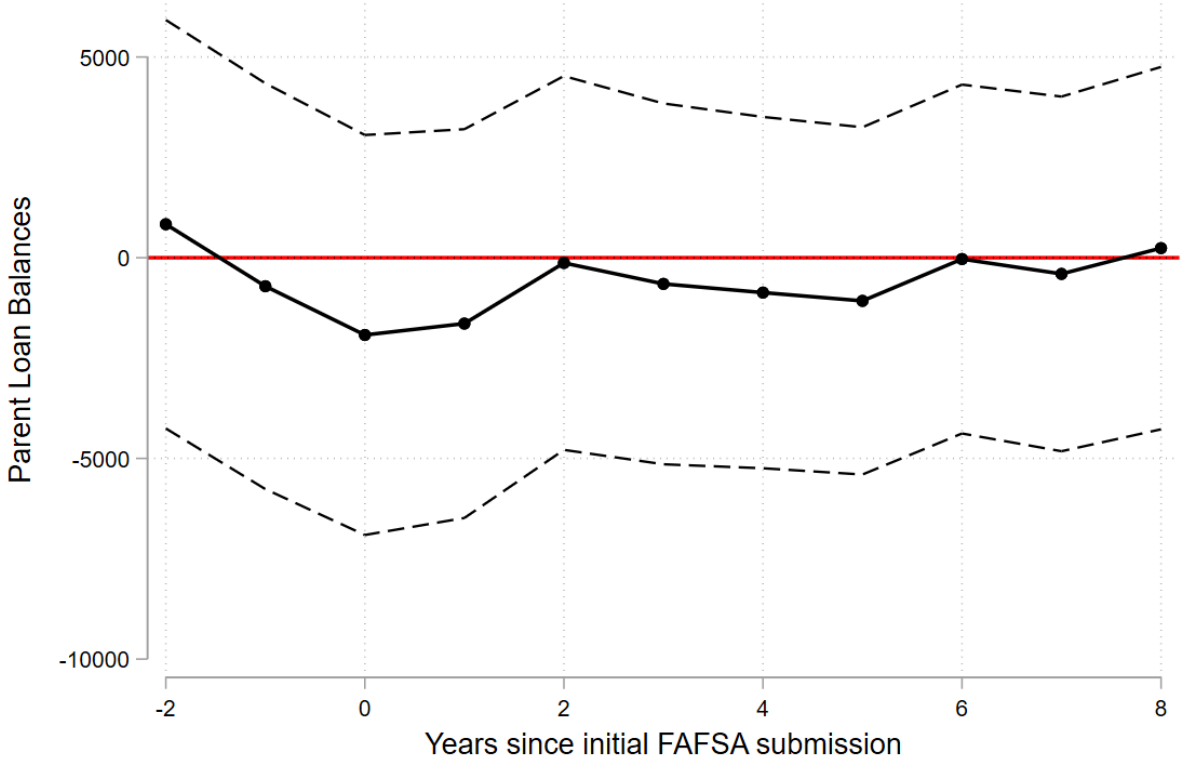
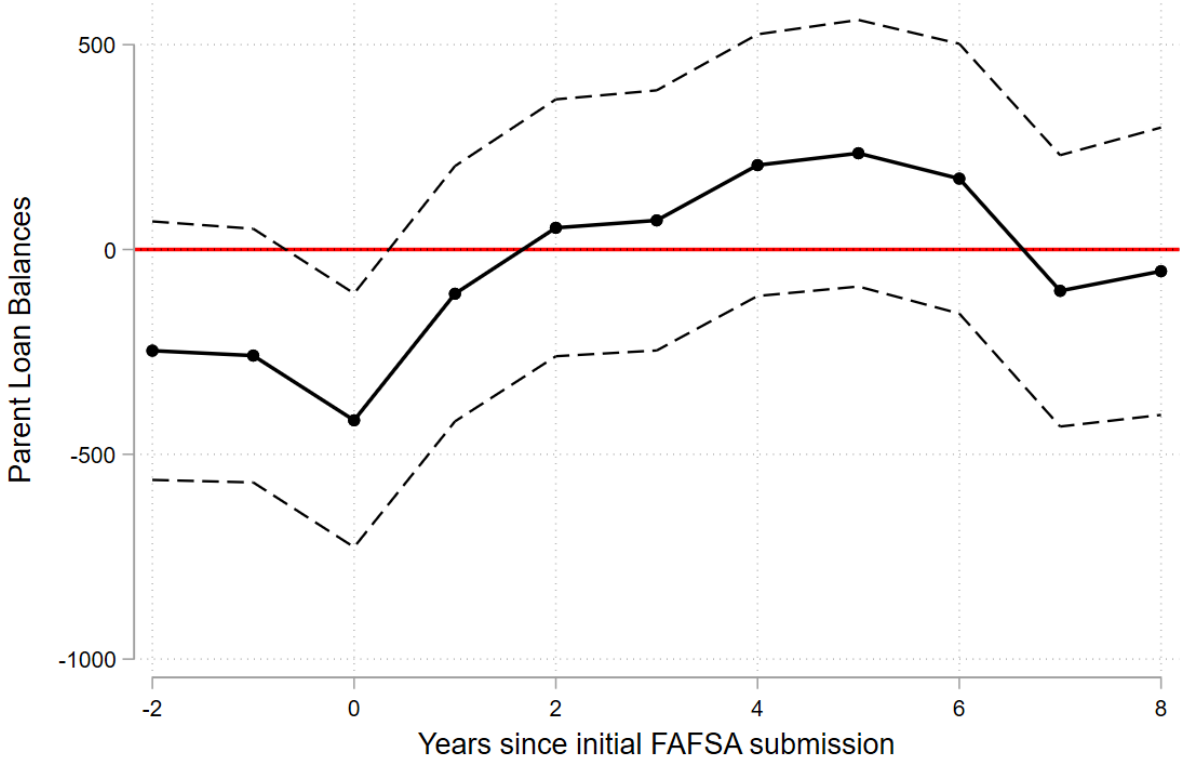
Appendix A: Additional Figures and Tables

