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Libraries

Give Us a Dollar and We'll Give You Back Four (2012-13): Commentary, Part 1

Except for Chapter 1 and the Appendix, *Give Us a Dollar and We'll Give You Back Four (2012-13)* is almost entirely commentary-free. Most chapters and state sections have one paragraph of text and lots of tables, period.

It's that way for two reasons, of which the second is (I believe) far more important:

- Adding commentary—say one paragraph per table, although some of the more interesting comments might involve comparisons between chapters and tables within chapters—would nearly double the length of the book, making it much more expensive in print and much harder to work with as a PDF. (It would also have taken a lot longer.)
- The book is primarily designed as a tool to help individual public libraries tell *their* funding stories. Adding *my* comments on what I found interesting in tables not only doesn't automatically help that effort, it could hinder it. Just as infographics tend to oversimplify data, adding comments pointing to one aspect of a table tends to obscure the rest of the table.

Inside This Issue

I do think there's a lot to comment about in the book, possibly at least one comment for each of the some 800 tables (taking each combined expense table as two actual tables) and a few hundred comments on the relationships between tables. There won't be that many comments, to be

sure, partly because—when separated from the tables—it becomes repetitive to note the extent to which a given table follows the "spend more, do more, continue to get great value" theme.

I have been posting a few of those comments on *Walt at Random* (and some in shorter form on social networks) and will probably continue to do so. Here, and in a followup essay, I'll offer those and some other comments. Some of this commentary may not make complete sense without a copy of the book—and, of course, I'd be delighted if you'd acquire such a copy, either as a $21.95 trade paperback, an $11.99 DRM-free PDF or a $31.50 hardbound book. (All three versions have the same interior content.)

Most of this commentary is organized by chapter, followed by some cross-chapter tidbits. Chapter 1 already includes commentary, so I'll skip right over that. What tends to be interesting about tables in chapters 3-19 (libraries by size of library) is, in part, how percentages *differ* from those in Chapter 2—that is, the extent to which libraries of a given size differ from overall norms. Sometimes, those differences are easily explainable. I always find them interesting, and hope you do as well. But first…

Why No Graphs or Infographics?

Why is the book composed entirely of tables (with a small amount of supporting text)? Isn't it easier to interpret graphs? Or, better yet, infographics?

As far as infographics are concerned, from most of them I've seen, my sense is that they're great at slanting a message and incredibly inefficient in providing detail. You *might* be able to turn any given table into an infographic; you might not. (It seems to be common for infographics to be enormously large as well, which isn't going to work in a 6x9" book—but that's a different issue.)

Why not graphs? I *love* good graphs—but two things argued against using them for this book:

- Compared to *these* tables, they're inefficient in terms of space. I might be able to do the equivalent of the budget tables in about twice the space they currently occupy, were it not for the second factor. The benchmark tables offer more kinds of information than I could reasonably fit into a single graph.
- Graphs would be more confusing and less clear. The methods I've used in the book provide buckets of similar libraries and compare different buckets—but within any given bucket, there will be considerable variety, given costs in different parts of the country, differences in library efficiency and differences in how each library spends money to serve its community best.

Here's an example: the circulation per capita budget table from Chapter 11, halfway through the book, covering libraries serving 6,800 to 8,699 potential patrons. Here's the circulation portion of the budget table:

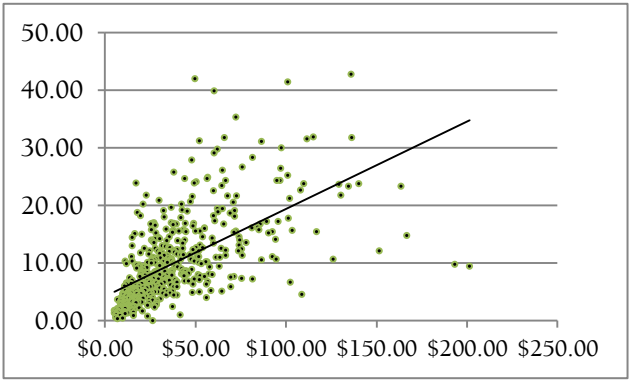
$/cap	Circulation per cap		
	25%	Med	75%
$73-$399	13.23	16.99	24.19
$53-$72	9.81	15.48	20.85
$43-$52	8.07	11.18	15.76
$36-$42	8.07	10.40	13.71
$31-$35	6.99	9.97	12.21
$26-$30	5.78	7.98	11.00
$21-$25	5.27	6.98	9.05
$17-$20	4.58	6.05	8.69
$12-$16	2.57	4.11	5.35
$5-$11	1.66	2.78	3.82
Overall	4.86	8.10	13.29

This shows unambiguously that, as library funding (expenditures per capita) improves, so does circulation per capita as represented by the median (the point at which half of libraries do that much or more). For that matter, the 75%ile (top quarter of libraries) also improves unambiguously and, except for one level, so does the 25%ile.

But the 75%ile for any given expenditure bracket is almost always higher than the 25%ile for the next bracket up—and sometimes higher than the median. A quarter of the libraries spending $17-$20.99 circulate more items per capita than half of the libraries spending $21-$25.99. So a graph's going to be messy.

How messy? Well, let's remove one extraordinary value (one library reporting 123.86 circulation per capita, three times as high as any other library) and see.

Here's the scatterplot showing 502 of the 503 libraries. The trendline is clear enough—but the data points are pretty fuzzy. Maybe someone



with superior charting tools and awareness of how to use them could provide charts that are as meaningful as the tables and do so without using several times as many pages, but I was unable to do so. Now, back to the commentary.

Chapter 2: The Overall Picture

This chapter offers benchmark and budget tables for the 8,659 libraries covered in the book (the appendix specifies how many libraries were omitted and why).

Expenditures per capita

Way back in 1995, Iused "a dime a day" as an expenditure measure for robust public libraries and "a nickel a day" for good libraries, in both cases using 1990 data.

But that was then. A nickel a day—$18.25 per year—in 1990 dollars is $30.46 in 2010 dollars. A dime a day—$36.50 per year—in 1990 dollars is $60.92 in 2010 dollars. More recently, I used "a buck a week" as a reasonable target figure. That may not be equal to robust 1990 funding, but it's better than "good" funding.

What do we see for FY2010?

- Just under 20% of public libraries exceeded a buck a week: 1,706 (19.75) had expenditures per capita between $53 and $399.99. Roughly half of those spent between $73 and $399.99; half spent $53 to $72.99
- Nearly half of the libraries (4,240, or 49%) spent at least $31 per year, exceeding the 2010 equivalent of a nickel a day.

I've informally thought of the two top brackets as being "well-funded" and the next three ($43-$52.99, $36-$42.99, $31-$35.99, each with almost exactly 10% of libraries) as being "reasonably well-funded." But, of course, that doesn't take into account state and local variations in costs.

Unfortunately, that leaves just over half of the libraries below $31 per week. I'm inclined to think of the bottom two brackets (807 libraries spending $5 to $11.99 and 881 spending $12 to $16.99) as being badly funded, and the next three (756 libraries spending $17 to $20.99, 942 spending $21 to $25.99 and 954 spending $26 to $30.99) as having mediocre funding.

Looking at the median benefit ratio for each spending bracket, you see (as you'd expect) that benefit ratios go up as spending goes down, but not in a linear fashion. If libraries that can only spend $5 to $11.99 per capita did *not* have unusually high benefit ratios, they'd be in even worse shape than they are. These libraries of necessity make each dollar go absurdly far, most likely relying heavily on volunteers and hoping to keep less-adequate collections going a little longer. Libraries that serve their communities very well and are funded to do so, especially those

spending $73 or more per capita, *should* have lower benefit ratios, as more of their funding is likely to go to things that don't show up in IMLS reports (adult literacy, ESL, community meeting rooms, makerspaces, etc., etc.)

