

Census Zip Code Data versus Internal Data as Predictors of Alumni Giving

by Peter Wylie and John Sammis

Thanks to data available via the 2010 US Census, for any educational institution that provides us zip codes for the alums in its advancement database, John Sammis and I can now compute:

- The distance of the geographical centroid of the zip code an alum lives in from the geographical centroid of the zip code in which the alum's alma mater is located
- The median income of the zip code in which the alum lives
- The median house value of the zip code in which the alum lives
- The population of the zip code in which the alum lives

Some of you may be saying, "Well, whoopy doo, guys. We can do the same thing and have been for a number of years." Well, we're not experts on gathering data on alums that is not already contained in the databases of the schools we work with. We focus on internal data, and that's unlikely to change as I get older and older and John gets pulled away into work that doesn't involve me.

On the other hand, John has done a yeoman's job of finding a very reasonably priced source for this Census data as well as building some add-ons to our statistical software package – add-ons that allow us to manipulate the data in interesting ways. All this has happened within the last six months or so, and I've been having a ball playing around with this data, getting John's opinions on what I've done, and then playing with the data some more.

In this piece we'll show you a smidgeon of some of the things we've uncovered. We hope you'll find it interesting, and we hope you'll decide to do some playing of your own that will go beyond what we've done here.

A Little Background

The data for this piece come from four private, small to medium sized higher education institutions in the eastern half of the United States. That fact, of course, means we don't have a broadly representative sample here, and so we can't

extrapolate too far. That's fine. Maybe this piece will help encourage a few foundations or other such entities to support some comprehensive research on the kinds of data we're looking at.

For each of the solicitable alums in these four schools we collected:

- Preferred year of graduation
- Whether or not (0/1) the alum had contributed at least \$100 or more lifetime to the school
- The median income of the zip code in which the alum lived
- The median house value of the zip code in which the alum lived

Largely because they seemed less interesting, we collected but did not analyze:

- The distance of the geographical centroid of the zip code the alum lived in from the geographical centroid of the zip code in which the alum's alma mater is located
- The population of the zip code in which the alum lived

A Look at Median Income and Median House Value

Income and house value. It's no secret that these variables can vary enormously within zip codes. It doesn't matter whether we're talking a densely populated zip in New York City, or a rural one in Georgia. In either case it is not unusual to find people of considerable wealth living very closely to people who are below the poverty line. An example. My wife Linda and I live right next door to a condominium complex where the smallest unit would sell for over \$750,000. Just across the street is a subsidized housing project where all the residents are on public assistance. It's no different in the countryside of Virginia where we often hike. Desperately poor people live within a quarter of a mile of rich folks who own sprawling mansions.

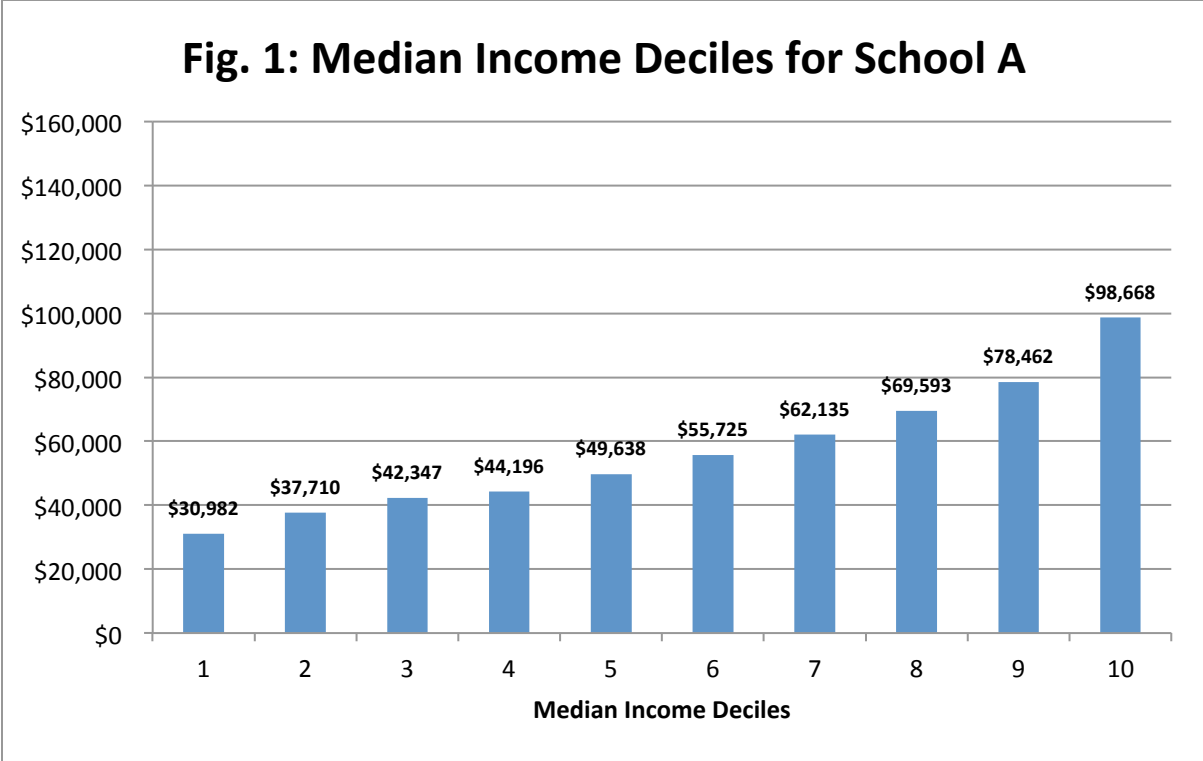
All this variability notwithstanding, we've been intrigued by the data that you'll see summarized in Tables 1-8 and Figures 1-8. Tables 1-4 and Figures 1-4 deal with median income; Tables 5-8 and Figures 5-8 deal with median house value.

To help ensure these tables and figures are clear, we'll go through several of them in detail. Let's start with Table 1.

Table 1: Median Income Deciles for School A

ZIP CODE DECILES	Count	MEDIAN INCOME	Lower Bound	Upper Bound
1	2247	\$30,982	\$0	\$34,796
2	2567	\$37,710	\$34,817	\$39,569
3	1972	\$42,347	\$39,572	\$42,929
4	2080	\$44,196	\$42,936	\$46,949
5	2311	\$49,638	\$46,955	\$52,517
6	2217	\$55,725	\$52,526	\$59,049
7	2347	\$62,135	\$59,052	\$66,111
8	2284	\$69,593	\$66,120	\$74,375
9	2263	\$78,462	\$74,378	\$86,272
10	2134	\$98,668	\$86,314	\$250,000

To prepare this table we ranked all of the solicitable alums for School A by the median income of the zip code in which they reside. Then we divided the alums into ten roughly equal sized groups called deciles. Notice that the median income for the 2,247 alums in the first decile is \$30,982. What we're looking at here is really the median of a bunch of median values. That is, half of those 2,247 alums live in zip codes where the median income is less than \$30,982 and half live in zip codes where the median income is greater than \$30,982 but less than \$34,817, the lower bound of the second decile. Look at the 2,134 alums in the tenth decile. Their median income value is \$98,658. Their lower bound is \$86,314 and their upper bound is \$250,000. That is, all the alums in this decile live in zip codes whose median incomes fall between these two values. Figures 1-4 are graphic representations of the medians you see in their corresponding tables.



Go ahead and scroll through Tables 2-4, and Figures 2-4. When you get to Table 5, we'll repeat the same explanation for how we prepared the house value medians.

Table 2: Median Income Deciles for School B

ZIP CODE DECILES	Count	MEDIAN HOUSE VALUE	Lower Bound	Upper Bound
1	2124	\$40,000	\$0	\$45,439
2	3363	\$47,306	\$45,447	\$53,446
3	2924	\$54,493	\$53,462	\$57,517
4	2841	\$58,019	\$57,523	\$60,417
5	3285	\$60,661	\$60,422	\$60,724
6	2687	\$64,155	\$60,739	\$66,812
7	2761	\$70,304	\$66,819	\$74,709
8	2659	\$78,382	\$74,723	\$83,744
9	2592	\$90,194	\$83,750	\$99,930
10	2490	\$110,702	\$99,960	\$228,726