Figure A1: RD Estimates by years since first FAFSA submission, All Balances



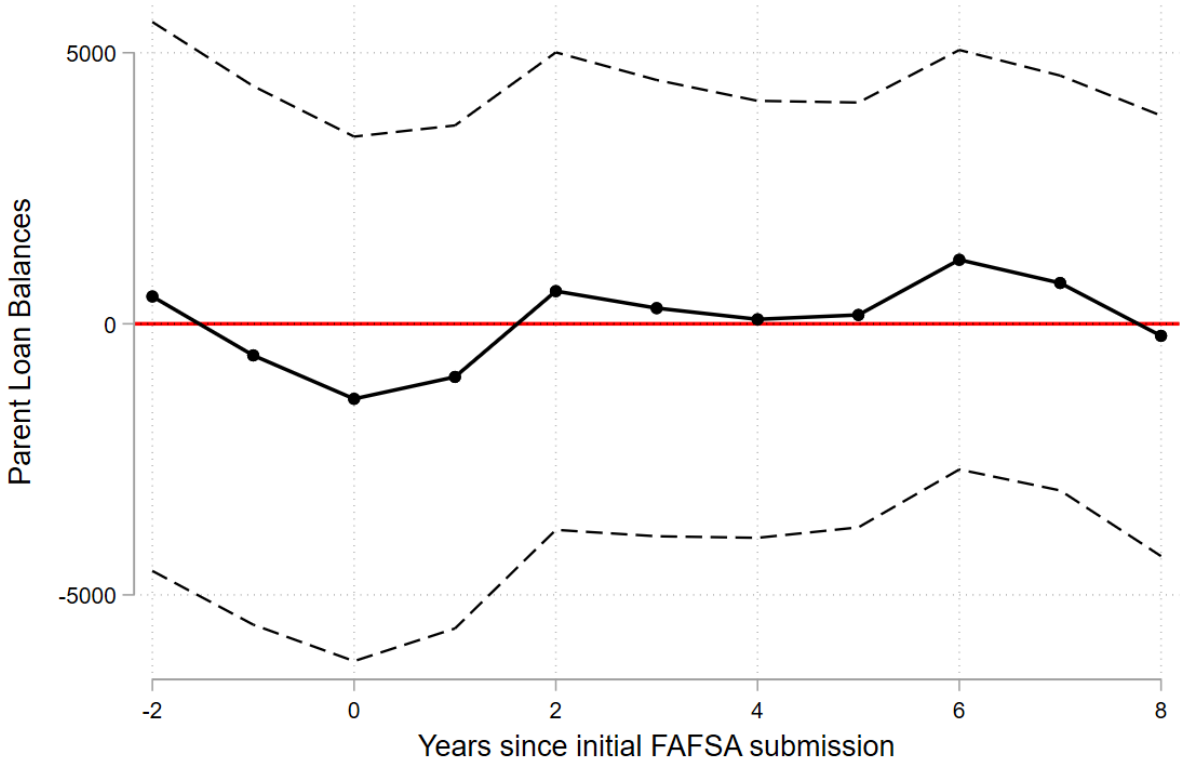
Notes: Each circle is a point estimate from a regression discontinuity model estimating the impacts of receiving state aid on the associated outcome, using the regression discontinuity sample of students from "middle-income" families as described in the text. Each year uses credit bureau data from the September quarterly snapshot, with year 0 being the September following the student's initial FASFA submission when they would have enrolled in college.

Figure A2: RD Estimates by years since first FAFSA submission, Auto Balances



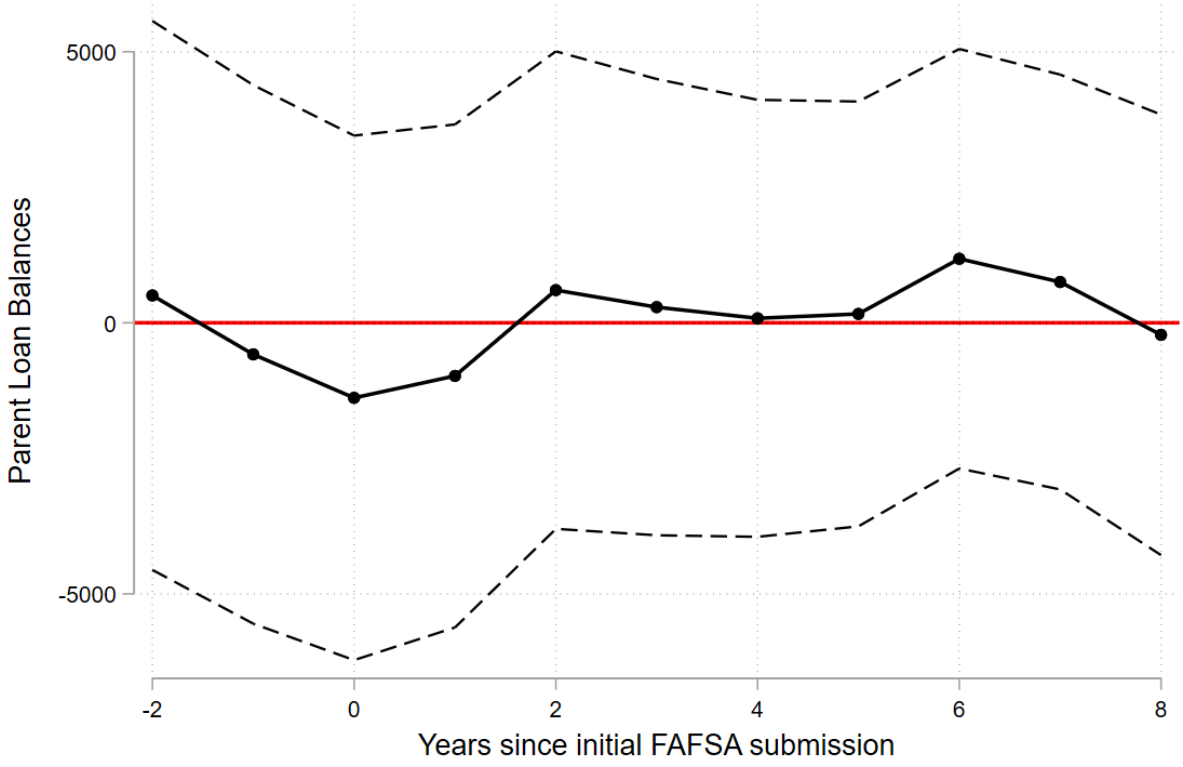
Notes: Each circle is a point estimate from a regression discontinuity model estimating the impacts of receiving state aid on the associated outcome, using the regression discontinuity sample of students from "middle-income" families as described in the text. Each year uses credit bureau data from the September quarterly snapshot, with year 0 being the September following the student's initial FASFA submission when they would have enrolled in college.