The median benefit ratio for the best-funded libraries is 3.49, while for the worst funded (which spend one-seventh as much per capita, roughly) is 7.26, just over twice as much. In between, the range is even narrower: from 4.45 for libraries spending $55-$72.99 to 6.29 for libraries spending $12-$16.99.

Maybe this will make the point more clearly:

- The midpoint for the third lowest spending bracket ($17-$20) is $18.50 per capita spending. The median benefit ratio for that bracket is 6.17, meaning that a "typical" library with that level of funding would provide $114 per capita in countable benefits.
- The midpoint for the third *highest* spending bracket ($43-$52) is $47.50 and the median benefit ratio for that bracket is 4.82, meaning that a "typical" library with that level of funding would provide $229 per capita in countable benefits. The library is spending 2.6 times as much per capita and yielding twice as much in IMLS-reported countable benefits. That's a really good return for improved funding.

The bottom line: Libraries that are better funded continue to yield superlative value, even as better funding reduces the strain on employees and collections and allows for special programs and other features that aren't readily countable.

This may be a good place to stress a message that the book's reliance on countable metrics and tables could obscure: A good public library's importance to its community isn't measured by the number of reference questions, circulation, program attendance or open hours. Those numbers are countable background to what's truly important: The array of individual stories of how a public library changes and enriches the lives of its patrons and the health of its community. One reference transaction may seem to have trivial merit; another may have life-changing consequences.

Open hours

In some ways, this metric and the one that follows are so heavily linked to size of library that the overall numbers may not make much sense. Still, if a 62-hour week is a reasonable goal for a good single-location public library (e.g., 10 a.m. to 9 p.m. Monday-Thursday, 10 to 5 Friday and Saturday and 1 to 5 Sunday), it's sad that only 28% of libraries were open at least 3,100 hours (counting *all* outlets) in FY10. At the opposite extreme, 28% of libraries were open fewer than 1,822 hours (35 hours a week), with 8% open fewer than 1,041 hours (that is, 20 hours a week or

less). The median for all libraries is 2,400 hours or about 46 hours per week—but again, that's adding all outlets.

There's no clear correlation between expenditures per capita and open hours in the overall picture. When you look at expenditure brackets, there *is* a correlation—but it's vague and a bit sloppy. So, for example, the median for libraries spending $26-$30 per capita (2,357 hours) is a little higher than that for libraries spending $21-$25 (2,285)—but the median for libraries spending $36-$42 (2,408) is a bit *lower* than for libraries spending $31-$35 (2,428).

For this metric, chapters 3 through 19 are more meaningful.

Personal computers with internet access

This raw-count metric is also likely to depend heavily on library size, and it's one where brackets have considerably different numbers of libraries because of the data. A mere 5% of libraries (mostly, presumably, library systems) have at least 100 PCs—as compared to 18% with 6 to 8 PCs (the largest group). I find the narrow range of median expenditures across number-of-PCs brackets a little surprising: the median for 20-39 PCs is $34.65 and the median for 0-3 PCs is $27.46, four-fifths as much.

Circulation per capita

By my reckoning, the largest piece of easily-calculable public library benefits is still circulation: 58% of the total. Circulation per capita correlates *very* strongly with funding per capita. That makes sense: Libraries with better funding are typically open more hours (so people can borrow items), have better and more contemporary collections (so people *want* to borrow more items) and are likely to have better displays, reader's advisory and other features (so people are *enticed* to borrow items).

A quarter of the libraries circulate more than 12 items per capita, a number I find encouraging, with 6% circulating more than 24. That's the same percentage—and the same number of libraries, 501—as those that barely circulate at all, with 0 to 1.99 circs per capita.

Here, not only do expenditures per capita march in step (fairly large steps) with circulation per capita, so do benefit ratios. That is, the better-supported libraries represent *better* value relative to spending as measured by circulation.

At the high extreme, the median benefit ratio for libraries circulating 24 or more items per capita is 6.80 and the median expenditure is $75.82. One notch down, 17-23.99 items per capita, the benefit ratio is a little lower (6.14) and the expenditures per capita is significantly lower ($54.36).

That continues all the way down. For the 14% of libraries circulating 6 to 7.99 items per capita, the median benefit ratio is 5.28 and the expenditures per capita is $28.96; for the 16% with 4 to 5.99 circs per

cap, the benefit ratio is 5.21—and median expenditures are down to $22.53.

Looking at circulation from an expenditures viewpoint, the numbers are equally clear in a manner that a graph might not show, since (as you'd expect) some libraries circulate more items relative to funding than others.

As you move down in funding brackets from the highest ($73-$399, where median circulation per capita is 18.88 and the 75%ile is 26.65) to the lowest ($5-$11, with 2.60 median per capita circulation and 75%ile of 3.74), there's *always*, in every one of the ten expenditure brackets, a drop for 25%ile, median, and 75%ile. But the brackets overlap: the 75%ile for libraries with $53-$72 expenditures per capita (19.46) is higher than the median for $73-$399, but significantly lower than the top category's 75%ile.

If your library spends $31-$35 per capita and circulates 9 items per capita, you're just above average for your expenditure category, but you'd be below average for libraries spending $36-$42 and in the top quartile for libraries spending $21-$25. Would better funding result in more circulation? There's a strong case to be made.

Reference transactions per capita

There's a common assumption that reference transactions have declined over the years in public as well as academic libraries. That may be reasonable: web resources make it much easier for patrons to answer more of their own questions. It may also be true *per capita* for public libraries—but the overall numbers are remarkably variable, going up some years, down some years. So, for example, FY2010 is 0.2% lower than FY2009—but FY2009 is more than 2% higher than FY2008. It seems likely that today's reference questions are more difficult and more valuable than those of a decade ago; it also seems likely that many of them are handled via digital means rather than through visits to the reference desk.

Back in 1995, I posited that robust public libraries averaged more than two reference transactions per capita and that strong ones averaged 1.3 to two transactions. But only 9% of libraries averaged at least two reference transactions per capita in FY2010, and only 10% more averaged 1.25 to 1.99 transactions. I suspect one reference question for every two (potential) patrons may be a reasonable measure of fairly strong activity, and just over half of the libraries did at least that much reference. There's a distinct correlation between expenditures per capita and reference transactions. Perhaps better-funded libraries are able to staff reference desks (or combined service desks) more consistently and offer roving reference and responsive virtual reference.

At one extreme, libraries averaging two or more reference transactions per capita had a median expenditure of $54.13 per capita;.

At the other, those averaging less than 0.06 (that is, fewer than six reference questions per hundred patrons) had a median expenditure of $18.62. The expenditures table once again shows consistent change: the more a library spends, the more reference questions it's likely to answer.

Program attendance per capita

Of course big libraries will have more programs than small libraries and well-funded libraries are likely to have richer sets of diverse programs than poorly funded ones. What's a reasonable target for programming of all sorts (noting that the definition of a program may vary)?

By the numbers, it's fairly clear. One-third of libraries have at least one program attendance for every two potential patrons—and nearly one-third have less than one program attendance for every *five* potential patrons.

Once again, median expenditures per capita goes up consistently with each increase in program attendance. Skipping the top and bottom brackets, libraries averaging 0.11 to 0.19 attendance per capita had median expenditures of $22.10, while those averaging 0.7 to 1.09 attendance spent $45.29. The expenditures table also shows consistent bracket-by-bracket increases at all quartiles, more consistency than I'd expect for what's a relatively small portion of library benefits. The overall median is one program attendance for every three patrons—and only the first quartile of the highest expenditures category ($73-$399) is above the one-attendance mark, at 1.48.