Fig. 2: Median Income Deciles for School B

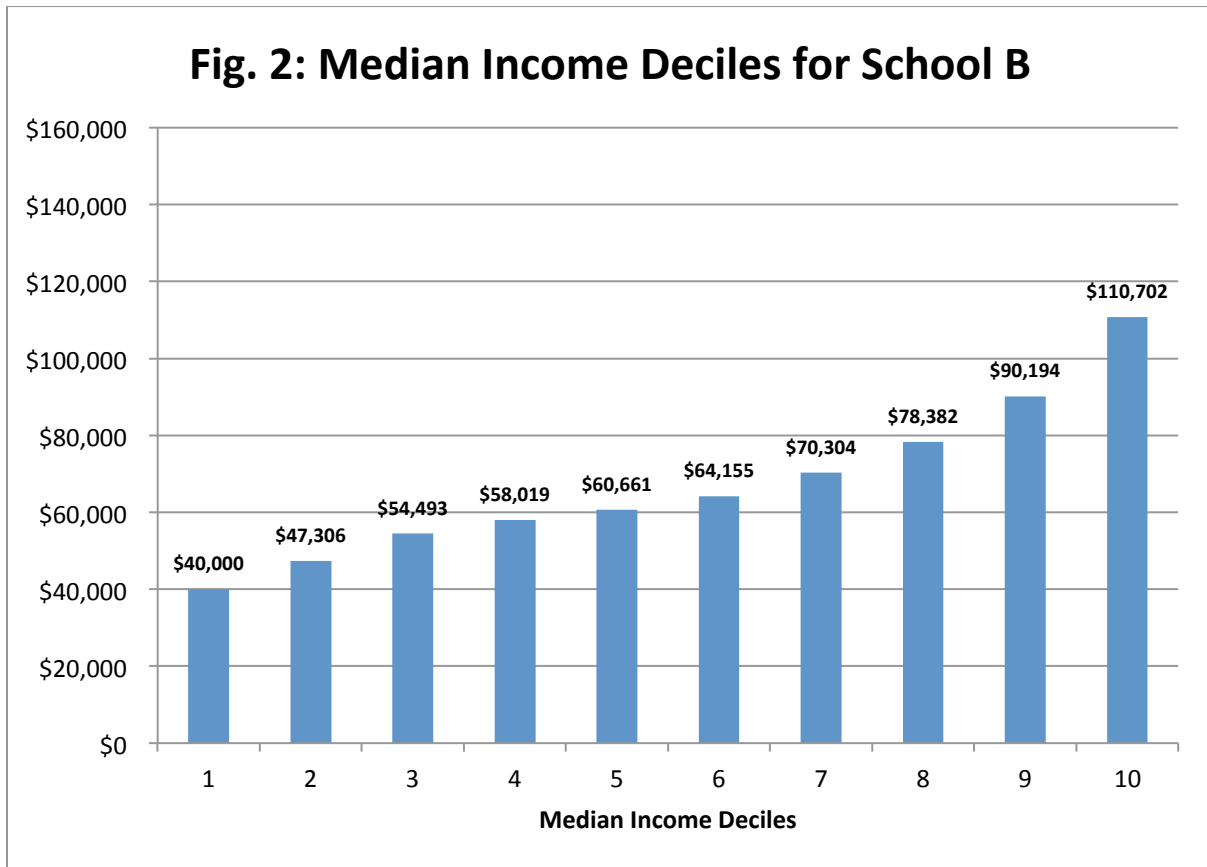


Table 3: Median Income Deciles for School C

ZIP CODE DECILES	Count	MEDIAN HOUSE VALUE	Lower Bound	Upper Bound
1	1235	\$31,851	\$0	\$38,826
2	1234	\$44,857	\$38,835	\$49,215
3	1231	\$53,564	\$49,219	\$57,119
4	1229	\$61,902	\$57,136	\$65,700
5	1237	\$70,066	\$65,703	\$74,053
6	1234	\$77,835	\$74,097	\$82,564
7	1239	\$88,450	\$82,572	\$92,408
8	1228	\$99,318	\$92,460	\$105,065
9	1233	\$111,613	\$105,072	\$122,153
10	1232	\$146,447	\$122,396	\$250,000

Fig. 3: Median Income Deciles for School C

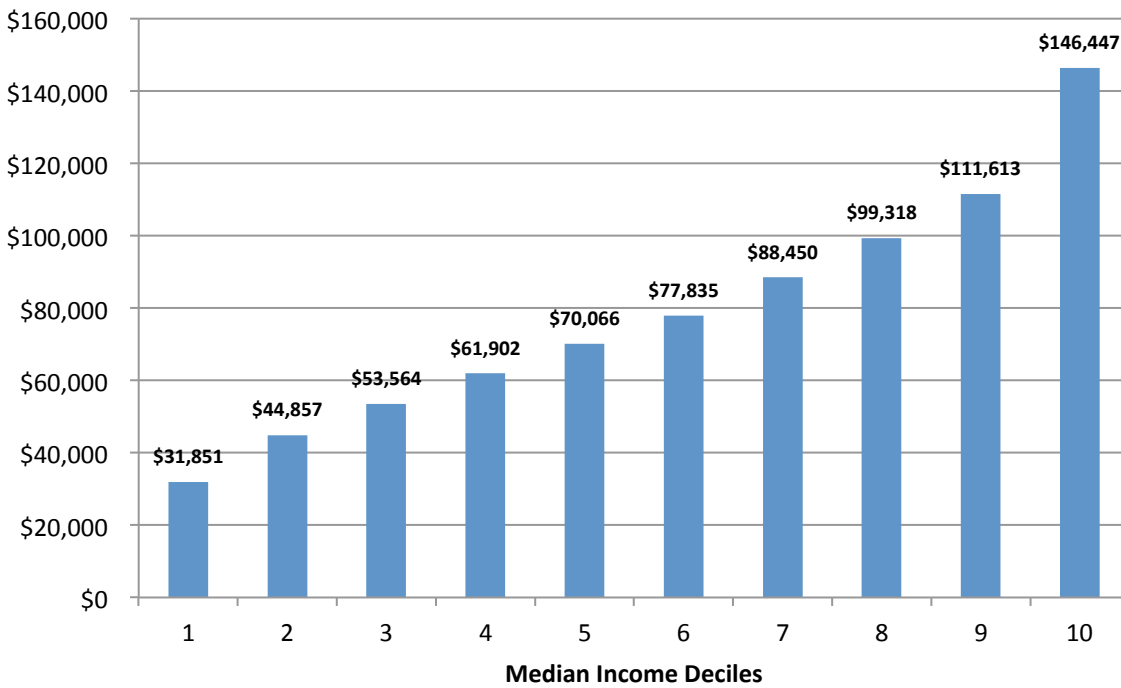
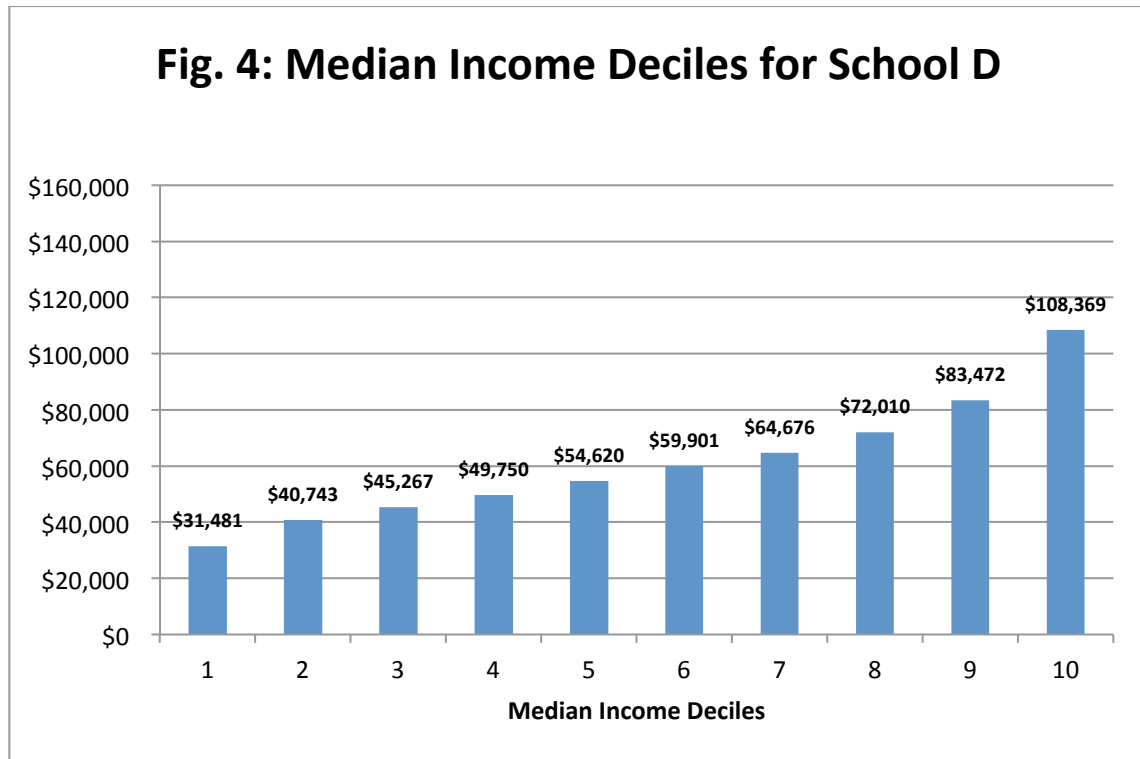


Table 4: Median Income Deciles for School D

ZIP CODE DECILES	Count	MEDIAN HOUSE VALUE	Lower Bound	Upper Bound
1	1289	\$31,481	\$0	\$37,282
2	1252	\$40,743	\$37,303	\$43,170
3	1263	\$45,267	\$43,176	\$47,500
4	1287	\$49,750	\$47,524	\$52,168
5	1261	\$54,620	\$52,176	\$57,490
6	1216	\$59,901	\$57,495	\$63,648
7	1324	\$64,676	\$63,657	\$68,173
8	1269	\$72,010	\$68,194	\$77,509
9	1299	\$83,472	\$77,594	\$91,004
10	1242	\$108,369	\$91,112	\$237,604

Fig. 4: Median Income Deciles for School D



Here we are at the house value medians tables and figures. As we mentioned above, this explanation will sound repetitious. If you feel comfortable with how we've laid out this material, just skip ahead.

