
Fraction of children who are Hispanic				0.505 (0.610)	0.463 (0.618)
Fraction of children who are African American				-0.291 (1.246)	-1.018 (1.263)
Fraction of children under 1				6.158*** (1.522)	6.525*** (1.451)
Fraction of children ages 1 to 4				-1.706 (1.196)	-1.525 (1.151)
Fraction of children ages 5 to 12				-0.475 (1.105)	-0.479 (0.968)
Fraction of voters registered Republican					-0.293 (0.504)
Constant	69.59*** (2.588)	75.80*** (8.803)	65.68*** (6.232)	69.69 (73.27)	55.12 (51.07)
County Fixed Effects	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X
Observations	266	271	271	271	266
R-squared	0.891	0.881	0.880	0.885	0.903
Number of counties	35	35	35	35	35

Robust Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table C11**  
**CalFresh—Participation among children under 300% FPL**

	Local Admin	Access	Need	Population	Preferred
Number of FTE welfare employees per 1000 people under 150% FPL	0.234** (0.101)				0.213** (0.0796)
Program administrative spending (100\$ per person under 150% FPL)	0.359 (0.621)				0.738 (0.561)
CalFresh Index	-0.294 (0.213)				-0.275 (0.175)
Number of social service workers per 1000 people under 150% FPL		0.0346 (0.0275)			0.0127 (0.0228)
Fraction of households with non-English speaking parent		-0.0245 (0.0738)			0.0601 (0.0599)
Number of child clinic patients per capita under 18		-0.0944 (0.0644)			-0.0107 (0.0569)
Number of child hospital discharges per capita under 18		-0.200 (1.670)			0.313 (1.434)
Unemployment Rate (LMA)			0.591*** (0.212)		0.680*** (0.180)
Ratio of number of people employed to working-age population			0.0107 (0.0121)		0.00325 (0.00921)
Fraction of births which were low birth weight			0.934* (0.542)		0.762 (0.479)
Fraction of children who are Hispanic				0.551* (0.304)	0.589** (0.261)
Fraction of children who are African American				-0.916 (0.845)	-1.755** (0.796)
Fraction of children under 1				4.036*** (0.847)	3.666*** (0.762)
Fraction of children ages 1 to 4				-2.374*** (0.778)	-1.535** (0.747)
Fraction of children ages 5 to 12				-1.174 (0.756)	-0.627 (0.603)
Fraction of voters registered Republican					-0.678** (0.275)
Constant	23.76*** (1.678)	27.63*** (5.393)	14.81*** (4.258)	75.63 (45.03)	46.58 (33.64)
County Fixed Effects	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X
Observations	266	271	271	271	266
R-squared	0.960	0.959	0.961	0.966	0.972
Number of counties	35	35	35	35	35

Robust Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



## Appendix D.

# Estimates of Program Bundling

In the third section of the report, focused on integration of safety net programs, we use the 2012 American Community Survey (ACS), Public Use Microdata Sample, to estimate the proportion of children that make use of multiple health and nutrition assistance programs. The ACS is a large household survey administered by the Census that includes detailed individual-level information on a representative sample of California households. The ACS began collecting health insurance information starting in 2008 and also collects more limited information on participation in different safety net programs, including Temporary Assistance for Needy Families (CalWORKs in California) and the Supplemental Nutrition Assistance Program (CalFresh in California).

We use the 2012 ACS California sample restricted to people not residing in group quarters, which includes information on about 87,000 children age 0 to 18: 66,041 children age 5 to 18 and 21,086 children under age 5. The sample sizes for children identified as low-income – defined as household incomes under 200% FPL – are 29,570 children ages 5 to 18 and 9,556 children ages 0 to 4.

Because safety net program participation is under-reported in household surveys (Wheaton, 2007; Meyer, et al., 2009), we take advantage of a version of the ACS augmented using detailed administrative data to impute program participation in CalFresh, NSLP, and WIC to more accurately estimate program usage (see Bohn et al., 2013 for details). This augmented ACS data was created to generate an alternative measure of poverty – the California Poverty Measure (CPM) – that is designed to take into account both additional income sources from safety net assistance programs as well as necessary expenses related to housing, medical services, and work-related expenditures to generate estimates of family poverty.

We use self-reported information by the survey respondent for the child's source of health insurance coverage. In the ACS, the health insurance variable indicates current insurance coverage for the individual child as reported by their parents. Participation in CalFresh is based on an imputation procedure that uses county-level administrative caseload counts to inflate the weighted estimates from the ACS so that they match, as closely as possible, administrative totals. The imputation process first identifies potentially eligible children for each program based on age, household income levels, and certain categorical eligibility requirements (i.e. foster children). It then assigns each child flagged as eligible a random number, sorts those potentially eligible by county, and assigns program participation to children until the weighted sum of self-reported and imputed participation matches the county administrative caseload totals for each program. Questions about participation in WIC and NSLP are not asked in the ACS, and we use a similar procedure as for CalFresh to assign participation to eligible children to reflect administrative program counts by county.



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San Francisco, CA

PUBLIC POLICY INSTITUTE OF CALIFORNIA  
500 Washington Street, Suite 600  
San Francisco, California 94111  
phone: 415.291.4400  
fax: 415.291.4401  
[www.ppic.org](http://www.ppic.org)

PPIC SACRAMENTO CENTER  
Senator Office Building  
1121 L Street, Suite 801  
Sacramento, California 95814  
phone: 916.440.1120  
fax: 916.440.1121