Patron visits per capita

While this number is related to circulation per capita, it's not identical. Patrons visit libraries for reasons other than to borrow items, and the number of items borrowed per visit can vary enormously. Four out of ten libraries average at least one visit every two months across their entire service area.

Expenditures per capita rise consistently and fairly dramatically along with visits per capita, while median benefit ratios vary across a tiny range. (Other than the top bracket, 13 or more visits per capita, the benefit ratio range is only 5.08 to 5.76, while the median expenditures range from $12.66 for the lowest bracket to $74.00 for the highest.) The budget table shows consistent increases at the median and 75%ile levels and may not require additional comment.

PC use per capita

Availability of personal computers with internet access is nearly (but not quite) ubiquitous in U.S. public libraries and fairly clearly an important service for many patrons. It's another service where the metric—frequency of reported use per patron—varies directly with library

spending per capita and where median benefit ratios vary in the same manner but over a small range, unlike expenditures. (How nearly ubiquitous? 99.7% of the 8,659 libraries covered in the book have at least one PC for patron use; 28 libraries reported none. Another 60 of those omitted from the book, mostly very small libraries, reported no PCs.)

The top bracket shows at least 3.5 uses per capita. That bracket has fewer libraries than others, but still 8% of the total. At the other extreme, 16% of the libraries show less than one use for every two patrons. The median overall is 1.14 uses—and, as you'd expect given the consistency of the metric brackets, median use for each budget category consistently increases. The one-use-per-capita breakpoint is $26: That is, the median for $26-$30 budgets is 1.15 while that for $21-$25 budgets is 0.97. (The 75%ile, marking the bottom of the top quarter of libraries for a given budget category, is more than one use per capita for all but the lowest budget category—but it's up to more than *four* uses for the highest.)

PCs per thousand patrons

This derivative measure may be more telling than the earlier number of PCs. At one extreme, 810 libraries have at least five PCs per thousand patrons (which could, of course, be one PC for a library serving 200 patrons); at the other, 977 have less than 0.5 PCs per thousand patrons. While the metric-expenditure relationship is once again consistent, it's over a relatively narrow range. Omitting extremes, median expenditures range from $25.77 (libraries with 0.5 to 0.79 PCs per thousand patrons) to $36.83 (libraries with 3 to 4.99 PCs per thousand patrons), a much narrower range than for most metrics. The median overall is 1.3—and here, the budget table's interesting because *every* expenditures bracket, even the lowest, shows at least one-quarter of the libraries with more than one PC per thousand patrons. (All but the two lowest have at least half the libraries with more than one PC per thousand patrons.)

Perhaps the narrow range of median expenditures deserves comment. It's not that expenditures for libraries cover a narrow range—clearly, they don't. What appears to be true is that, at any level of PC availability per capita, libraries range broadly over expenditure levels, such that the midpoint—the median figure—is similar at all levels of the metric benchmark.

Circulation and visits per hour

Circulation and visits per capita show how heavily a library system is used. Circulation and visits per open hour show how *busy* a library system is—and how busy its outlets are. At one extreme, one out of ten libraries and library systems does booming business, averaging at least 110 circulations per hour (for a four-branch system, that means *440* circulations per hour). At the other, 15% of the libraries and systems average fewer than six circulations per hour or one every ten minutes.

The median is 22.8, a little more than one circulation every three minutes. The correlation between expenses and circulations per hour is inconsistent.

The budget table for circulation per hour is all over the place, and since poorly-funded libraries are likely to be open fewer hours, that's not too surprising. Although the median does rise with each higher funding bracket, the 75%ile for the lowest bracket ($5-$11.99) is higher than the median for the fourth highest bracket ($36-$42.99).

As for visits per hour, I'm not sure how much there is to say. The median overall is 14.87, that is, one patron every four minutes. But the 75%ile is 37.32: that is, one out of four libraries has more than a visit every *two* minutes. And, sigh, the 25%ile is 6.6: one out of four libraries has only about one visitor every nine minutes.

That's possibly more than needs to be said about overall numbers. Let's look at libraries by size groups, with fewer comments in each group.

Chapter 3: Libraries Serving Fewer Than 700

These are 501 libraries serving very small communities with at least 10 hours per week of a librarian and at least $5 per capita in funding. Another 172 libraries serving fewer than 700 patrons (but not meeting the other criteria or spending $400 or more per capita) were omitted.

Expenditures per capita

These are generally fairly well-funded libraries on a per capita basis: nearly half these libraries (48%) spend at least $43 per capita, and more than one in five spend $73 or more. Benefit ratios are consistently high, from 5.4 for the best-funded libraries to an extreme ten or more for the least well-funded.

Open hours

It's not surprising that none of these libraries is open 4,000 hours or more. Maybe it's not surprising that nearly two-thirds of them are in the lowest bracket, open 99 to 1,040 hours, with only 6% open at least 35 hours per week. While the benchmark table shows no correlation between expenditures and hours (mostly because libraries are so concentrated in the bottom three hours brackets), the budget table *does*: Better-funded libraries show higher medians consistently throughout the table, from 588 hours median for the worst-funded libraries to 1,195 or 22 hours per week for the best-funded (the largest group).

Personal computers with internet access

Given the size of these libraries, it's not surprising that more than half have fewer than four PCs available for patron use—but it *may* be surprising that 47% do have four or more, including 13% with six or

more. (Two libraries have 20 to 39 PCs each, which is a *lot* of PCs for fewer than 700 patrons!)

Circulation per capita
It's good news that nearly half of these libraries circulate at least 10 items per capita—and in this case the expense/circulation correlation is clear. Impressively, the top quarter of the best-funded libraries circulate at least 32.6 items per capita.

Program attendance per capita
Nearly half of these libraries (47%) fall into the top two brackets, with more than a quarter having more than 1.1 attendance per capita. Yes, they're small communities—but that's still strong programming.

Visits per capita
The largest groups of libraries fall into the most active brackets, with more than half in the top three—another indication that these libraries really are central to their small communities. As with other measures, the ones that are best funded are most central. With one exception, median dollars per capita rises as visits per capita rises, while the benefit ratio generally stays in a small (and high) range.

Looking at the budget table, the median is a high 7.41 visits per capita—and one out of four of these libraries is visited roughly once a month. Here, the correlation between visits and expenses is consistent at the median level, with no exceptions.

PC use per capita
Another set of strong numbers, with just under half the libraries in the top two brackets and 28% of them in the top bracket, 3.5 or more uses per capita.

PCs per thousand patrons
Wow! Nearly three out of four libraries are in the top bracket, with five or more PCs per thousand people, and only nine aren't in the top five brackets. But that's a little misleading: With, say, 200 people, a single PC puts you in the top bracket—and the only way to drop below the top five brackets is not to have (or report) *any* PCs, which is the case for those nine. (Still, the 75%ile figure for the best-funded libraries is an impressive 19.33 PCs per thousand patrons.)

Circulation and visits per hour
None of these libraries is very busy, and that's not surprising: No library this small circulates 45 or more items an hour or has 30 or more visitors per hour, leaving the top three brackets in both tables empty. In practice,

most of these libraries are open enough hours to be fairly quiet: 70% circulate fewer than six items an hour and 63% have fewer than four visitors per hour.

The budget table is revealing because it breaks down those low figures. The overall median is 3.88 circulation and 3.13 visits per hour—and although, in keeping with most figures, the best-funded libraries are the busiest, the median for those spending $73 to $399 per hour is still only 5.34 circs and 4.31 visits.