Figure A3: RD Estimates by years since first FAFSA submission, Mortgage Balances



Notes: Each circle is a point estimate from a regression discontinuity model estimating the impacts of receiving state aid on the associated outcome, using the regression discontinuity sample of students from "middle-income" families as described in the text. Each year uses credit bureau data from the September quarterly snapshot, with year 0 being the September following the student's initial FASFA submission when they would have enrolled in college.

Figure A4: RD Estimates by years since first FAFSA submission, Credit Card Balances



Notes: Each circle is a point estimate from a regression discontinuity model estimating the impacts of receiving state aid on the associated outcome, using the regression discontinuity sample of students from "middle-income" families as described in the text. Each year uses credit bureau data from the September quarterly snapshot, with year 0 being the September following the student's initial FASFA submission when they would have enrolled in college.

Table A1: Impacts of the offer of Cal Grant state aid on parent's loan balances, Heterogeneity by having a mortgage

Years from Initial FAFSA	0	1	2	3	4	5	6	7	8	9	10
Student Loan											
No Mortgage	-571*	-628*	-835*	-966*	-1274**	-1424**	-1594**	-1441**	-1193*	-752	-259
	(270)	(313)	(359)	(407)	(455)	(493)	(513)	(518)	(523)	(554)	(594)
Has Mortgage	148	-47	-222	-374	-262	-377	-470	-467	-652+	-559	-401
	(179)	(214)	(250)	(285)	(317)	(339)	(354)	(360)	(362)	(383)	(401)
Test of Equality	0.026	0.125	0.161	0.233	0.068	0.08	0.071	0.122	0.395	0.774	0.843
Mean Has Mort.	3,193	4,539	5,510	6,368	7,090	7,605	7,801	7,715	7,534	7,300	6,812
Mean No Mort	4,799	6,148	7,390	8,508	9,615	10,387	10,700	10,616	10,413	9,815	9,260
N	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	110,388	95,796
HELOC											
No Mortgage	445	651+	453	607*	433	417+	158	77	109	-9	-4
	(388)	(359)	(325)	(299)	(267)	(243)	(219)	(207)	(191)	(193)	(200)
Has Mortgage	-755	-1013	-873	-1462*	-1465**	-1734**	-1347**	-685+	-238	-216	89
	(732)	(694)	(642)	(582)	(526)	(469)	(420)	(370)	(325)	(317)	(306)
Test of Equality	0.148	0.033	0.065	0.002	0.001	0.000	0.001	0.072	0.358	0.577	0.8
Mean Has Mort.	20,149	18,069	15,759	13,674	11,844	10,272	8,673	7,216	5,997	5,467	4,830
Mean No Mort	2,722	2,321	1,937	1,683	1,667	1,550	1,478	1,499	1,458	1,439	1,338
N	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	110,388	95,796

Notes: This estimates the effects separately by whether the parents had a mortgage in either of the two years immediately prior to a student's first FAFSA. For each outcome the effects are estimated separately for parents with no mortgage and has a mortgage in separate rows. Standard errors appear in parentheses. A test for equality's p-value is displayed in the Test of Equality row.

Table A2: Impacts of the offer of Cal Grant state aid on parent's loan balances, by loan type, CCT

Years From Initial FAFSA	-2	-1	0	1	2	3	4	5	6	7	8
Student Loans	-149	-149	-149	-246	-457*	-529*	-542+	-730*	-819*	-729*	-767*
	(138)	(151)	(167)	(198)	(229)	(260)	(290)	(313)	(327)	(331)	(334)
Baseline Mean	2,919	3,298	3,843	5,190	6,271	7,234	8,112	8,731	8,974	8,889	8,699
N	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467
Credit Card	261	196	172	-34	-14	92	77	44	53	133	55
	(159)	(153)	(148)	(138)	(131)	(121)	(114)	(111)	(106)	(103)	(103)
Baseline Mean	7,106	6,873	6,777	6,377	6,081	5,697	5,472	5,298	5,085	4,932	4,913
N	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467
Auto	-223	-166	-356*	-58	151	112	270	278	266	-70	-47
	(177)	(174)	(174)	(176)	(176)	(177)	(178)	(181)	(184)	(186)	(187)
Baseline Mean	8,824	8,749	9,017	9,225	9,318	9,597	9,699	9,828	9,897	9,961	9,721
N	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467
HELOC	623	-16	-342	-315	-177	-489	-629+	-851*	-690*	-287	-153
	(557)	(545)	(528)	(499)	(460)	(415)	(375)	(334)	(299)	(265)	(232)
Baseline Mean	14,304	13,943	13,095	11,694	10,164	8,820	7,725	6,741	5,760	4,902	4,159
N	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467
Mortgage	2033	-53	-1025	-1426	-11	728	858	916	1252	669	789
	(2845)	(2796)	(2734)	(2623)	(2483)	(2372)	(2267)	(2205)	(2177)	(2149)	(2141)
Baseline Mean	153,194	150,449	146,457	140,084	132,485	128,012	124,027	122,237	121,035	120,125	120,107
N	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467	125,467

Notes: This table presents estimates of the discontinuity in balances for different balances types (rows). We use the method from Calonico, Cattaneo, Titiunik (2014). We use a triangular kernel and a bandwidth of .3 GPA points.