To prepare Table 5 we ranked all of the solicitable alums for School A by the median house value of the zip code in which they reside. Then we divided the alums into ten roughly equal sized groups called deciles. Notice that the median income for the 2,100 alums in the first decile is \$82,600. What we're looking at here is really the median of a bunch of median values. That is, half of those 2,100 alums live in zip codes where the median house value is less than \$82,600 and half live in zip codes where the median house value is greater than \$82,600 but less than \$99,700, the lower bound of the second decile. Look at the 2,128 alums in the tenth decile. Their median house value is \$406,000. Their lower bound is \$336,000 and their upper bound is \$1,000,000. That is, all the alums in this decile live in zip codes whose median house values fall between these two values. Figures 5-8 are graphic representations of the medians you see in their corresponding tables.

Table 5: Median House Value Deciles for School A

ZIP CODE DECILES	Count	MEDIAN HOUSE VALUE	Lower Bound	Upper Bound
1	2100	\$82,600	\$0	\$99,600
2	2287	\$112,700	\$99,700	\$117,000
3	1940	\$123,200	\$117,100	\$132,500
4	2323	\$139,200	\$132,600	\$147,900
5	2222	\$156,450	\$148,000	\$164,200
6	2339	\$173,500	\$164,300	\$186,200
7	2432	\$196,200	\$186,300	\$210,800
8	2271	\$228,900	\$210,900	\$252,800
9	2380	\$281,800	\$252,900	\$335,900
10	2128	\$406,000	\$336,000	\$1,000,000

Fig. 5: Median House Value Deciles for School A

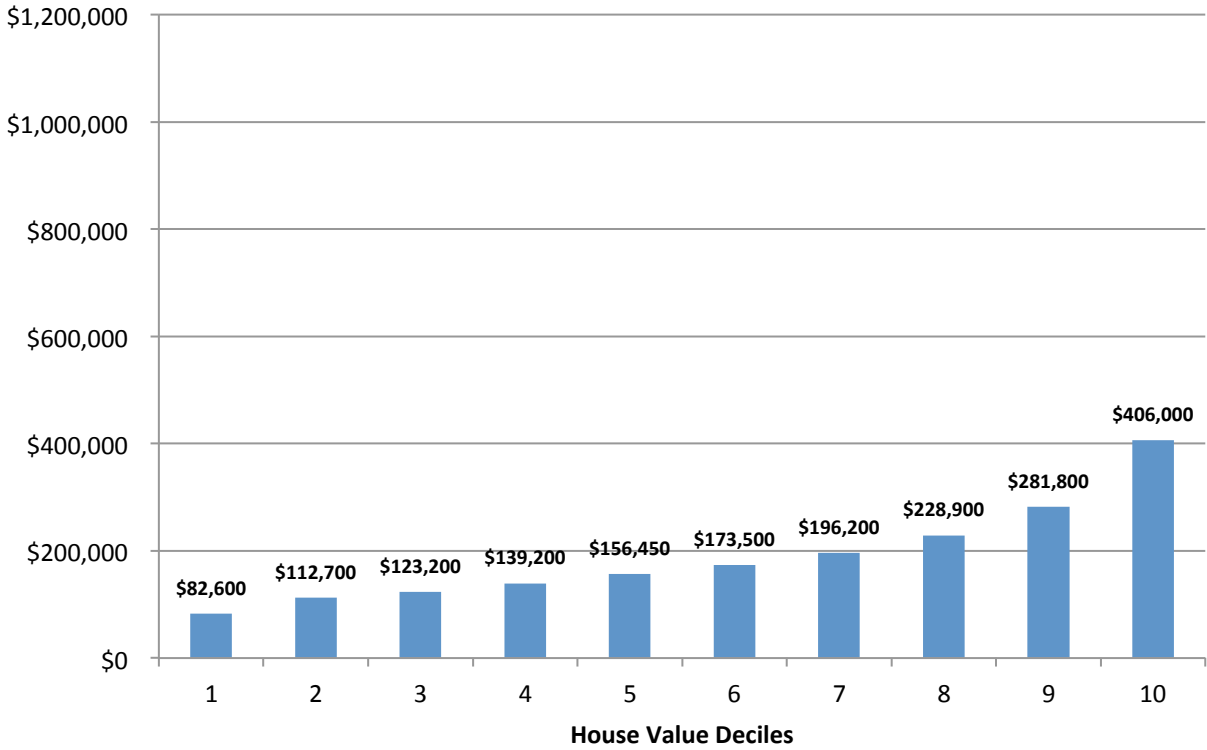


Table 6: Median House Value Deciles for School B

ZIP CODE DECILES	Count	MEDIAN HOUSE VALUE	Lower Bound	Upper Bound
1	2988	\$130,000	\$0	\$139,500
2	2595	\$151,200	\$139,800	\$159,200
3	2671	\$165,100	\$159,300	\$170,300
4	3085	\$172,800	\$170,500	\$189,900
5	3004	\$193,800	\$190,000	\$197,800
6	2982	\$216,700	\$198,000	\$229,700
7	2712	\$250,900	\$229,800	\$276,600
8	2640	\$310,400	\$276,900	\$344,200
9	2543	\$379,700	\$344,400	\$429,900
10	2506	\$503,100	\$430,000	\$1,000,000

Fig. 6: Median House Value Deciles for School B

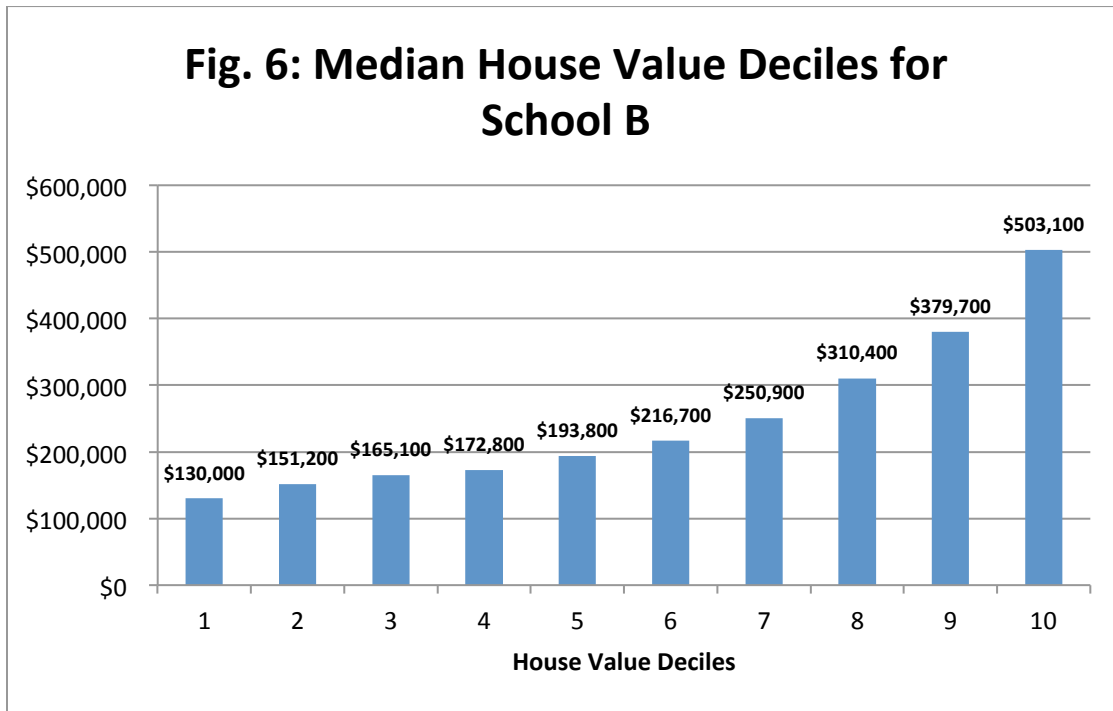


Table 7: Median House Value Deciles for School C

ZIP CODE DECILES	Count	MEDIAN HOUSE VALUE	Lower Bound	Upper Bound
1	1234	\$114,500	\$0	\$162,500
2	1233	\$194,100	\$162,600	\$225,900
3	1233	\$250,900	\$226,000	\$284,900
4	1233	\$304,500	\$285,100	\$339,700
5	1243	\$371,400	\$339,900	\$404,200
6	1234	\$433,700	\$404,400	\$470,100
7	1223	\$511,200	\$470,200	\$576,000
8	1226	\$636,200	\$576,500	\$685,300
9	1238	\$793,200	\$686,100	\$877,400
10	1235	\$994,200	\$881,600	\$1,000,000