Chapter 4: Libraries Serving 700 to 1,149

The 527 libraries in this category (with another 67 omitted) are fairly evenly distributed among the top six expenditure brackets, with fewer libraries per bracket in the bottom four. For example, there are fewer than half as many $5-$11 libraries than there are $26-$30 or any higher group. Benefit ratios are mostly between 6 and 8, with one lower than 6 and two higher than 8.5.

Open hours

Two-thirds of these libraries are in the lowest *two* brackets, with about half of those in the 99-1,040 hours group and half open 1,041-1,499 hours. Only 6% are open more than 40 hours a week (2,100 hours or more). The few that *are* open extended hours are well funded. There's a perfect correlation between expenditures and median open hours—from 728 for $5-$11 libraries to 1,750 for $73-$399 libraries, and every level in between.

Personal computers with internet access

Two of these small libraries have 20-39 personal computers (and very high funding)—and 29% have six or more. The median is four, which seems strong for libraries this small.

Circulation and reference transactions per capita.

The correlation between expenditures and circulation is more interesting than the fairly typical distribution of circulation (how typical? it never deviates more than 3% from the overall distribution). The best-funded libraries are, as usual, the most heavily used, with the top bracket showing a 75%ile of 32.32 circs.

Reference transactions are also fairly typical, although not quite so well correlated with expenditures.

Program attendance per capita
The numbers here are better than overall percentages, with more than 100 of these libraries (19%) in the top bracket (1.1 or more program attendance per capita) as compared to 9% overall. Here again, expenditures and program attendance track perfectly and benefit ratios fall into a narrow range (from 6.14 to 7.21).

PC use per capita
Half of the libraries fall into the top three of eight brackets as compared to 30% overall—and 113 libraries (21%) report at least 3.5 PC uses per capita, 2.5 times the overall percentage. From a budget perspective, half or more of libraries with at least $36 per capita spending have at least 2.1 uses per capita, also a high figure, and there's a straight correlation between median use and budget.

PCs per thousand patrons
87% of the libraries are in the top three brackets, 42% in the top (5+). That's partly explainable by the small numbers of patrons. Here again, expenditures per capita trace nicely with PCs per thousand patrons and median PCs per thousand track perfectly with expenditure brackets.

Circulation and patron visits per hour
How busy are these libraries? Not very. More than half of them circulate less than one item every ten minutes; nearly half see less a patron visit less than once every fifteen minutes. With a few exceptions, even better funded libraries don't show high figures here: the median for $73-$399 is just 9.47 circs per hour and 7.22 visits per hour.

Chapter 5: Libraries Serving 1,150 to1,649

Yes, that's a small population range, only slightly larger than the previous one—but that's the reality of America's public libraries. The chapter covers 496 libraries, with another 58 omitted for various reasons. Libraries in this category are fairly typically distributed in terms of expenditures per capita, with slightly fewer at the top and bottom and slightly more in the middle.

Open hours
The first thing that struck me about this benchmark table is that there *is* one library (or library system) serving fewer than 1,650 people and open at least 4,000 hours. It's a *very* well funded library at $398.04 per capita. It's less surprising that only half of the libraries are open at least 1,500 hours (29 hours a week) or that only about one out of nine is open at least 2,100 hours (40 hours a week).

While the median expenditures on the benchmark table aren't neatly correlated (largely because some of the brackets have so few libraries), the median hours in the budget table *are*—that is, as expenditures increase (except for the two lowest-funded brackets), median hours consistently increase as well.

Personal computers with internet access
The median overall here is 4.0, same as in Chapter 5 and still a strong number, with a third of libraries having six or more PCs for patron use and nine having more than a dozen.

Circulation and reference transactions per capita
What may be most interesting here is that the diversity of these small-community libraries is such that circulation distribution is almost precisely the same as for public libraries overall. That's generally true for reference as well, except that the middle brackets are slightly on the low side and a higher percentage of libraries fall into the lowest bracket (no more than one reference transaction for every 20 patrons). Those are generally poorly-funded libraries (the median is $20, a full $7 lower than the next bracket), but low reference counts aren't all in the very poorest libraries. Namely, half of libraries with $5-$16.99 spending have at least one reference transaction for every five patrons, while one-quarter of those with $17-$20.99 funding have no more than one for every *twentyfive* patrons).

Program attendance per capita
The percentages for program attendance are slightly top-heavy and *very* slightly bottom-heavy. About double the overall percentage of libraries average 1.1 or more attendance per capita. In some ways, the budget table for program attendance is more interesting: Libraries with high program attendance are scattered throughout the top three brackets, but never make up even half of a bracket (the median for the best-funded libraries is 0.85 attendance per capita).

PCs per thousand patrons
As with even smaller libraries, the numbers are clustered toward the top, with 78% in the top three brackets and only 5% in the bottom three brackets.

Circulation and patron visits per hour
These libraries are also, by and large, relatively quiet: only 7% average at least one circulation every three minutes and fully two-thirds average no more than one every *ten* minutes. There's a one-library anomaly in patron visits per hour (a poorly funded library that's the busiest in terms

of visits per hour) but overall, it's a similar picture: 5% have more than one patron visit every five minutes, 60% have less than one every ten minutes.

Chapter 6: Libraries Serving 1,650 to 2,249

There are 40 fewer of these libraries than there are libraries serving 700 to 1,149, but only 27 had to be omitted, so the number in the tables is identical: 527 libraries. For expenditures, these libraries are a little lean at the richest and slightly lean at the poorest end, with more libraries grouped in the middle (specifically $21 to $35.99, three brackets totaling 39.4% rather than the overall 31.9%). This is the first size category where the best-funded libraries have a median benefit ratio below 4, although not *much* below (3.82)—libraries that doubtless serve their specific community needs very well.

Open hours

One well-funded library/system is open a *lot* of hours (4,000 or more, $259.40 per capita)—and again most libraries have fairly short schedules, with 62% open no more than 1,820 hours or 35 hours per week. The overall median is 1,672 (32 hours per week), and it's only in the top two expenditure brackets that most libraries are open at least 2,040 hours (39 hours per week).

Computers for patron use with internet access

One library/system has 40 or more computers—and no, it's *not* the library that's open 4,000 hours or more, as this one has $74.53 expenditures per capita (and, unlike the other one, a *very* high benefit ratio for a well-funded library, 13.66).

Circulation and reference per capita

Noteworthy for *not* standing out: The patterns are very close to overall patterns, except that reference tends to be just slightly low.

PC use per capita and PCs per thousand patrons

PC use is a little high and computers per thousand patrons are significantly higher than overall, with only 8% in the bottom four (out of nine) brackets and 69% in the top three.

Circulation and patron visits per hour

A few of these libraries are reasonably busy. Two average 45 to 69 circulations per hour (12 manage at least 30) and three have at least 30 patron visits per hour. But most are still relatively quiet: 54% have less than one circulation every six minutes and 77% have less than one patron visit every seven minutes.

Chapter 7: Libraries Serving 2,250 to 2,999

The group includes 497 libraries, with another 26 omitted. When it comes to expenditures, there's a slight slant toward the lower middle: The top two and bottom brackets are both on the low side (in terms of percentage of libraries) and $21-$25.99 is on the high side.

Open hours

Just under half of these libraries are open at least 35 hours a week—and very few (6%) are open less than 20 hours per week. Leaving out five libraries open more than 3,099 hours, there's the usual step-by-step correlation between funding and hours (e.g., median expenditure per capita for libraries open 1,041-1,499 hours was $20.01, for 1,500-1,820 hours was $25.98, and for 1,822-2,099 hours was $32.07: these are the three largest brackets, including 65% of the libraries). The median benefit ratio range is *very* small as divided by open hours: from 5.99 to 6.84.