Table A3: RD Estimates for Parent Educational Loans using various Bandwidths, excluding 3.0 GPA students

Impacts of the offer of Cal Grant state aid on parent's												
Years from initial FASFA		0	1	2	3	4	5	6	7	8	9	10
BW = 0.10	N	-162	-248	-526	-559	-128	-318	-246	60	-454	-335	-375
	36505	(369)	(438)	(508)	(574)	(643)	(697)	(727)	(731)	(739)	(768)	(812)
BW = 0.15	N	-250	-359	-720*	-656+	-638	-982*	-949+	-752	-908+	-660	-665
	59297	(253)	(298)	(344)	(390)	(436)	(471)	(492)	(497)	(503)	(528)	(557)
BW = 0.20	N	-57	-107	-335	-379	-397	-595	-592	-492	-531	-418	-311
	81257	(202)	(238)	(276)	(313)	(348)	(376)	(392)	(397)	(401)	(422)	(446)
BW = 0.25	N	-74	-170	-343	-434+	-463	-610*	-732*	-679*	-670*	-468	-201
	108811	(167)	(197)	(227)	(259)	(288)	(310)	(324)	(328)	(331)	(349)	(368)
BW = 0.30	N	-146	-288	-478*	-624**	-681**	-810**	-935**	-872**	-883**	-639*	-363
	125467	(152)	(180)	(208)	(236)	(264)	(284)	(296)	(300)	(302)	(319)	(336)
BW = 0.35	N	-136	-242	-422*	-529*	-551*	-597*	-674*	-641*	-640*	-527+	-262
	151003	(137)	(161)	(186)	(211)	(235)	(253)	(264)	(268)	(270)	(285)	(301)
BW = 0.40	N	-146	-259+	-446*	-563**	-604**	-671**	-743**	-695**	-729**	-600*	-282
	167037	(128)	(151)	(174)	(199)	(221)	(238)	(248)	(251)	(254)	(267)	(282)
BW = 0.45	N	-150	-308*	-493**	-578**	-611**	-664**	-763**	-683**	-720**	-657**	-436+
	192582	(118)	(139)	(160)	(182)	(203)	(218)	(227)	(230)	(232)	(245)	(259)
BW = 0.50	N	-172	-338*	-496**	-555**	-589**	-674**	-736**	-672**	-694**	-606*	-396
	204082	(114)	(134)	(154)	(176)	(196)	(210)	(219)	(222)	(225)	(237)	(251)

Notes: This estimates the effects of crossing the threshold on parent educational loon balances for different bandwidths for different bandwidths. Students with exactly a 3.0 GPA are excluded.

Table A4: RD Estimates for Parent Educational Loans using various Bandwidths, including 3.0 GPA students

Impacts of the offer of Cal Grant state aid on parent's educational loan balances

Years from initial FASFA		0	1	2	3	4	5	6	7	8	9	10
BW = 0.10	N	-222	-474	-719+	-659	-448	-510	-633	-369	-611	-159	-150
	46040	(298)	(353)	(411)	(459)	(515)	(565)	(591)	(590)	(599)	(620)	(648)
BW = 0.15	N	-199	-362	-655*	-612+	-542	-723+	-778+	-640	-641	-341	-284
	68832	(212)	(250)	(289)	(326)	(366)	(397)	(415)	(418)	(425)	(444)	(466)
BW = 0.20	N	-122	-240	-448+	-512+	-496+	-623+	-659+	-587+	-519	-318	-166
	90792	(175)	(206)	(239)	(270)	(301)	(327)	(341)	(345)	(349)	(367)	(386)
BW = 0.25	N	-157	-311+	-487*	-586*	-581*	-688*	-808**	-763**	-692*	-463	-180
	118346	(148)	(175)	(202)	(229)	(256)	(277)	(289)	(292)	(295)	(311)	(328)
BW = 0.30	N	-221	-404*	-583**	-721**	-738**	-847**	-973**	-927**	-884**	-631*	-356
	135002	(137)	(161)	(187)	(212)	(237)	(255)	(267)	(270)	(272)	(287)	(303)
BW = 0.35	N	-183	-343*	-518**	-635**	-633**	-672**	-762**	-727**	-682**	-560*	-302
	160538	(125)	(146)	(169)	(192)	(214)	(231)	(241)	(244)	(247)	(260)	(275)
BW = 0.40	N	-191	-351*	-530**	-657**	-675**	-737**	-823**	-782**	-771**	-641**	-350

	176572	(118)	(139)	(160)	(182)	(203)	(219)	(228)	(231)	(234)	(246)	(260)
BW = 0.45	N	-188+	-384**	-565**	-668**	-685**	-743**	-852**	-779**	-776**	-703**	-493*
	202117	(109)	(128)	(148)	(169)	(188)	(202)	(211)	(214)	(216)	(228)	(241)
BW = 0.50	N	-199+	-398**	-551**	-632**	-643**	-725**	-803**	-747**	-734**	-642**	-436+
	213617	(106)	(125)	(144)	(164)	(182)	(196)	(205)	(208)	(210)	(222)	(234)

Notes. All results are point estimates from regression discontinuity models that estimate the impact of crossing the threshold on parent educational loan balances. Students with exactly a 3.0 GPA are included.

Appendix B: Details on construction of variables from credit records

The UCCCP (University of California Consumer Credit Panel) maintains detailed credit records for all individuals who have ever lived in California between 2004 and present. Records are anonymized and individuals in the data can be tracked only through a unique consumer trade key. Information in the credit panel is updated quarterly to reflect the latest available information on both demographic and financial outcomes as of last reporting date. For our analysis, we use information up to September 2023.

We rely on three different sets of files produced quarterly: (i) attribute files, (ii) tradeline files and (iii) public record files. We use the attribute files to obtain credit scores, predicted race, birth year and geographical information such as census block, tract and zip code of residence.[1] We use tradeline files to construct balances and delinquencies across different loan types. We use public records to track bankruptcies.

A unit of observation in our constructed data is a balance / delinquency value by loan type for each individual for each year (running from October 1 to September 30). To generate our final data set, we use a crosswalk between hashed SSNs and the Consumer Trade Keys (CTK) generated with the help of California Policy Lab (CPL) and California Student Aid Commission (CSAC).

We report balances and delinquencies for the following loan types: educational loans, home equity line of credit (HELOCs), mortgages, auto loans and leases, and credit card (general and retail). Information on loan types is generated by CPL by analyzing the KOB (Kind of business) codes in the raw credit data.

Quarter specific tradeline files in the credit panel provide information for every single account held by an individual separately. That is, if an individual holds 3 credit cards, information on the balances and payment status will be available for each of the credit cards separately.

We provide details below on how we construct variables of interest for each individual at an yearly level.[2]

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[1] Information on census blocks and tracts is only available after 2010.

[2] Before constructing our relevant variables, we remove duplicate trade lines in each quarterly file by identifying accounts that share the same CTK, Record number, Primary Member Status, Loan Type, Account Open Date, Account Type, Delinquency Status, Terms of Transaction, Terms of payment frequency, Lender Key, Amount 1 on account, Amount 2 on account, Account Balance as of date, Account past due value, Scheduled Payment Value, Actual Payment value, Credit Limit, High Balance Amount, Dollar Amount, Charge off amount, Account status code, Enhance account status code, Open Status, Payment Grid and ECOA code.