Fig. 7: Median House Value Deciles for School C

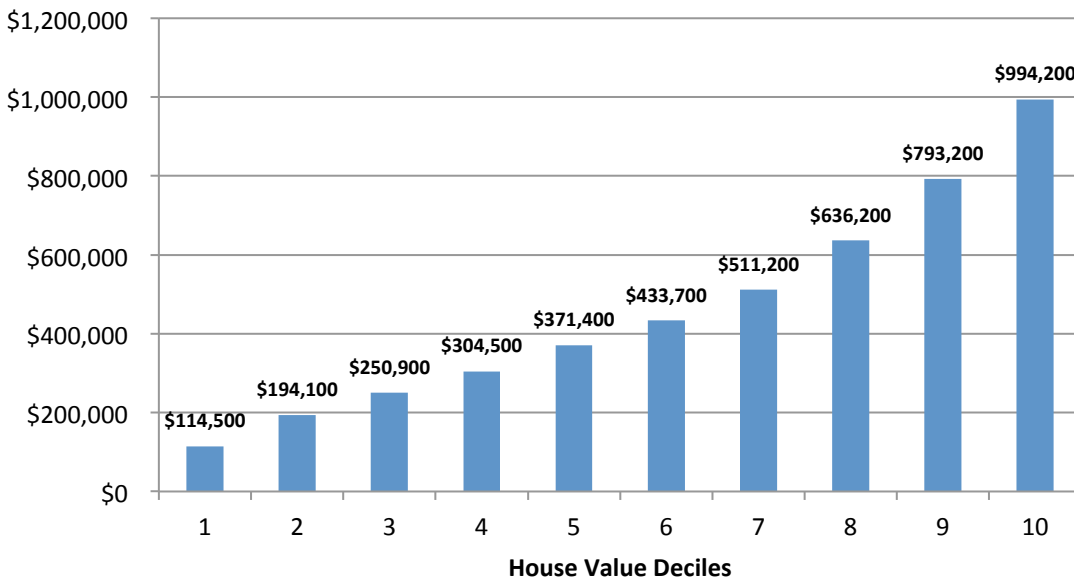
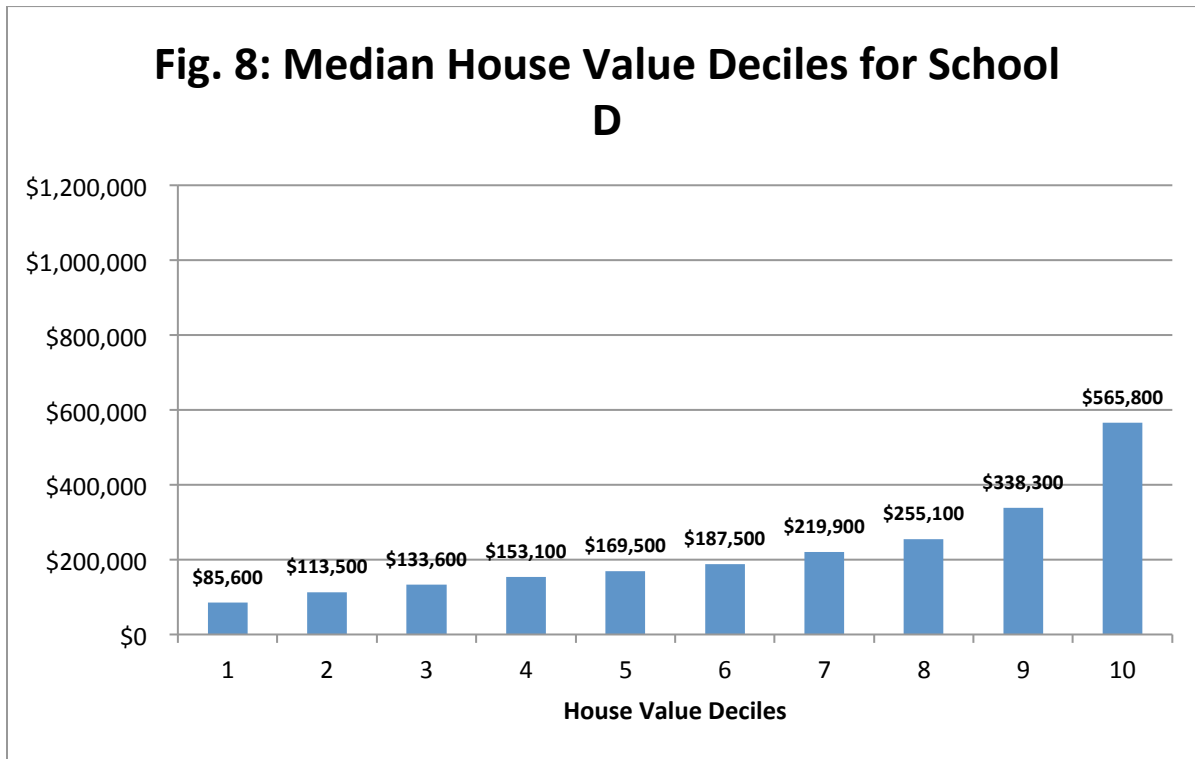


Table 8: Median House Value Deciles for School D

ZIP CODE DECILES	Count	MEDIAN HOUSE VALUE	Lower Bound	Upper Bound
1	1265	85,600	0	99,200
2	1277	113,500	99,300	123,400
3	1269	133,600	123,500	142,500
4	1298	153,100	142,700	160,100
5	1254	169,500	160,200	176,300
6	1287	187,500	176,400	202,300
7	1239	219,900	202,600	236,100
8	1276	255,100	236,200	286,100
9	1269	338,300	286,200	416,100
10	1268	565,800	416,600	1,000,000



So, that's a heap of information we've asked you to browse through. What we see in all this stuff is a great deal of variability. For example, if you divide the median

income values for the top deciles by the median income values for the bottom deciles across the four schools, here's what you get:

- School A: The median income for the top decile is 3.2 times as big as the bottom decile.
- School B: The median income for the top decile is 2.8 times as big as the bottom decile.
- School C: The median income for the top decile is 4.6 times as big as the bottom decile.
- School D: The median income for the top decile is 3.4 times as big as the bottom decile.

If you divide the median house values for the top deciles by the median house values for the bottom deciles across the four schools, here's what you get:

- School A: The median house value for the top decile is 4.9 times as big as the bottom decile.
- School B: The median house value for the top decile is 3.9 times as big as the bottom decile.
- School C: The median house value for the top decile is 8.7 times as big as the bottom decile.
- School D: The median house value for the top decile is 6.6 times as big as the bottom decile.

In short, the wealth of the alums in these schools appears to be widely dispersed. In School C it's safe to say that the wealth is *very* widely dispersed.

Now on to the part of this piece we find most interesting.

The Relationship between “Wealth” and Giving and between Class Year and Giving

For a very long time the two of us have been harping on something that may be getting a bit tiresome: the *overemphasis* on finding outside wealth data in major giving, and the *underemphasis* on looking at internal data. Our problem has been that we've never had a solid way to systematically compare these two sources of

data as they relate to the prediction of giving in higher education. We're still a good ways away from having done such a comparison. But we do have something to show you that we find intriguing.

Here's what we did:

- For each of the four schools we created a 0/1 outcome variable where 0 = "alum has given less than \$100 lifetime hard credit to the school;" 1= "alum has given \$100 lifetime hard credit or more to the school."
- For each school we plotted this value by median income deciles, house value deciles, and class year deciles. (Tables 9-12 show the range of class years for each school decile.)

We'll tell you what we think after you've had a chance to browse through these figures and tables.

School A

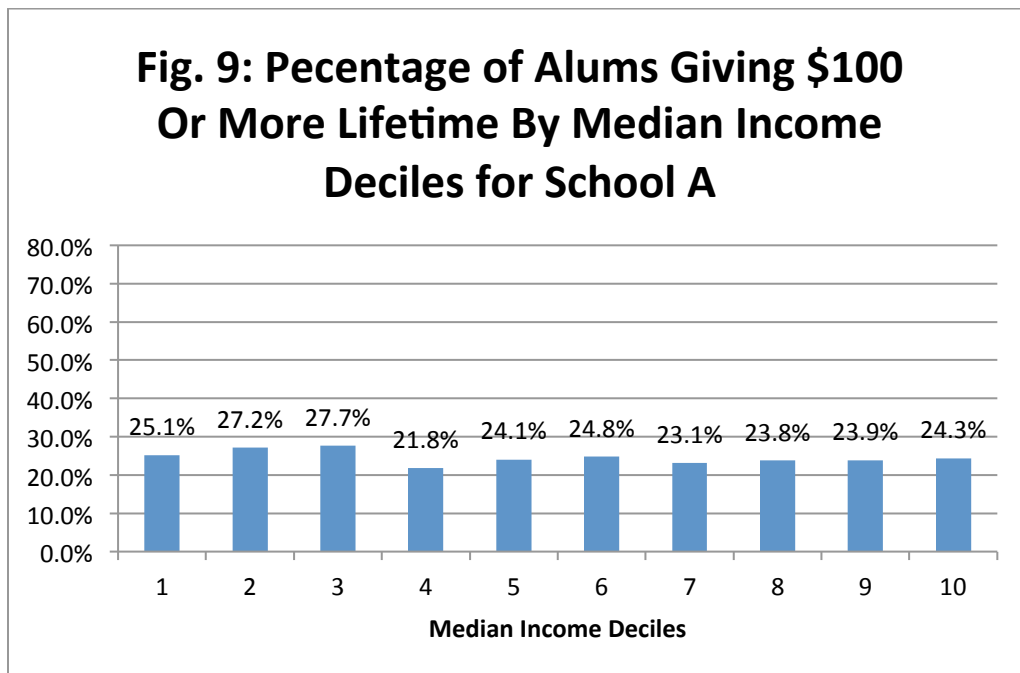


Fig. 10: Percentage of Alums Giving \$100 Or More Lifetime By Median House Values for School A