There's also a perfect step-by-step correlation between expenditure brackets and median open hours, all the way from the $5-$11.99 libraries (half open 1,198 hours or more) to the $73-$399.99 libraries (half open at least 2,444 hours).

Computers for patrons with internet access

Just under half of these libraries have at least six public internet PCs, but none has 40 or more. Notably, half of the libraries in the two top funding brackets have at least nine PCs, while the median for the three lowest funding brackets is four PCs.

Circulation transactions per capita

Circulation per capita is distributed almost exactly along national lines and the circulation-expenditure correlation is consistent. This is one of the size brackets in which benefit ratios almost consistently improve along with expenditures.

Program attendance per capita

This metric tends slightly toward the high side—13% of libraries are in each of the three top brackets, with a total of 39% of libraries having at least 0.5 attendance per capita as compared to the national figure of 33%. At the other extreme, the figure for *very* low program attendance (including libraries that don't report any programs) is typical at 15%. Expense correlation is consistent: libraries that spend more have more program attendance. Only the top budget bracket shows at least half the libraries with more than one program attendance per capita.

Computers per thousand patrons
There's a bulge here, but not quite at the top: exactly half of the libraries have at least two but less than five computers per thousand patrons. Very few libraries—27 or 5%—have more than five, and those that do aren't necessarily the best funded.

Circulation and patron visits per hour
A few of these libraries are *busy*, with three showing 70-109 circulation per hour and another seven showing 45-69, although 60% of the libraries have 13 or fewer circ per hour (the biggest clump is at 6-9, that is, one circ every 8-10 minutes). Median circ per hour correlates perfectly with expenditures, from the worst funded libraries (half circulating fewer than 6.22 per hour and only one-quarter circulating 10.67 or more) to the best (half circulating 20.69 per hour or more, one-quarter 30.97 or more).

Visits cluster at the low end. Although three libraries (*not* the same three libraries as for circulation) show 45-69 visits per hour, 65% have fewer than nine visits per hour.

Chapter 8: Libraries Serving 3,000 to 3,999

Tables include 510 libraries, with 33 others omitted. Other than slightly fewer than typical libraries at the best-funded end and slightly more than usual at the worst funded end, expenditure distribution is typical.

Open hours
Nearly two-thirds of these libraries are open at least 35 hours per week and 42% are open at least 40 hours per week. The few (4%) open very short hours (99-1,040) are the worst funded (median $8.56 per capita).

Computers for patrons with internet access
The bulge here is at 6-8 computers, with 33% of the libraries in that bracket, 28% higher, 39% lower. A baker's dozen have 20-39 computers; none has more. Median expenditures rise in lock step with rising number of PCs.

Circulation and reference transactions per capita
Very much typical of all libraries, with no significant deviations. Overall median circulation per capita is *slightly* higher than the national median (8.18 compared to 7.93) and overall reference transactions per capita is *slightly* lower (0.44 compared to 0.52).

Program attendance and patron visits per capita
Here again, what's remarkable is how much these libraries—still serving small communities—reflect public libraries as a whole in terms of usage,

with just slightly higher numbers in the two highest program-attendance brackets.

Personal computers per thousand patrons
Nearly half of the libraries have from 1.5 to 2.99 computers per thousand patrons, as compared to just under a quarter of libraries nationally. Only 14% have less than one PC per thousand patrons. The overall median is 1.85, compared to 1.3 nationally.

Circulation and patron visits per hour
Two busy libraries (70-109 circulation per hour)—but half the libraries have fewer than 14 or significantly less than one circ every four minutes. Just under half have at least nine patron visits per hour—but only one in ten has 20 or more.

While the overall median for these libraries is 13.93 circ and 9.06 visits per hour, that compares with 22.8 circ and 14.87 visits per hour for the nation's libraries: These are still mostly relatively quiet libraries.

Chapter 9: Libraries Serving 4,000 to 5,299

This chapter covers more libraries than any other: 532, with another 38 omitted. Funding is slightly on the low side, with fewer libraries in the top three expense brackets and slightly more in the bottom two.

Open hours
Although there are still no library systems open more than 10,000 hours (scarcely surprising given the population range), half a dozen are open 4,000 to 10,000 hours—and three-quarters are open at least 35 hours per week, with just over half open at least 40 hours per week.

Oddly, the median expense budget for the six systems open more than 4,000 hours is on the low side at $22.95. With that huge exception, expenditures and hours track as usual—and, except for 10 libraries open fewer than 1,041 hours (that is, no more than 20 hours per week), the benefit ratios cluster very close together, from 5.33 to 5.97.

Possibly worth noting: for libraries with at least $43 expenditures per capita, three-quarters of the libraries are open more than 41 hours per week.

Computers for patron use with internet access
One very well-funded library ($207.81 per capita) has at least 40 PCs—but three-quarters have four to 12. More than half have at least seven, but the median doesn't exceed seven until you get to $53 per capita, when it jumps to 10.

Circulation and reference transactions per capita
Nothing much out of the ordinary, although slightly fewer libraries (4% rather than 6%) circulate 24 or more items per capita and slightly more (15% rather than 13%) circulate 10-12 items. Expenditure-activity correlations are predictably consistent for circulation and not quite as consistent for reference.

Circulation and patron visits per hour
The smallest *very* busy library is in this group: one library with more than 110 circulations per hour (it's a poorly funded library at that: $13.37 expenditures per capita). Some 44% of the libraries have at least 20 circulations per hour and only 10% have fewer than six. Overall, however, these libraries are still somewhat quieter than the national norm—the overall medians are 17.79 circ and 10.69 visits per hour, compared to 22.8 and 14.87 nationally.

Chapter 10: Libraries Serving 5,300 to 6,799

These are still small libraries, but not *as* small—and the tables cover 529 libraries with 28 more omitted. Expenditures trend just slightly low.

Open hours
I was sufficiently startled by this table to violate my rule of not looking up actual libraries: One library system (it *is* a system) serving fewer than 6,800 potential patrons is open at least 10,000 hours—and it's a well-funded system, with $160.13 per capita funding. Ten others, not nearly so well funded (at least at the median), are open 4,000 to 10,000 hours.

We now have a majority of libraries open more than 40 hours per week (62%), with 84% open at least 35 hours per week and only 1% (six libraries) open half-time or less, that is, no more than 20 hours per week. Expenditures track well with hours except in the top two brackets (the second bracket's median expenditures are lower than the third bracket).

Computers for patron use with internet access
Nearly half (46%) of the libraries have six to 12 computers, with two well-funded libraries having 40-99 bracket and only 8% having three or fewer.

Circulation and reference transactions per capita
Circulation tends just a wee bit high; so does reference overall, but only slightly. Nothing stands out in particular. As usual, there's perfect step-by-step correlation between circulation and expenditures, but here circulation benefit ratios cover a slightly wider range (5.29 to 6.55, omitting the highest and lowest brackets).

Circulation and patron visits per hour
Although there are still fewer very busy libraries than the national norm, overall these libraries are fairly typical. Half the libraries have at least one circ every three minutes and one-third have one every two minutes (or more); half have at least 13 patron visits per hour, and the overall medians for both measures of busyness are roughly equal to the national medians.

Chapter 11: Libraries Serving 6,800 to 8,699

Tables include 503 libraries, with another 27 omitted. Distribution by expenditures differs from the norm mostly in that slightly fewer libraries spend $31-$35.99 and slightly more spend $5-$11.99.

Open hours
Very few libraries have very short hours—only 2% are open less than 29 hours a week and only 10% are open less than 35 hours a week, with more than three-quarters open at least 40 hours a week and a fair number of small systems open 4,000 hours or more. Another way of looking at this: for libraries spending at least $17 per capita, at least three-quarters of the libraries in every expenditure bracet are open at least 40 hours a week (as are some of those spending less).