Balances:

We use balances from the September (Q3) trade files for each year. We restrict to only open accounts and aggregate all tradelines by individual specific loan type. To avoid double counting and assign the appropriate value, we reweight the balance using ECOA (Equal Credit Opportunity Act) codes available in the raw data. Balances from accounts where the individual is an authorized user, has just signed the application for the purpose of securing credit on behalf of another individual other than spouse or is deceased are removed. Balances from tradelines where the individual is a joint account holder[3] or is a co-signer with contractual responsibility get assigned a weight of 0.5. All other balances get a weight of 1. We assign a 0 balance for all loan types for which there is no account present in the corresponding year.

We separately compute balances by parent 1 and parent 2. Whenever both parents are present, the sum of balances at the household level reports the total amount of balance held by both parents for each loan type. Whenever only one parent is present, sum of balances reports the balance held by that one parent.

Delinquency:

To construct our delinquency measures, we infer whether payment on an account is past due date and if yes, by how much. To do so, we rely on the information present in payment grid and the enhanced account status code.

Payment grid associated to each account is a string of characters which report payment status at each scheduled payment date for the last 84 months. Based on the frequency of payment established under terms of loan, we look at the relevant substring and infer if the account was past due any time during the quarter in consideration. Additionally, we look at how the account was categorized at the end of quarter under enhanced account status code.[4]

At the tradeline level, we first construct a binary variable indicating whether the account was 30 days past due, 60 days past due, 90 days past due, 120 days past due, 150 days past due or 180 days past due. We then aggregate it up to the loan type level within each quarter. For example, if an individual held 3 credit cards and one of them was 30 days past due, our aggregated past due

[3] Either contractually responsible or the credit bureau can't distinguish contractual responsibility from authorized user

[4] Key categorizations that we look for are: 60 days past due date two times, 60 days past due date three times, 60 days past due date four or more times, 90 days past due date two times, 90 days past due date three or more times, 120 days past due date two or more times, 150 days past due date two or more times, 90 days past due date/Was 120 days or more past due date, 30 days past due date, 30 days past due date two times, 30 days past due date three times, 30 days past due date four times, 30 days past due date five times, 30 days past due date six or more times, 30 days past due date/Was 60 days past due date, 60 days past due date, 90 days past due date, 120 days past due date, 150 days past due date, 180 days past due date

measure would flag Loan type (credit card) – 30 days past due as yes.[5] We finally aggregate it up to the year level. That is, we document if a particular loan type for an individual was every past due within the year (across 4 quarters). This gives us the final set of delinquency measures we use: for each loan type we measure if any of the accounts associated to an individual's CTK were 30 days past due or more, 60 days past due or more, 90 days past due or more, 120 days past due or more, 150 days past due or more and 180 days past due or more. For most of our specifications we use the delinquency categorization of 90 days past due or more.

Delinquency is only measured for open accounts. As before, if there are no accounts available for a loan type in a given year for an individual, by default, we assume that the individual is not delinquent on that loan type.

To obtain information at the parent group level, we construct two different variables: (i) either of the two parents were delinquent on a loan type within the year (max of independent dummy variables) and (ii) average delinquency at the parent level.

Bankruptcy:

Construction of bankruptcy measures follows a similar procedure as construction of delinquency measures. We rely on information embedded in the enhanced status code associated to each CTK in the public file. We flag an account as bankrupt under chapter 7, 11, 12 or 13 at the quarter level if a bankruptcy petition was filed within the quarter. We aggregate it up to the year to indicate if bankruptcy petition was filed for the individual CTK ever during the year in consideration. We primarily use bankruptcy under chapter 7 (liquidation) or 13 (adjustment of debt).

Credit Score:

Information on credit score is readily available in the attribute file. We take the reported credit score as of September (Q3) of every year. We ensure that the value of the credit score for each individual is in the FICO range. That is, all values under 300 are dropped. To obtain credit score at the parent group level, we take the average.

Other Variables of interest:

We rely on data from the credit files to obtain birth year of the individual (when it is missing in FAFSA records). We additionally obtain predicted race as of the latest credit record. And finally, we obtain information on the associated zip code, census block and tract to infer individual's place of residence.

In case of conflicting birth dates, we take the minimum value of the birth year over the range of 20 years for which data is available. We use the predicted race of the student generated using the

[5] Similarly, say 2 out of 3 credit cards were past due with one being 30 days past due and the other being 60 days past due, at this stage the both Loan type (credit card) – 30 days past due and Loan type (credit card) – 60 days past due will be flagged as yes.

BISG methodology, which incorporates predicted race/ethnicity information from both surname and address. Credit records in CPL data provide predicted probabilities for each race. We pick the race with the highest probability for each individual. In case, information on a student's race is missing, we proxy it by parents' race. Predicted race is divided into the following categories: White, Hispanic, Black, Asian and Pacific Islanders, American Indian and Alaska Native.

As for individual's area of residence, we report the zipcode / census block / census tract of residence as of September (Q3) of every year. Information on census block and tract is available only after 2010. In case, information on location of residence is missing between years, we take the first next quarter for which information is available and interpolate it backwards.[6]

As a final step in our data construction, if multiple CTKs are associated to a single SSN, we aggregate everything up to the SSN by year level. [7] That is, we take the sum of balances across CTKs and maximum over delinquency and bankruptcy measures.

[6] For e.g., assume information for 2011 Q3 is missing but 2012 Q1 is present. We assume that the place of residence for the individuals in 2011 Q3 is the same as 2012 Q1.

[7] That is, we take the sum of balances across CTKs and maximum over delinquency / bankruptcy measures.

Appendix C: Discussion of alternative thresholds

The Cal Grant is California's primary state aid program. The majority of students who are eligible for the Cal Grant are entitled to the following aid: (1) up to four years of full tuition and fees at a four-year public college (University of California or California State University); (2) up to an approximately $9,000 annual tuition subsidy at in-state private colleges for up to four years, or (3) a "subsistence" award of approximately $1,500 cash per year for up to four years, which is the only option for community college students. Most Cal Grant awards – and the focus of this paper – are students within one year of high school graduation who become eligible under what is referred to as the "Entitlement" program.