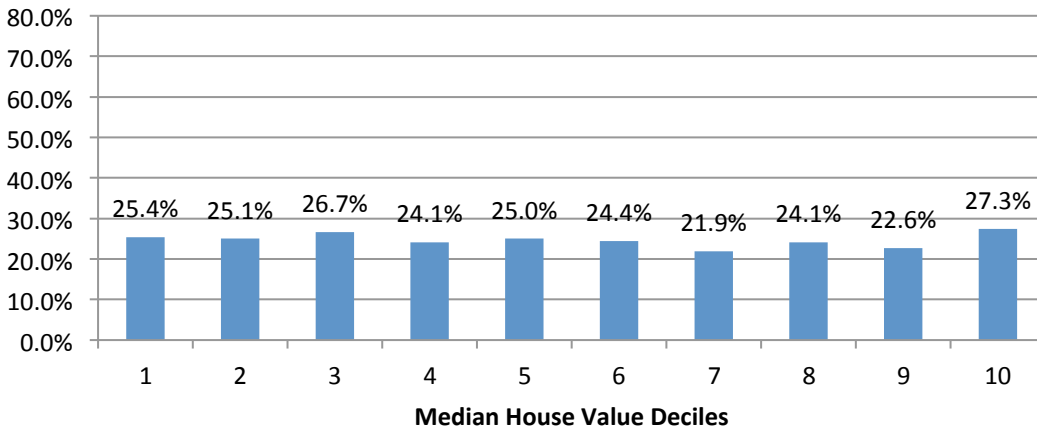
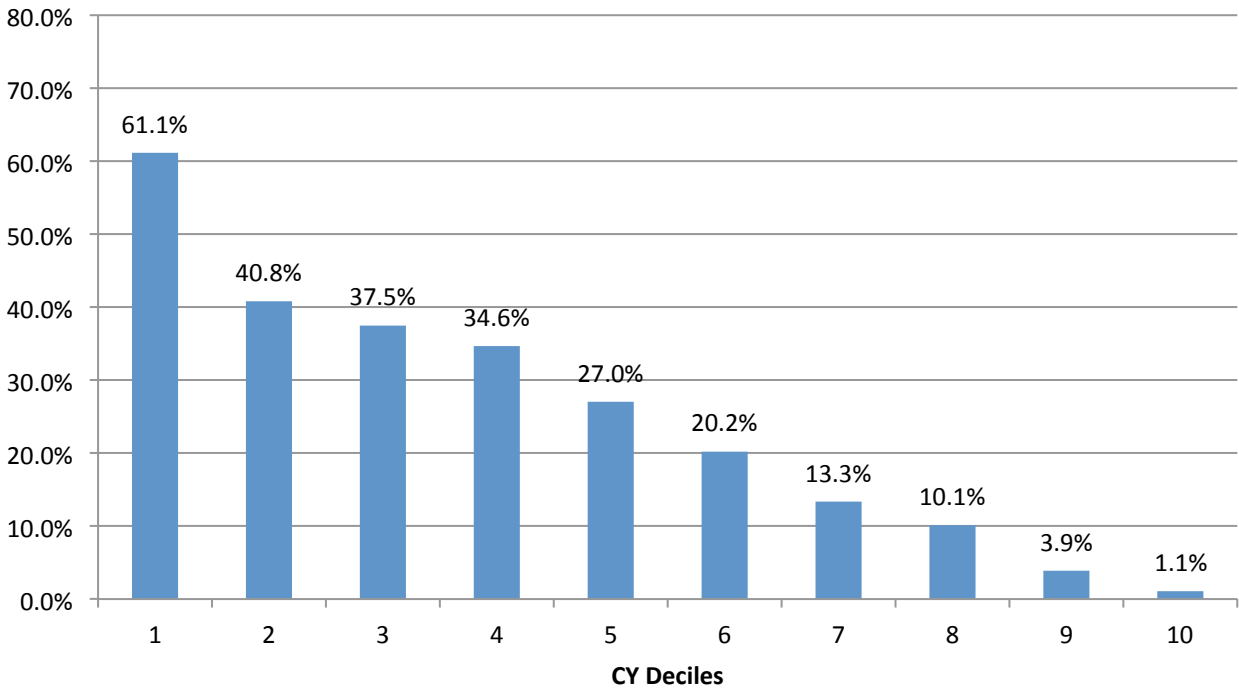


Table 9: Class year Deciles for School A

CY DECILE	Count	EARLIEST YEAR	LATEST YEAR
1	2183	1929	1964
2	2121	1965	1973
3	2242	1974	1980
4	2136	1981	1986
5	2093	1987	1991
6	2570	1992	1996
7	2114	1997	2000
8	2563	2001	2005
9	2035	2006	2009
10	2365	2010	2016

Fig. 11: Percentage of Alums Giving \$100 Or More Lifetime By Class Year Decile for School A



School B

Fig.12: Percentage of Alums Giving \$100 Or More Lifetime By Median Income Deciles for School B

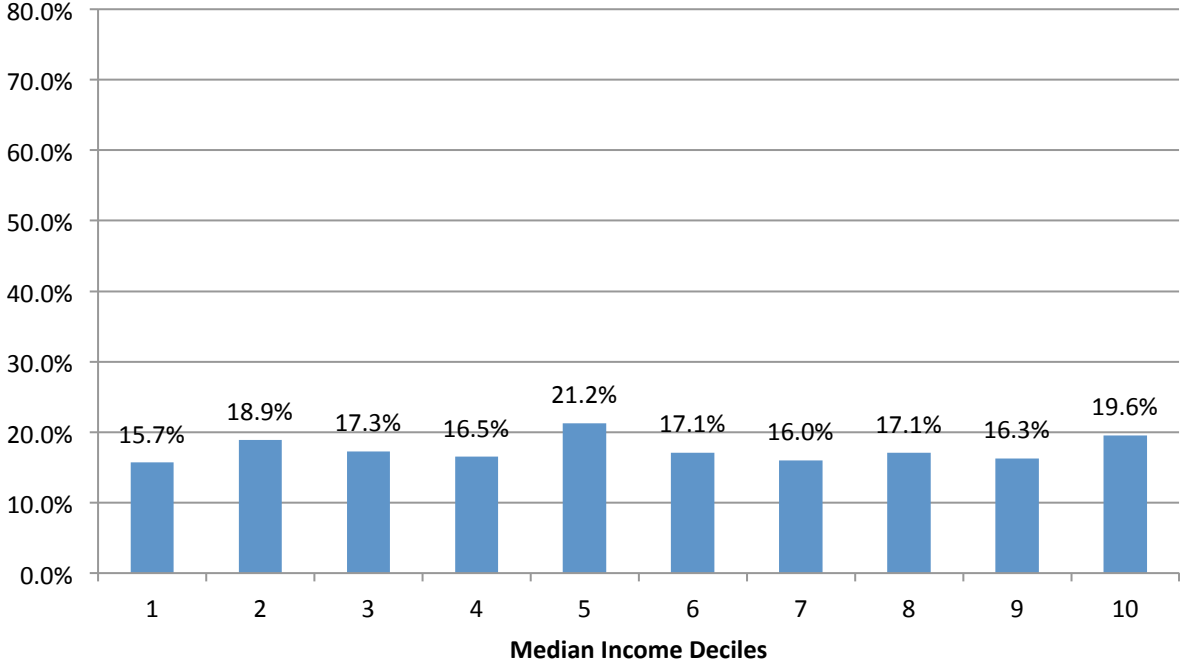


Fig. 13: Percentage of Alums Giving \$100 Or More Lifetime By Median House Values for School B

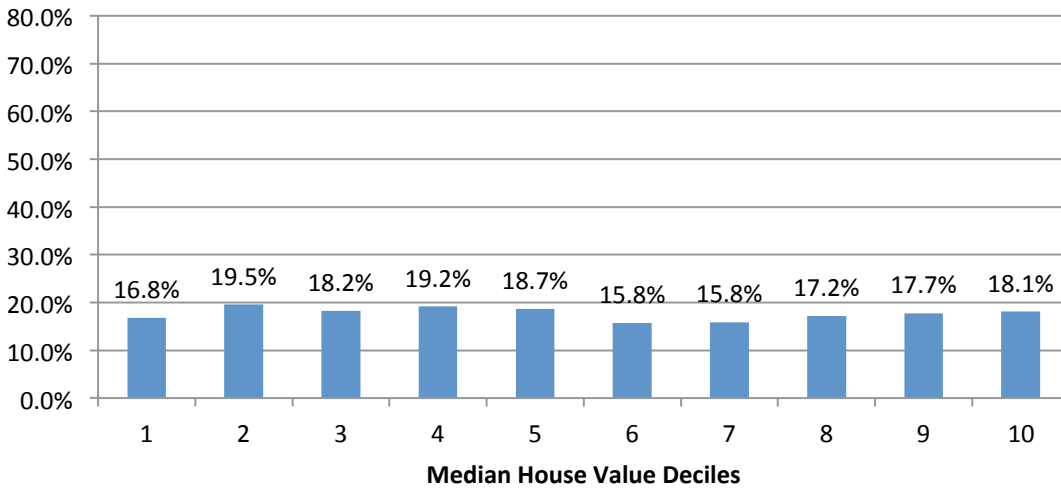
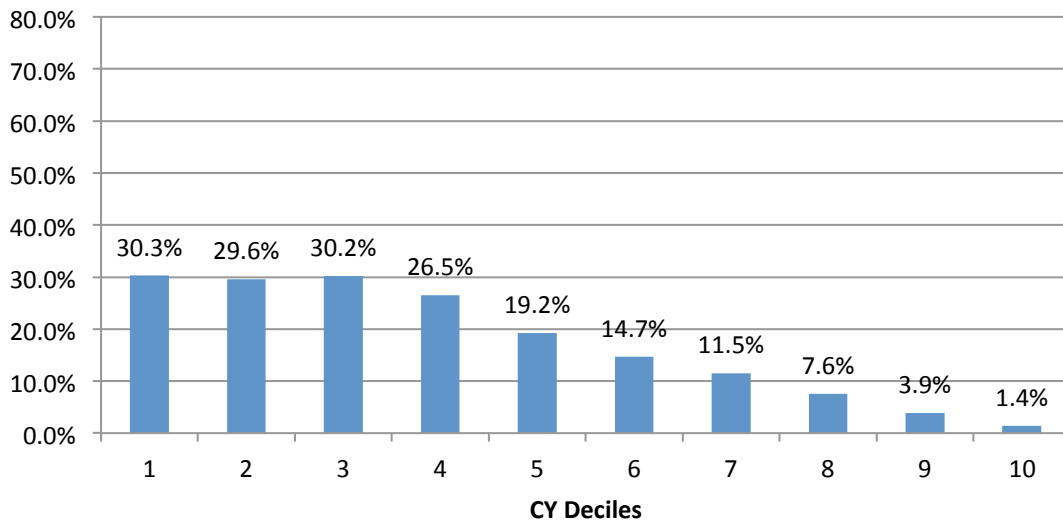