Computers for patron use with internet access
More than three-quarters have six to 19 computers, with nearly one-third in the 9-12 range. Only 13% have fewer than six computers for patron use and only 11% have 20 or more. There's a consistent relationship between number of computers and expenditures—although the inverse view, the budget table, has one anomaly (the median for libraries spending $17-$20.99 is the *lowest* median, while other figures are generally consistent).

Circulation per capita
You've already seen a scatterplot of the budget table for this metric, an absolutely typical case—and the benchmark table is also typical, never varying by more than 2% from figures for libraries of all sizes. The tracking of expenditures to circulation is completely consistent here as well—and to give somewhat extreme examples, libraries circulating about eight times as many items (that is, 17-23 as compared to 2-3) average about four times the funding ($62.14 median as compared to $14.36).

There's nothing special to mention about several other metrics—they're basically typical of all libraries.

Computers per thousand patrons
Here, both the high (top two brackets) and low end (bottom two brackets) are less populated than one might expect, with most libraries in the broad middle: 76% of these libraries have anywhere from 0.8 to 2.99 computers per thousand patrons, as compared to 53% nationwide.

Circulation and patron visits per hour
Although still not terribly busy, with an overall median of 24.82 circulation per hour and 17.00 visits per hour, these libraries are reasonably lively. 61% have at least one circ every three minutes (41% at least one every two minutes), and only 11% have less than one every six minutes. Nearly two-thirds have at least 13 visits per hour, and only 7% have less than six per hour.

Chapter 12: Libraries Serving 8,700 to 11,099

I tend to think of these 506 libraries (in the tables, with 17 others omitted) as being the largest small libraries or the smallest medium-sized libraries. Distribution by expenditures is typical.

Open hours
We see three library systems open 10,000 hours or more, more than two dozen open 4,000-10,000 hours—and only one open less than 20 hours a week. Four out of five are open at least 40 hours a week and nearly half are open at least 51 hours a week (that is, 2,700 hours a year). Except for an anomalous drop at the $4,000-$10,000 hour level, expenditures per capita rise in lockstep with open hours, but at generally lower rates.

Viewed from the expenditures side, the numbers are consistent as well, with half of the worst-funded libraries open less than 39 hours a week—and half of the best-funded ones open at least 59 hours a week.

Computers for patron use with internet access
Once again, the bulge is in the middle: 72% of the libraries have six to 19 computers, with only half a dozen having 40 to 99 (none 100 or more) and a dozen offering fewer than 4.

There's nothing unusual about circulation per capita, reference transactions per capita, program attendance and patron visits per capita or PC use per capita.

Computers per thousand patrons
Relatively few of these libraries have two or more computers per thousand people: 17% in all (and only 1% offer five or more), compared to 30% (and 8%) overall. There's a consistent relationship between computers per thousand patrons and expenditures per capita, although there are cases where the budget table isn't quite consistent (libraries

spending $12-$16.99 seem to be better equipped here than those spending $17-$25.99). Only in the top expenditures bracket do at least half the libraries offer more than 1.5 computers per thousand patrons, and for those libraries the median is 2.1.

Circulation and patron visits per hour
Eleven libraries fall into the busiest circulation category, with 110 or more circ per hour, but 19 fall into the slowest (less than 6 per hour). The bulge is in the upper middle: just under two-thirds of the libraries have 20 to 69 circ per hour, including about one out of four with 30 to 44. (Expenditures rise consistently with circ per hour.) The overall median, 29.03, means just under one circ every two minutes—but for the best-funded libraries that's up to 59.03, just under one per minute.

Visits also cluster in the middle: 46% between 13 and 29 visits per hour (two of the nine brackets with roughly 11% each overall), and 79% between 9 and 44 visits per hour. Half of the best-funded libraries have 39 or more visits per hour; half of the worst funded have 10.5 or less.

Chapter 13: Libraries Serving 11,100 to 14,099

Still "rural" by some definitions but into what I'd call smaller medium-sized libraries, 499 libraries are in these tables and 14 are omitted. The expenditure picture is patchier than usual, with somewhat fewer libraries in the $31-$35.99 and $17-$20.99 brackets and somewhat more (13%) in the $5-$11.99 bracket.

Open hours
The bulge is in the middle. Almost nine out of ten are open at least 40 hours per week; only 3% are open less than 35 hours per week. The biggest single bracket: 26% are open 2,700-3,099 hours per week (roughly 52 to 60 hours), compared to 12% overall.

There's *no* expenditures bracket where even one-quarter of the libraries are open less than 2,080 hours (40 hours per week), including libraries spending $5-$11.99 per capita.

Computers for patron use with internet access
Another bulge in the middle, this time a narrower one: More than half the libraries (54%) have nine to 19 PCs, with only one out of five having more and one out of four having fewer (but only seven libraries have fewer than four). The median is a dozen, and once expenditures rise above $31 per capita, so does the median (to a high of 18 for the best-funded libraries).

PC use per capita and PCs per thousand patrons
PC use is slightly on the low side (with fewer libraries in the top two brackets, more in the bottom three); PC availability is *significantly* below

average, with only two libraries (0%) having at least five per thousand (compared to 9% overall) and roughly half having less than one (compared to 38% overall).

Circulation and patron visits per hour
Forty-five percent of the libraries had 30 to 69 circ per hour; 16% were quite busy (70 or more) and 11% were relatively quiet (13 or less), with only 6% having less than one circ every six minutes. (The expenditures per capita track perfectly with circulation per hour, although when you look at budget brackets there are exceptions.)

Visits also cluster in the high middle, with 46% having 20 to 44 visits, 16% more—and only 4% have fewer than 6 visits per hour.

Worth mentioning (again?): Since per-hour figures are across *all* hours in multibranch systems, they reflect levels of activity somewhat differently than circ and visits per capita.

Chapter 14: Libraries Serving 14,100 to 18,499

Tables include 515 libraries, with another ten omitted. Libraries are typically distributed by spending, with slightly more at the top and just slightly fewer in the $17-$20.99 bracket.

Open hours
There's a bulge again, this time in the upper middle: 47% of the libraries are open 2,700 to 3,999 hours (52 to 77 hours a week). Only 2% (10 libraries) are open 35 hours a week or less. There's another anomaly suggesting that small library *systems* aren't as well funded as medium-sized single libraries: the median funding for libraries open 4,000-10,000 hours (63 of them or 12%) is $30.46, considerably lower than the $50.13 for those open 3,100-3,999 hours or the $53.27 for the four libraries open 10,000 hours or more.

Computers for patron use with internet access
More than half of the libraries (58%) offer 13 to 39 computers and only 18 (4%) offer fewer than six.

Circulation per capita
The only deviations from national averages are positive ones: slightly more libraries with 17-23 circulations per capita and slightly fewer with less than two. Measured by benchmarks, expenditures rise consistently with circulation; measured by expenditures, there's one minor deviation (libraries spending $31-$35.99 have slightly lower median, 75%ile and 25%ile than those spending $26-$30.99—that is, in general they have slightly lower circulation).

Program attendance per capita
Somewhat fewer libraries at the top and bottom, somewhat more in the lower middle. So, for example, 15% of the libraries had at least 0.7 attendance per capita (compared to 21% overall) and 11% had no more than 0.1 attendance (compared to 15% overall). Expenditures track smoothly with attendance, but not so smoothly on the budget side.

Computers per thousand patrons
Somewhat below average, with 40% having less than one PC per thousand patrons. Only the top three spending brackets show at least half the libraries with at least one PC per thousand patrons—compared to the top *eight* brackets nationally. The overall median is 0.91 compared to 1.30 nationally.