In this paper we present results based on a discontinuity in Cal Grant eligibility that occurs for "middle-income" students as they obtain a 3.0 high school GPA. Students with a 3.0 GPA or above become eligible for the Cal Grant, whereas those with a GPA below 3.0 are not. Appendix Table A1 shows the full range of income limits that define "middle-income" families across years, which is the sample used in the analysis in the main body of the paper. Our paper shows that Cal Grant eligibility for "middle-income" students led to a large increase in state aid payments over the following six years (approximately $5,900, see Table 3 in the paper) along with reductions in balances and lower delinquencies for the parents of these college students.

We also investigated alternate Cal Grant thresholds and generally found null effects, in large part as these thresholds produced much smaller first-stage changes in state aid receipt. We briefly describe these thresholds here for transparency and because they may be informative for future research.

We first discuss the two different GPA thresholds for "low-income" students (at 2.0 and 3.0 GPA) and what they entail, as well as our placebo 3.0 GPA threshold results for high-income students who are Cal Grant ineligible. For our purposes, "low-income" refers to all students whose family income was below the "Lower Limit" as shown in Appendix Table A1.

Cal Grant Threshold A1

We first examine a threshold we refer to as "A1", or the first alternative threshold. At this threshold, "low-income" students become Cal Grant eligible by crossing the 2.0 GPA threshold; those with a 1.99 GPA or below are ineligible for the award. In the balanced portion of the sample, a bandwidth of 0.3 GPA points includes 104,253 applicants over the 2006 through 2015 period. Student characteristics are balanced, with only one result significant at $p<0.10$ (results omitted for brevity). As might be expected, college enrollment rates are much lower at this threshold, with most students attending community college which leads to lower average state aid payments. The overall enrollment rate is 72.6% with 71.8% initially enrolling in a community college and 0.9% in a CSU, and receiving state aid at the threshold leads to no

statistically significant changes in enrollment rates. By the fourth year, only 35.8% are enrolled, with 34.1% in a community college. Cal Grant eligibility leads to a $515 increase in state aid in the first year, which increases to a $1,133 increase in total state aid over the next six years. Relative to our main threshold where state aid increase by close to $6,000, this is a much smaller impact on parental finances.

We observe no change in any credit balances over the entire time frame that meet standard levels of statistical significance ($p<0.05$). There are a number of statistically significant but quite small increases in 90-day delinquencies on student loan payments in the period associated with later college enrollment (e.g., three to six years post FAFSA submission), ranging from 0.5 to 0.8 percentage points over a base rate of roughly 3.5 to 3.8%.

Overall, we find little impact of state aid for these families, though interpret this through the lens that most of these students are entering and leaving community college fairly quickly, and receiving less generous subsidies that what is provided at our primary threshold. Figure C1 provides one example, looking at the regression discontinuity estimates of receiving Cal Grant state aid on parent's educational loan balances, and showing no impacts.

Cal Grant Threshold A2

We next examine a threshold we refer to as "A2", or the second alternative threshold. These are low-income students whose type of Cal Grant eligibility changes by crossing the 3.0 GPA threshold. Importantly, students both below and above the 3.0 GPA threshold are all eligible for the Cal Grant "subsistence" award, which is approximately $1,500 cash per year for up to four years and can be used while enrolled in community college.

The key change here is that students interested in a four-year public or private college below the 3.0 cutoff are only eligible for an award called "Cal Grant B", which is three years of tuition and fees that only starts in the second year of enrollment, plus the "subsistence" award. Students above the cutoff become eligible for "Cal Grant A", which is four years of tuition and fees that start in the first year of enrollment, but without the "subsistence" award. In practice, a UC student in 2013-14 would expect to pay $12,192 in tuition and fees, and so crossing the threshold gave them one additional year of tuition and fees (an immediate subsidy of $12,192) at the cost of four years of "subsistence" (approximately $6,000 over four years). A CSU student would gain $5,472 at the cost of $6,000, though keeping in mind that that receiving the $5,472 occurred immediately whereas some of the "subsistence" would not be paid except to students who maintained enrollment all four years (with future payments being worth less in real terms).

In the balanced portion of the sample, a bandwidth of 0.3 GPA points includes 195,650 applicants over the same 2006 through 2015 period. Student characteristics are balanced, with only one result significant at $p<0.05$ (a 0.6 percentage point difference in citizenship status over a baseline of 92.0%). The baseline overall enrollment rate at the threshold is 80.2%, with 47.6% attending a community college, 31.4% attending a CSU, and 3.1% attending a UC. The offer of a

change in the type of Cal Grant aid leads to a 1.8pp ($p<0.10$) increase in CSU enrollment, with a corresponding 1.3pp but statistically insignificant decline in community college enrollment. Persistence is also stronger at this threshold relative to the prior 2.0 threshold described above, with almost 72% of students still enrolled in the community college or CSU system in their fourth year.

Because of the idiosyncratic nature of how state aid changes at this threshold, Cal Grant eligibility leads to a $771 increase in state aid in the first year, mostly as students who were already planning to enroll in a CSU or UC receive a boost in aid. This increase to a $1,478 increase in total state aid over the next six years, or about one-quarter of what is received by students in our main threshold.

Credit balances show very small changes over this time frame. Student's educational loans rise between $140 and $240 – perhaps due to the shift into the CSU – whereas parent's educational loans decline by a somewhat similar amount of $120 to $180 (for both parents and students most of these point estimates are statistically insignificant). Parent's also have slightly larger balances on auto payments of roughly $200 to $300 in the later years of their child's college enrollment. There are no consistent impacts on delinquencies, other than some weak evidence of small declines (approximately 0.3 to 0.4 percentage points) in the later years of their child's college enrollment. Figure C2 provides one example, looking at the regression discontinuity estimates of receiving Cal Grant state aid on parent's educational loan balances, and showing no impacts.

"Placebo" Cal Grant Threshold

As one check in our results, we use the data to examine students from higher-income families who crossed the 3.0 GPA threshold, even though there is no state aid benefit to these families as they are all income ineligible for the Cal Grant by virtue of their family income being too high. This then serves as a "placebo" threshold where we would expect null results.