Table 10: Class year Deciles for School B

CY DECILE	Count	EARLIEST YEAR	LATEST YEAR
1	2968	1929	1974
2	2486	1975	1980
3	3241	1981	1986
4	2459	1987	1990
5	2900	1991	1994
6	3084	1995	1998
7	2577	1999	2001
8	2617	2002	2004
9	2872	2005	2007
10	2766	2008	2010

Fig. 14: Percentage of Alums Giving \$100 Or More Lifetime By Class Year Decile for School B



School C

Fig. 15: Percentage of Alums Giving \$100 Or More Lifetime By Median Income Deciles for School C

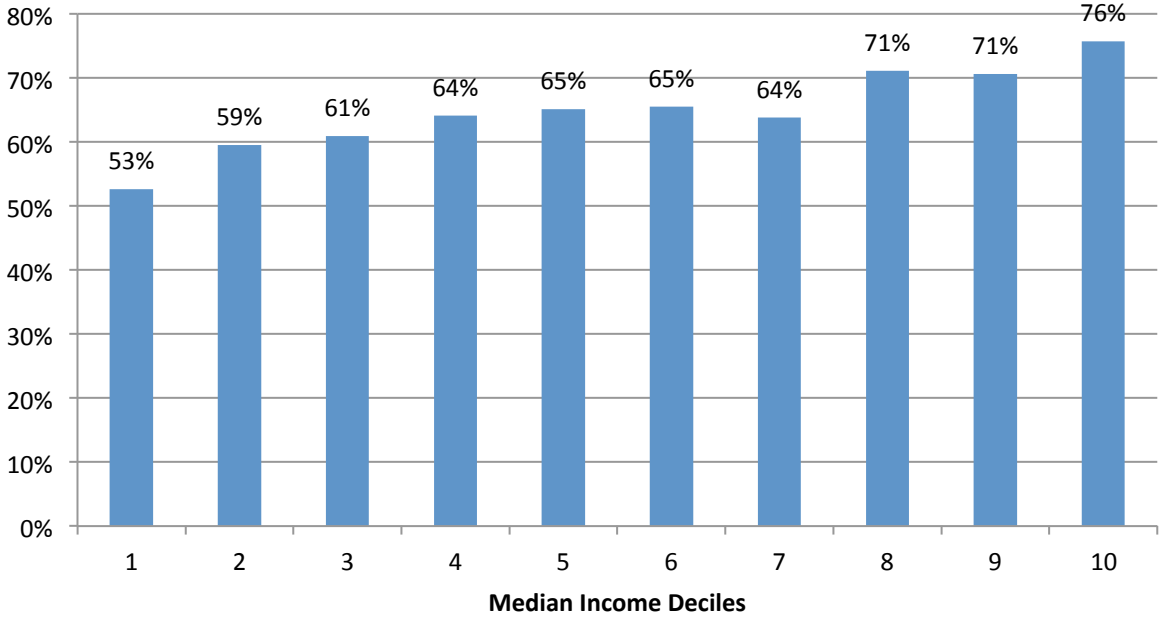


Fig. 16: Percentage of Alums Giving \$100 Or More Lifetime By Median House Values for School C

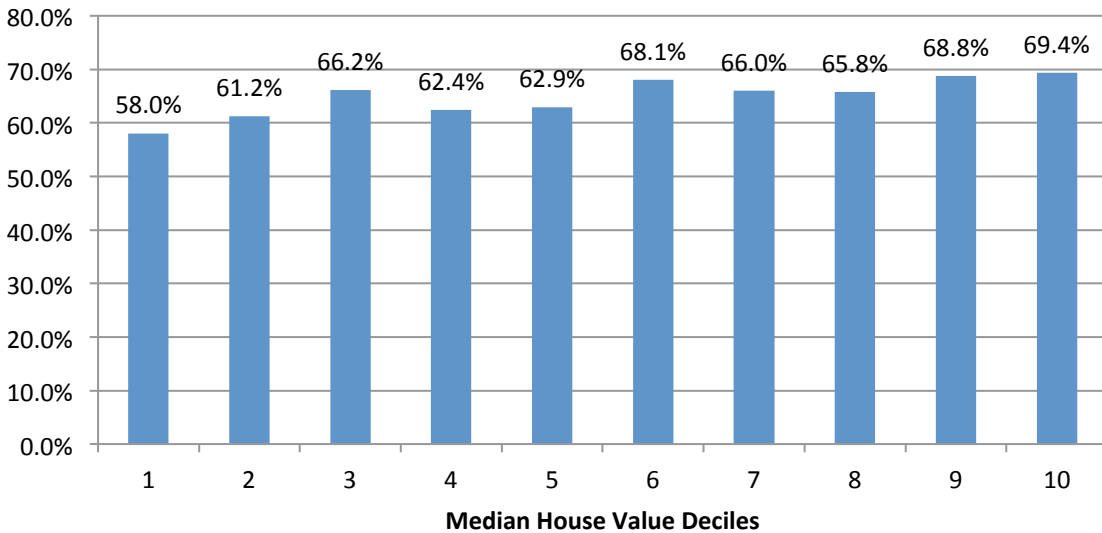
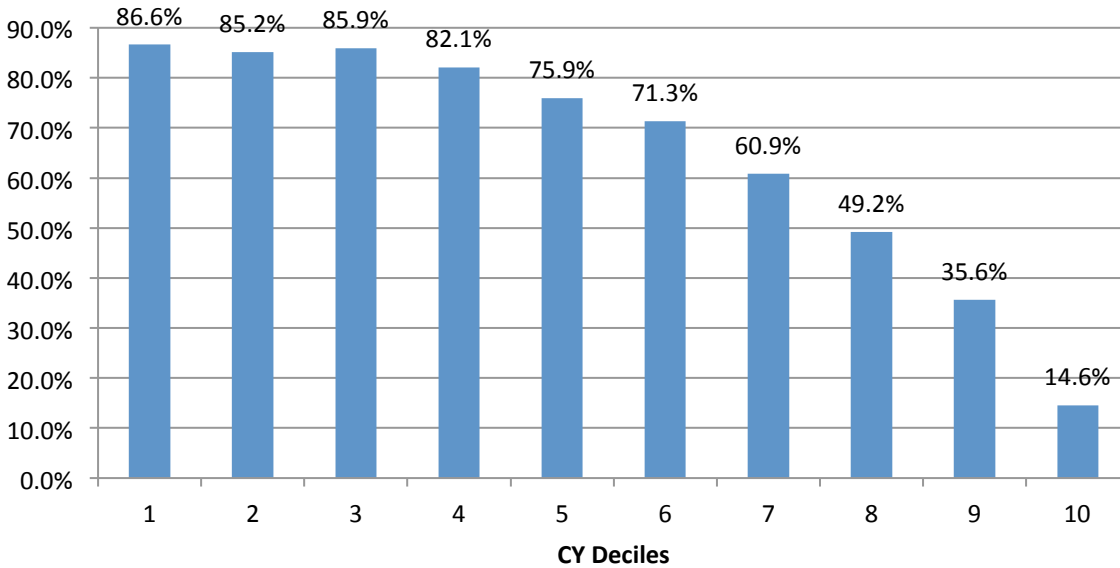


Table 11: Class year Deciles for School C

CY DECILE	Count	EARLIEST YEAR	LATEST YEAR
1	1263	1931	1961
2	1233	1962	1972
3	1224	1973	1979
4	1163	1980	1984
5	1284	1985	1989
6	1112	1990	1993
7	1339	1994	1998
8	1382	1999	2003
9	1183	2004	2007
10	1147	2008	2013

Fig. 17: Percentage of Alums Giving \$100 Or More Lifetime By Class Year Decile for School C



School D

Fig. 18: Percentage of Alums Giving \$100 Or More Lifetime By Median Income Deciles for School D