Circulation and patron visits per hour
Now we're getting quite a few *very* busy libraries—10% show at least 110 circ per hour or almost two per minute, and more than half have at least 45 circ per hour. At the other end, there are seven libraries with less than one circ every ten minutes, out of only 5% with less than one every six minutes. From the budget side, the top four brackets ($36 and up) all have half of the libraries circulating at least 70 items per hour, while the bottom three ($20.99 and below) have at least half with fewer than 30 items per hour.

Visits also tend toward the high side, with 52% having at least one patron every two minutes and only 5% having fewer than nine per hour.

Chapter 15: Libraries Serving 18,500 to 24,999

The largest libraries sometimes called "rural." The tables include 492 libraries, with another 15 omitted. Funding patterns show an interesting concave pattern, with slightly more libraries in the two top and two bottom brackets, slightly fewer in the low middle categories ($17-$25.99, with 15.7% of the libraries compared to 19.6% overall—"slightly" is the appropriate word here).

Open hours
The percentage of libraries and systems open at least 4,000 hours is *exactly* typical at 17%—and all but one of those is in the 4,000 to 10,000 hour category. At the other extreme, only 4% are open less than 40 hours per week, including two libraries open less than 35 hours per week. This is one group where median expenditures *do not* track well with hours in the benchmark table or, for that matter, as well as one might expect in the budget table.

Computers for patron use with internet access
One library or system has at least 100 computers (it's a well-funded library at $92.82), and only 3% have fewer than six. The bulk—two-thirds—have 13 to 39, evenly split between 13-19 and 20-39. Expenditures *do* track consistently with number of PCs on the benchmark side, less consistently on the budget side (where libraries spending $21-$30 have more PCs than you might expect).

Circulation per capita
Another case where what's striking is how typical these figures are. Cumulative percentages never vary by more than 2% from the overall figures, and that 2% variation is only in one case. Expenditures track cleanly with circulation and, except for the highest bracket (where libraries circulating 24 or more items per capita have an unusually *high* benefit ratio), benefit ratios are in an extremely narrow range, from 4.28 to 4.81.

This is another size category where tracking between spending and circulation isn't quite as neat when viewed based on expenditure brackets, as libraries spending $53-$72.99 have somewhat lower median circulation than those spending $43-$52.99.

Computers per thousand patrons
Low at the top, high at the bottom: Only 6% of the libraries have at least two computers per thousand people—and nearly half (48%) have less than 0.8.

Circulation and patron visits per hour
One-sixth of these libraries show at least 110 circulations per hour and three out of ten have 45 or more circ per hour. Only 4% have less than one circ every six minutes—including seven with less than one every ten minutes. The budget table has some anomalies (libraries spending $43-$52.99 are *considerably* busier than those spending $53-$72.99), but the top four brackets all have medians over 71 circ per hour, and only the lowest bracket ($5-$11.99) falls below 30 per hour.

Three out of five libraries (62%) have at least one patron visit every two minutes; only nine libraries (2%) have less than six visits per hour, 4% less than nine.

Chapter 16: Libraries Serving 25,000 to 34,499

We're now into the smaller number of libraries and systems sometimes called urban—those serving at least 25,000 patrons, which total only 2,025 out of the 8,659 libraries fully studied—or about 23%—and an even smaller percentage of *all* U.S. public libraries, since fewer of these libraries were omitted.

This group includes 500 libraries in the tables with another 20 omitted. More libraries have very high funding; slightly fewer fall into the $12-$16.99 bracket.

Open hours
Probably the most relevant figures here are that nearly three out of five libraries and systems are open a total of 60 hours per week or more and four out of five are open 52 hours per week or more—and, conversely, only 3% are open less than 40 hours per week (including a single library open less than half-time). While expenditures and open hours don't track perfectly in the top three brackets, the sparsely-populated bottom three brackets are all poorly funded.

More striking in some ways is the budget table: In *every* expenditures bracket, even $5-$11.99, at least half the libraries are open more than 51 hours per week, and that rises to more than 60 hours per week when you get to $26 per capita or more.

Computers for patron use with internet access
The biggest bulge: 39% of the libraries have 20 to 39 computers—and all but 6% have more than nine. (Only two libraries have fewer than six.)

Circulation and reference per capita
For both of these, libraries track slightly high: e.g., 43% of the libraries circulate 10 items or more per capita, compared to 38% overall.

Program attendance per capita
Conversely, program attendance tracks slightly low in the upper categories, with 38% showing at least 0.4 attendance per capita, compared to 42% overall. For this metric, expenditures per capita do track consistently with program attendance—and that's true from both directions.

Computers per thousand patrons
This metric is on the low side, with more than half the libraries offering less than 0.8 PCs per thousand patrons. The overall median is 0.76 PCs per thousand patrons, compared to 1.30 for all of the libraries.

Circulation and patron visits per hour
These are *busy* libraries: The single largest bracket, with 29% of the libraries, is the top bracket, 110 or more circs per hour (with all outlet hours counted). Nearly half have 70 or more. In this case, expenditures do track, with the median for that busy 29% being $53.65 per capita. (The median benefit ratio is also higher for the busiest libraries than for the others.)

Coming at it from the budgetary side, for every bracket $31 and above, half the libraries circulate more than 75 items per hour. The top two expenditure brackets are even busier: half of those funded at $53 to $72.99 have at least 117 circ per hour—and half of those funded at $73 or more do at least 134, with the top quarter exceeding 200 per hour.

Visits per hour are also on the high side, with half the libraries at 45 or more per hour and roughly three-quarters at 30 or more. The two top spending categories both show half the libraries with more than one visitor per minute—nearly 80 per hour for the top category. At the other end, half of even the worst funded libraries circulate more than 26 items and have more than 26 visitors per hour.

Chapter 17: Libraries Serving 34,500 to 53,999

Tables in this chapter cover 511 libraries, with 14 omitted. Distribution of libraries by expenditures is slightly concave—a little high at the top and a bit more so at the bottom, a little low in the midrange (with the biggest deviations in the $31-$35.99 and $36-$42.99 brackets, each 8.2% as compared to 10.0% and 10.2% overall).

Open hours

Nearly three-quarters of these libraries and library systems are open 3,100 hours (call it 60 hours a week) or more, with one-third open 4,000-10,000 hours. Nearly all are open at least full-time: 95% more than 46 hours a week, 98% more than 40 hours per week—but there are two libraries this size open less than 29 hours per week. Since 65% of the libraries fall into two brackets (3,100-3,999 hours and 4,000-10,000 hours), it's not surprising that median expenditures per capita are all over the place.

Computers for patron use with internet access

Three-quarters of these libraries and systems have 20 or more public access computers and only 10 libraries have fewer than nine; here, except for anomalies at the bottom (two brackets totaling three libraries), expenditures do rise consistently with PCs—or, more likely, vice-versa. The overall median is 31 computers, with a quarter of the libraries having 44 or more.

Circulation per capita

Slightly fewer libraries in the upper brackets, with 44% circulating eight or more items (compared to 50% overall); slightly more in the two bottom brackets, with 26% circulating less than five items per capita (compared to 21% overall). Here, the expenditures per capita do rise consistently with circs per capita—and the benefit ratio range, omitting the top and bottom brackets, is very narrow: 4.15 to 4.78. Worth noting, and not that unusual: the median benefit ratio for the libraries with the

lowest circulation and expenditures, 3.62, is considerably lower than for the *highest* circulation and expenditures, 5.05: Those active and well-funded (median $92.77) appear to be *better* values than the most poorly-funded (median $12.81).