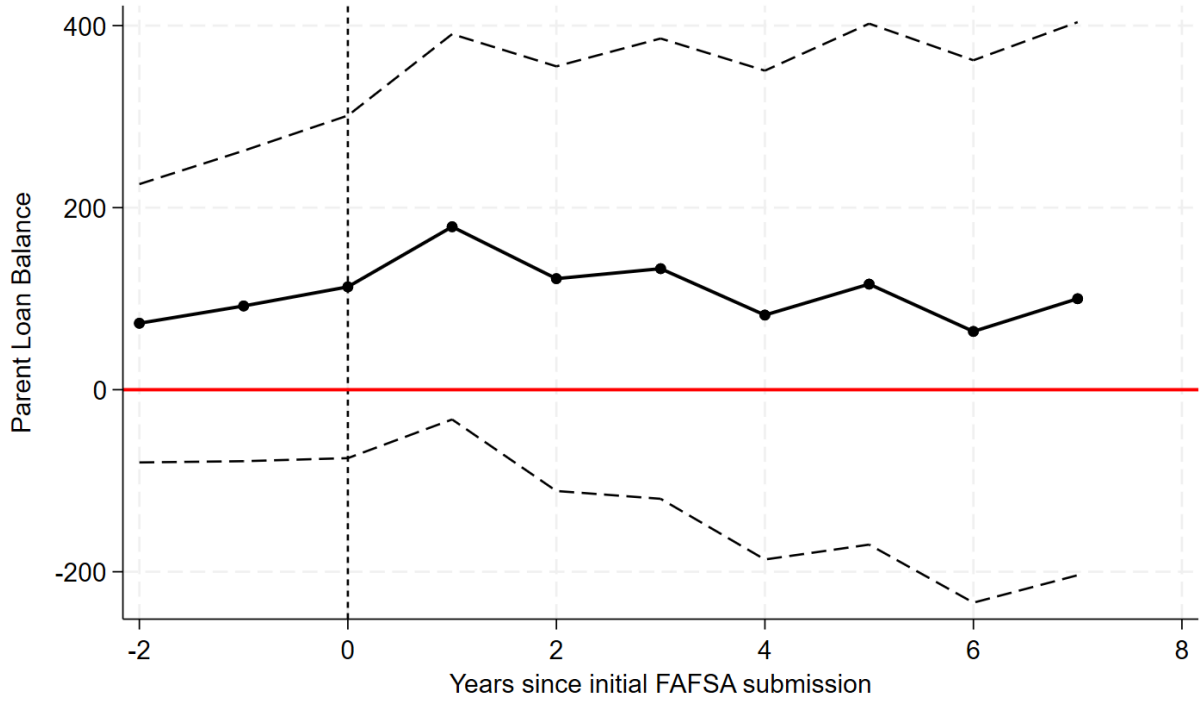
In the balanced portion of the sample, a bandwidth of 0.3 GPA points includes 131,763 applicants over the same 2006 through 2015 period. Student characteristics are balanced, with only one result significant at $p<0.05$ (a 1.2 percentage point increasing in listing bachelor's degree as the educational objective, over a baseline of 79.6%). Although we would theoretically expect no change in state aid at the threshold we do find a statistically significant but miniscule $19 increase in the first year that increases to $59 over six years – or roughly 1% as large as what we find at our main threshold – perhaps due to some classification error in initially reported income. There is a decline of approximately 2 percentage points in community college enrollment over a baseline at 37.5% but no increase in CSU or UC enrollment, perhaps indicative of some small increase in private college enrollment.

We observe no change in any credit balances over the entire time frame, with the exception of a few positive results for mortgages of around $6,000 that are likely spurious. There are also some slight imbalances in credit card balances in the pre-period that become null after FAFSA

submission. We also observe no changes in 90-day delinquencies throughout the time period. These results conform with our expectation of no effects at the threshold where we would not expect to find effects, strengthening the interpretation of our research design. Figure C3 provides one example, looking at the regression discontinuity estimates of receiving Cal Grant state aid on parent's educational loan balances, and showing no impacts.

Figure C1: RD Estimates by years since first FAFSA submission, Educational Loan Balances

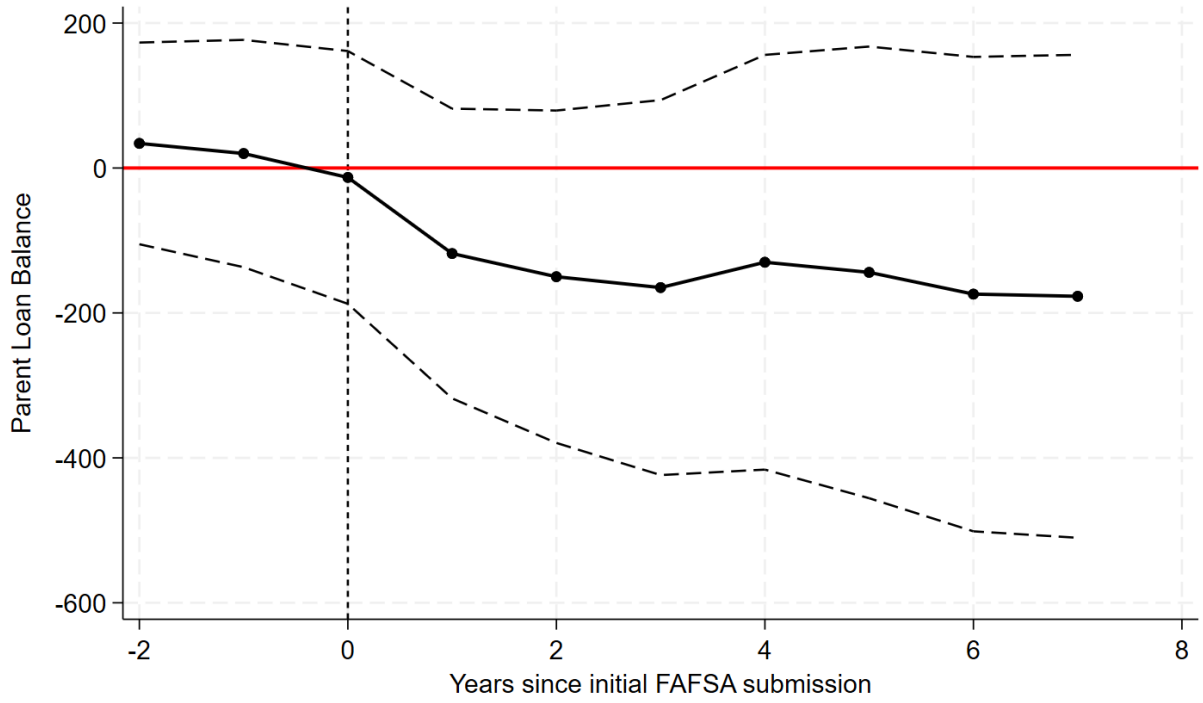
Alternate Threshold A1. Low-income students crossing the 2.0 GPA threshold



Notes: Each circle is a point estimate from a regression discontinuity model estimating the impacts of receiving state aid on the associated outcome, using the regression discontinuity sample of students from "middle-income" families as described in the text. Each year uses credit bureau data from the September quarterly snapshot, with year 0 being the September following the student's initial FASFA submission when they would have enrolled in college.