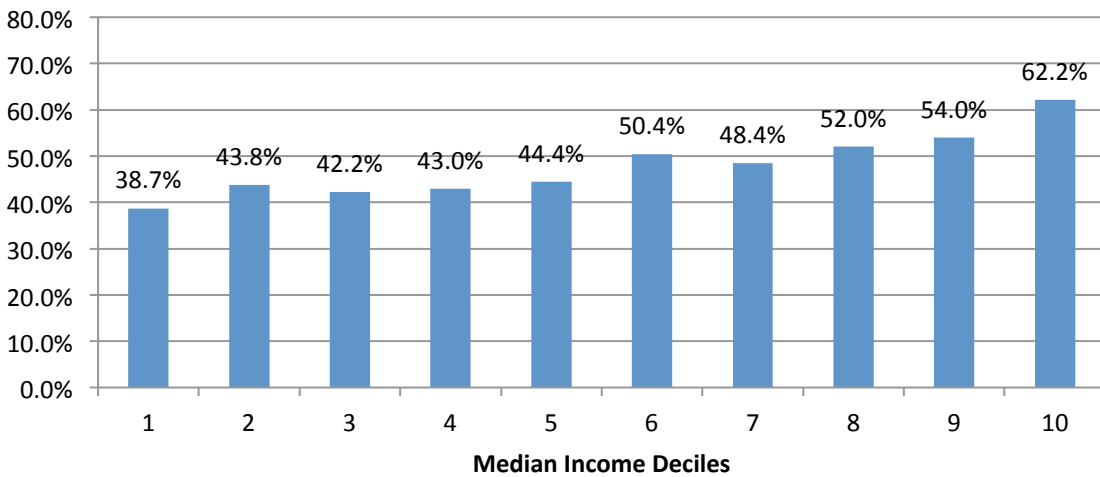


Fig. 19: Percentage of Alums Giving \$100 Or More Lifetime By Median House Values for School D

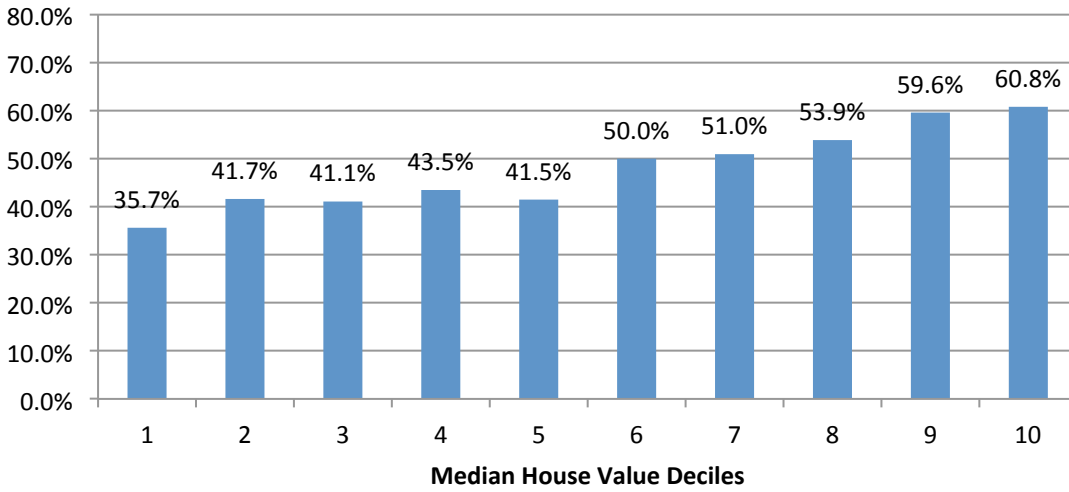
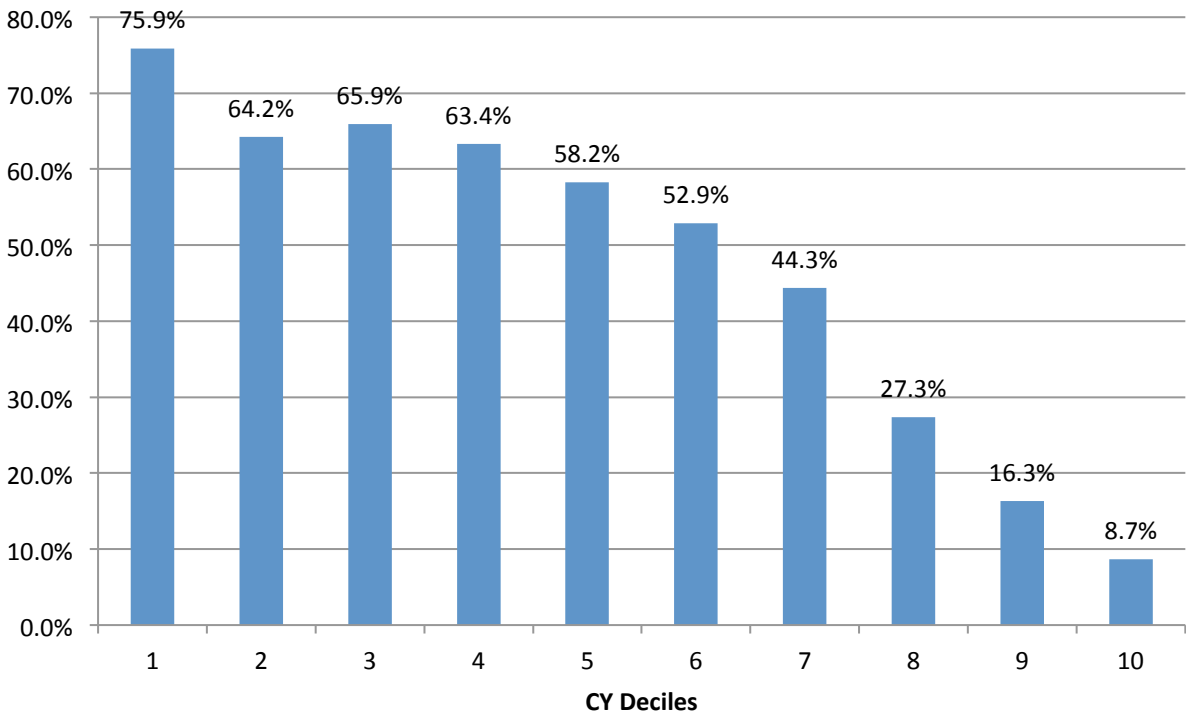


Table 12: Class year Deciles for School D

CY DECILE	Count	EARLIEST YEAR	LATEST YEAR
1	1232	1925	1956
2	1351	1957	1965
3	1206	1966	1970
4	1247	1971	1975
5	1334	1976	1981
6	1442	1982	1987
7	1274	1988	1992
8	1248	1993	1997
9	1122	1998	2002
10	1406	2003	2010

Fig. 20 Percentage of Alums Giving \$100 Or More Lifetime By Class Year Decile for School D



Three things stick out from all these figures:

- The schools vary quite a bit in terms of giving levels.
- For both median income and median house value, the relationship with giving is nonexistent for two schools and only moderate for the other two schools.
- The relationship with class year and giving is much more pronounced in all four schools than is either median income or median house value.

The schools vary quite a bit in terms of giving levels.

For example, if you look at the percentage of alums in the fifth class year decile (sort of the middle-aged group) who have given \$100 or more lifetime across the four schools, you see big differences. School A: **27.0%**; School B: **19.2%**; School C: **75.9%**; and School D: **58.2%**. There is nothing particularly surprising about this. Some schools have alums who are very generous; others don't.

For both median income and median house value, the relationship with giving is nonexistent for two schools and only moderate for the other two schools.

Here we could ask you to scroll way back to find the figures that support this statement. But that's a pain in the neck. To avoid all that we've duplicated the two figures you see below; they do a good job of getting the message across.

Figure 9 clearly shows that at School A there is no relationship between giving and the median income of the zip codes in which alums reside. For example, the giving rate for the tenth decile is actually a little lower than giving rate for the first decile. If you have the patience and persistence to do it, you can scroll back and look at Figures 10, 12, and 13 where you will see much the same pattern.

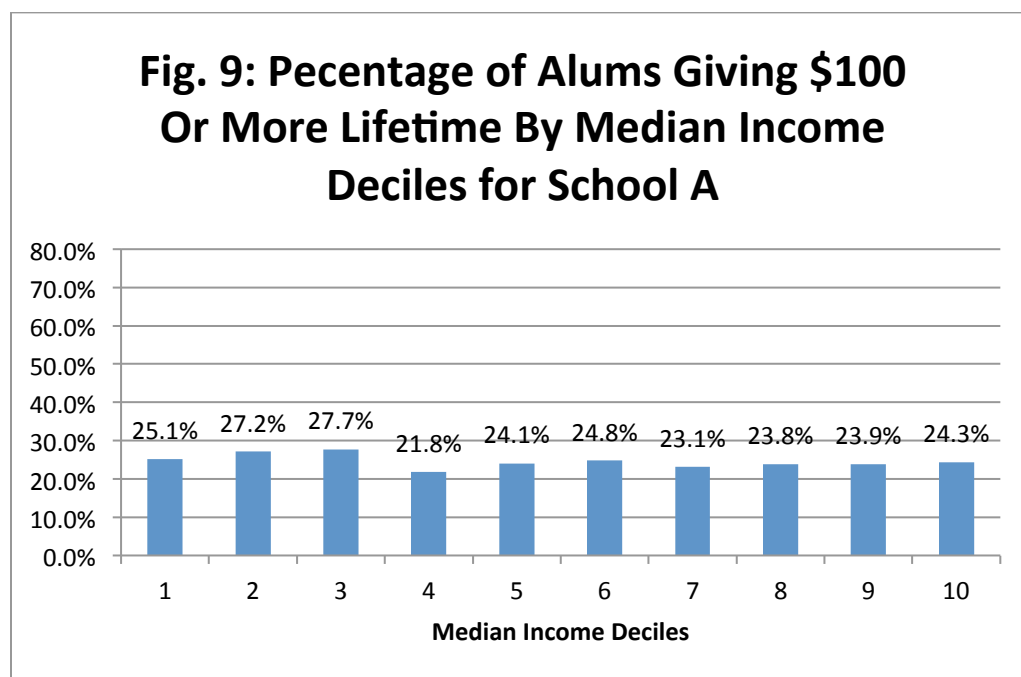
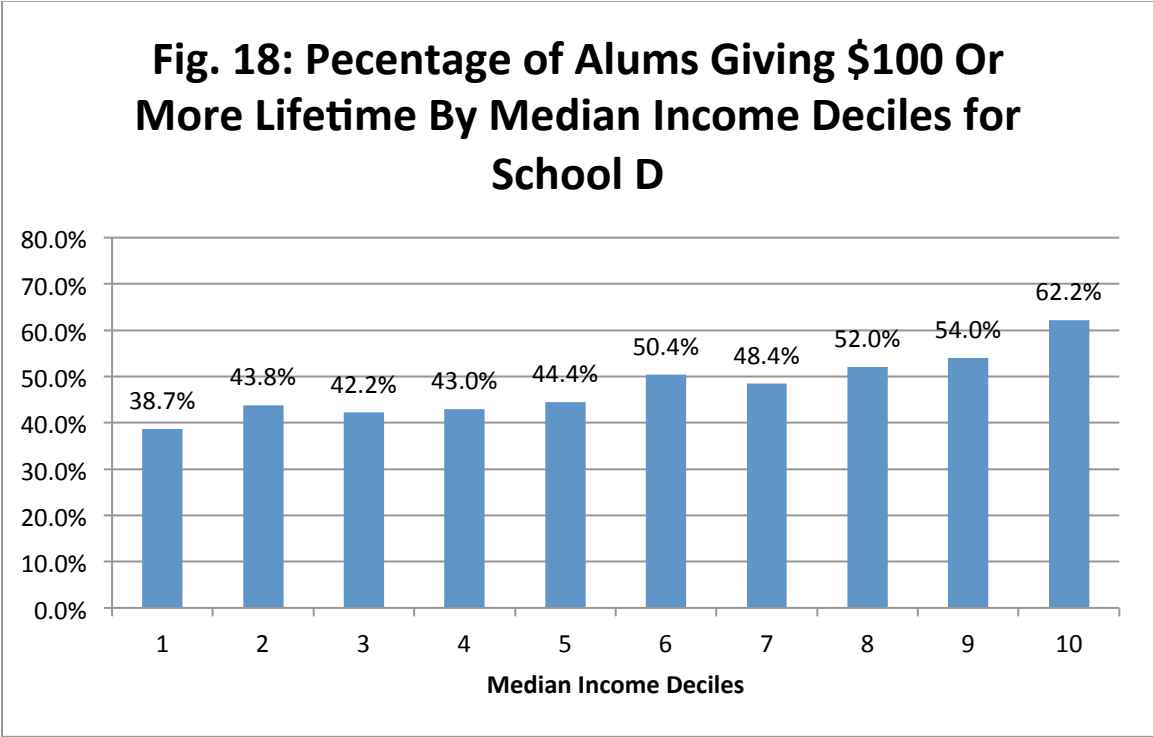


Figure 18 shows the strongest relationship between wealth data and giving for any of the four schools. There is an obvious trend in the chart. No question about that. But we just don't find it all that impressive.



The relationship with class year and giving is much more pronounced in all four schools than is either median income or median house value.

Again, we could ask you to scroll back through all the figures that support *this* statement. Let's not do that. Let's have you take another look at Figure 18 and compare it to Figure 20 (right below it) that shows the relationship between class year and giving at the same school, School D.

Fig. 18: Percentage of Alums Giving \$100 Or More Lifetime By Median Income Deciles for School D

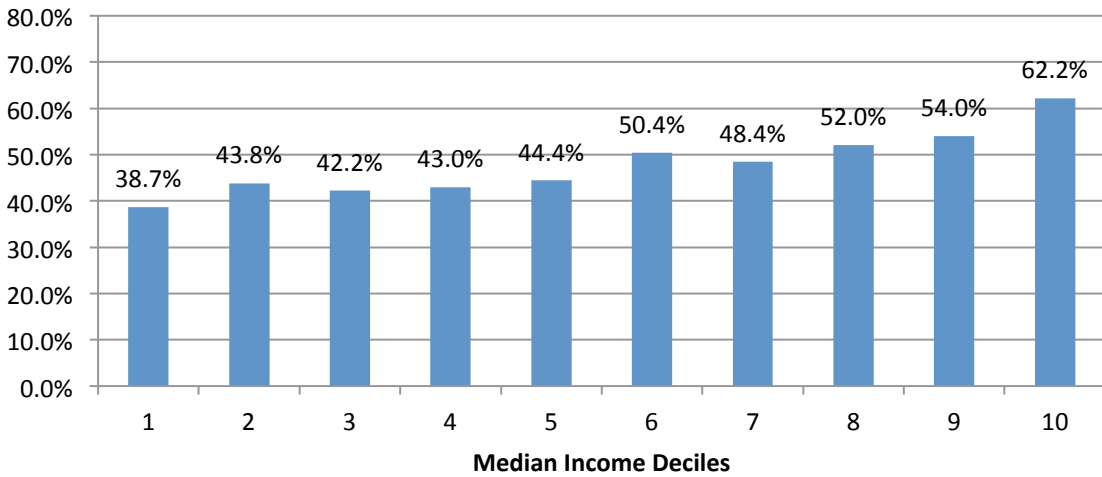
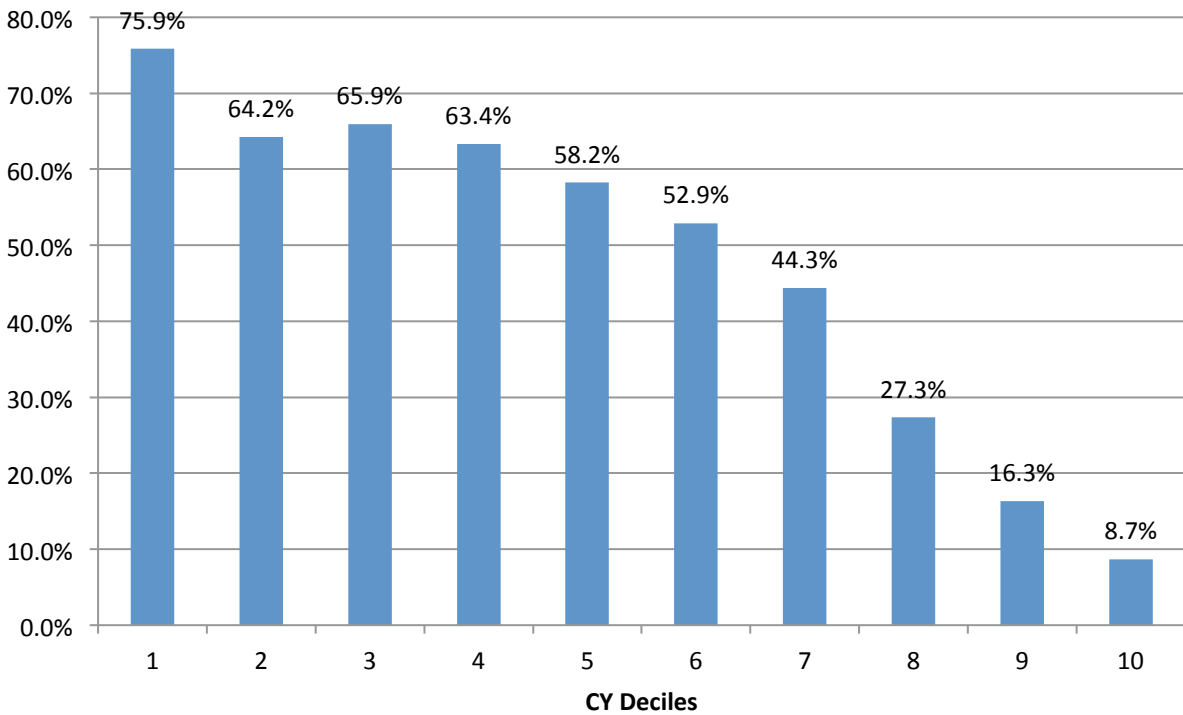


Fig. 20 Percentage of Alums Giving \$100 Or More Lifetime By Class Year Decile for School D



Look at the difference between the two charts. We think that difference speaks volumes.

Some Closing Thoughts

In no particular order:

- We've left out a lot of the comparisons we've done across the four schools between internal predictors and giving and the census data and giving. If we were to show you regression models we've built using just the census data and just the internal data, you would see the internal data models win hands down. We didn't include those comparisons here because we didn't want to risk confusing people.
- The results we've shown don't do anything to detract from John Sammis's and my contention that internal alumni data are more predictive of giving than external data. On the other hand, the results in no way prove we're right about this contention.
- The census data we've looked at are likely to be more accurate about the wealth of all the thousands of alumni included in our study than any single institution or organization (other than the census) could provide on these individuals. Why do we say that? Because getting accurate estimates of people's wealth on an individual by individual basis is extremely hard to do. If you've ever been involved in a wealth screening, you know that for certain. You know that for many of the names you submit, nothing at all comes back – even for people you know to be very wealthy because of their notoriety or contributions to your institution or both. If you've done a screening with more than one organization on the same individuals, you know how widely the estimates from these two or more organizations can differ.
- The census data we've used here is cheap and relatively easy to get hold of. We recommend you acquire some of it for your own institution and play around with it. You won't be bored, and you may uncover some interesting and useful results
- As always, let us know what you think.