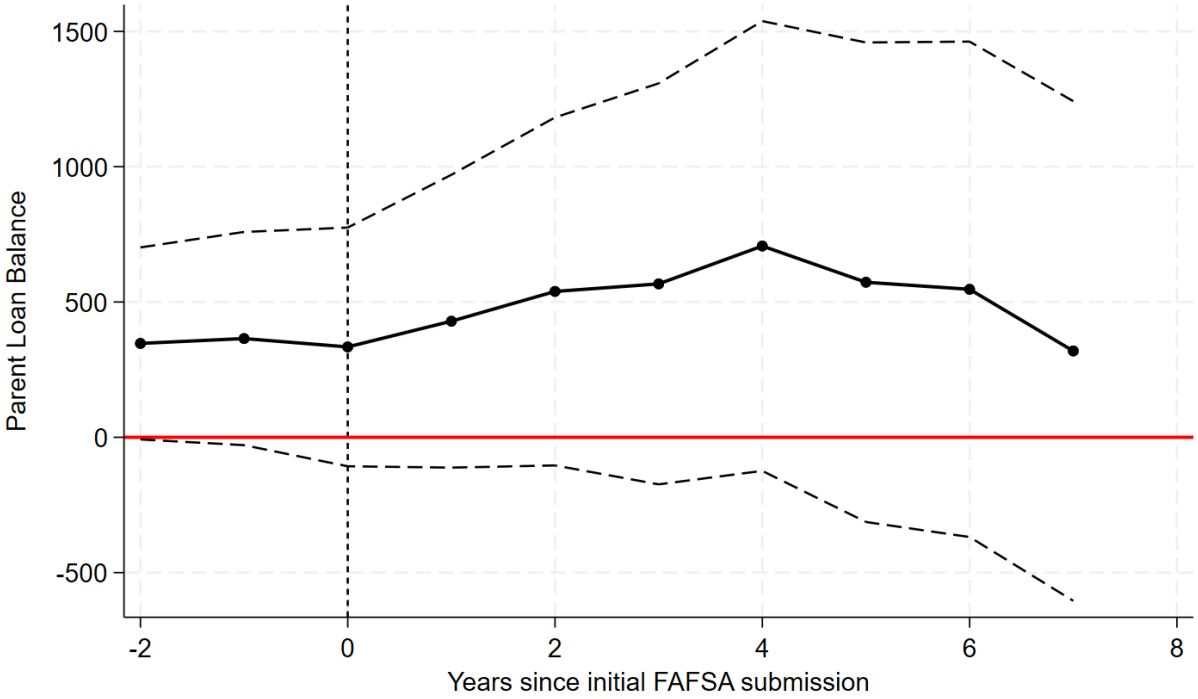
Figure C2: RD Estimates by years since first FAFSA submission, Educational Loan Balances

Alternate Threshold A2. Low-income students crossing the 3.0 GPA threshold



Notes: Each circle is a point estimate from a regression discontinuity model estimating the impacts of receiving state aid on the associated outcome, using the regression discontinuity sample of students from "middle-income" families as described in the text. Each year uses credit bureau data from the September quarterly snapshot, with year 0 being the September following the student's initial FASFA submission when they would have enrolled in college.

Figure C3: RD Estimates by years since first FAFSA submission, Educational Loan Balances Placebo Threshold. High-income ineligible students crossing the 3.0 GPA threshold



Notes: Each circle is a point estimate from a regression discontinuity model estimating the impacts of receiving state aid on the associated outcome, using the regression discontinuity sample of students from "middle-income" families as described in the text. Each year uses credit bureau data from the September quarterly snapshot, with year 0 being the September following the student's initial FASFA submission when they would have enrolled in college.

Appendix Table 1. Income limits for 3.0 GPA cutoff threshold that determines Cal Grant eligiblity

	Family size of 2		Family size of 3		Family size of 4		Family size of 5		Family size of 6+	
Year	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit
2006	$30,300	$65,000	$34,200	$66,500	$38,000	$72,300	$42,500	$77,500	$45,900	$83,600
2007	$30,700	$65,800	$34,600	$67,400	$38,500	$73,200	$43,000	$78,400	$46,500	$84,600
2008	$32,100	$68,700	$36,100	$70,300	$40,200	$76,400	$44,900	$81,900	$48,500	$88,300
2009	$33,400	$71,600	$37,700	$73,300	$41,900	$79,700	$46,900	$85,400	$50,600	$92,100
2010	$33,600	$72,100	$37,900	$73,800	$42,200	$80,200	$47,200	$85,900	$50,900	$92,700
2011	$32,800	$70,200	$36,900	$71,900	$41,100	$78,100	$46,000	$83,800	$49,600	$90,300
2012	$33,600	$72,000	$37,900	$73,700	$42,100	$80,100	$47,100	$85,900	$50,900	$92,600
2013	$34,900	$74,700	$39,300	$76,500	$43,700	$83,100	$48,900	$89,100	$52,800	$96,100
2014	$36,700	$78,500	$41,300	$80,400	$45,900	$87,400	$51,400	$93,700	$55,500	$101,000
2015	$36,600	$78,300	$41,200	$80,200	$45,800	$87,200	$51,300	$93,400	$55,400	$100,800

Notes. Table shows year and family size specific income cutoffs that identify Dependent high school graduates who gain Cal Grant eligiblity by having a GPA of 3.0 or greater. Students from families whose income is below the lower limit gain Cal Grant eligiblity at a 2.0 GPA. Students from families whose income is above the upper limit have no Cal Grant eligiblity either below or above the 3.0 GPA threshold.