Except for one small deviation (as in some other size categories, libraries spending $31-$35.99 seem to be more active than you'd expect), the budget table also shows step-by-step consistency. At the low end, half of the libraries circulate 2.63 items or fewer per capita; at the high end, half circulate 17.03 or more.

Reference transactions per capita

The numbers themselves are a little better than average, with a higher overall median and more libraries in higher benchmark brackets—but this is also worth noting because both benchmark and budget tables show absolute step-by-step consistency in spending/performance correlation. Notably, three-quarters of the best-funded libraries have at least 1.11 reference transactions per capita, and a quarter of them have 2.18 or more.

Program attendance per capita

Four out of ten libraries have between 0.11 and 0.29 program attendance per capita (as compared to three out of ten overall), and only 44% exceed that level (compared to 54% overall). Expenditures track well with program attendance. The budget table shows *no* expenditures bracket where even the most active 25% of libraries hit or exceed 0.75 attendance per capita.

Computers per thousand patrons

Strikingly low figures here: Only one library system in the top two brackets combined, only 8% of the libraries have at least 1.5 computers per thousand patrons (compared to 43% overall) and 56% of the libraries and systems are in the bottom two brackets (less than 0.8 computers per thousand patrons), compared to 29% overall. Expenditures track consistently with the metric. Notably, the median for all these libraries is 0.73, compared to 1.30 overall and actually lower than the 25%ile overall—and only the highest funding bracket shows a median larger than one PC per thousand patrons.

Circulation and patron visits per hour

These are also *busy* libraries, even more so than in the previous size group: 36% circulate 110 or more items per hour, and 77% circulate at least 30. (Eighteen libraries are in the doldrums, circulating less than 10 items an hour.) Looking at the budget table, more than half of libraries in the top *three* brackets circulate more than two items per minute across all

branches—and a quarter of the libraries do at least *three* per minute, or more than four per minute for the best-funded libraries.

Patron visits per hour are similarly high, with 34% having 70 or more, 82% at least one every three minutes—and ten libraries with less than one patron visit every ten minutes.

Chapter 18: Libraries Serving 54,000 to 104,999

Yes, this group covers almost as wide a population range as the first 15 groups combined; that's how America's public libraries are distributed. The tables cover 501 libraries, with 14 omitted.

Relatively fewer of these libraries have the highest expenditure level or spend between $36 and $42.99; relatively more fall into the two lowest spending brackets, specifically the second lowest ($12-$16.99).

Open hours

The good news here: *none* of these libraries and systems is open less than 35 hours a week and 93% are open at least 52 hours a week. (Four out of ten, most of them presumably systems with more than one outlet, are open 4,000 to 10,000 hours a year.)

Computers for patron use with internet access

Nine out of ten of these libraries and systems have at least 20 patron access computers; six out of ten have at least 40. (Four poorly funded libraries have fewer than nine.) Expenditures track well with computer availability.

Circulation per capita

Low at the high end, high just below the middle: Where half the libraries nationally circulate at least eight items per capita, only 39% of these libraries reach that mark. Expenditures track well with circulation levels and the budget table shows an equally consistent correlation between expenditure brackets and median circulation.

Program attendance per capita

While there's a consistent correlation between benchmark levels of attendance and median expenditures per capita—libraries with more effective programming consistently spend more overall—the numbers are on the low side, with only 37% having at least 0.3 attendance per capita, compared to 54% overall.

Computer use per capita

A similar story to program attendance: Consistent (with one slight exception) correlation between the metric and expenditures, but libraries tend to be on the low side. More than half (56%) offer less than one PC

per thousand patrons, compared to 43% overall, and the overall median point is 0.93. But looking at the budget table, half of libraries spending at least $26 per capita show at least one PC use per capita, a figure that keeps rising to 2.09 for the best-funded libraries.

Computers per thousand patrons
Also on the low side: no libraries with three or more computers per thousand patrons and only 5% with 1.5 to 2.99; nearly two-thirds offer less than 0.8 computers per thousand patrons. The median for libraries this size is 0.68, not much more than half the overall median (1.30), and only the highest funding bracket shows at least half the libraries with more than one PC per thousand. (Actually, that bracket—$73 to $399.99 per capita—has the same median point as *all* libraries nationally, and the 75%ile is lower than the overall national figure, at 1.61 compared to 2.48.)

Circulation and patron visits per hour
These are also very busy libraries, with 38% circulating at least 110 items per hour and 82% circulating 30 or more. Notably, median expenditures per capita for *all* benchmark levels below 45-69 is under $18. The budget table shows more than two circs per minute for more than half of all libraries spending at least $43 per capita, rising to more than 3.5 per minute for the best funded. The top quarter of the best-funded libraries, including all hours for all outlets, circulate more than *five* items per minute.

Nearly three-quarters of these libraries are visited at least 30 times an hour, with four out of ten having 70 or more visits. "Or more"? The median point for the best-funded libraries is 105.16 visits per hour, and the 75%ile for every expenditure level $31 and higher is 115 or more.

Chapter 19: Libraries Serving 105,000 Plus

The 513 libraries in these tables (one extremely large library system was omitted for failing to report adequately) are, of course, quite diverse, and most of them are systems rather than single libraries. Relatively few are very well funded; relatively few are very poorly funded.

Open hours
Three-quarters of these libraries and systems are open at least 10,000 hours a year and all but 6% are open at least 4,000 hours. Astonishingly, two libraries are open 1,500 to 1,820 hours—and two others are open less than 1,040 hours a year (that is, 20 hours a week to cover at least 105,000 patrons).

Given that most of these libraries are in the largest benchmark bracket, the budget table is useful for additional detail. The numbers

don't rise entirely smoothly (once again, libraries spending $31 to $35.99 seem to be overachievers, with a median of 24,897 open hours, the *highest* median of any spending bracket), but for libraries spending at least $31 per capita, more than half the libraries are open at least 21,800 hours a year (419 hours a week divided among outlets)—and one-quarter are open at least 35,420 hours (681 hours per week).

Computers for patron use with internet access

You'd expect most of these large library systems to have *lots* of computers—and they do. Nearly two-thirds have 100 or more, and 95% have at least 40. (Still, three of these large libraries and systems have fewer than four available personal computers, although none has four to 12).

The overall median is 140 computers, with one-quarter of the libraries having 257 or more—and this time, the median does rise consistently with improved spending. Half of the worst funded libraries have 59 computers or fewer; half of the best funded have 240 or more. For the top three funding brackets ($43 and up per capita), one-quarter of the libraries have at least 400 computers available for public use.

Circulation per capita

Low at the higher end—with only 16% of the libraries circulating at least 13 items per capita, compared to 25% overall—and high in the lower, but not lowest, categories: 42% of the libraries circulate two to 5.99 items per capita, compared to 31% for libraries in general. Expenditures per capita do track consistently with circulation, and—excluding the top and bottom brackets—the benefit ratio range is fairly small, from 4.15 to 5.05.

Looking at circ from a budget perspective, half of the libraries in the top two spending brackets circulate at least 14 items per capita, and median circulation does track with spending.

Reference transactions per capita

Here, the largest libraries track high, with 42% having at least 0.9 reference transactions per capita (compared to 29% overall) and 82% having at least 0.35 (compared to 62% overall). Only 20 libraries, 4%, fall into the two lowest brackets, compared with 18% overall. Expenditures track reference transactions consistently, from $11.93 as the median for the four libraries averaging less than one transaction per 20 patrons to $50.27 for the 57 libraries averaging two or more transactions per patron.

The median for libraries this size is 0.74, nearly 50% higher than the national median of 0.52—and half of the libraries spending at least $36

per capita have at least one reference transaction per capita (including *three-quarters* of libraries spending at least $53).

Program attendance per capita
None of these libraries and systems was able to attract 1.1 or more attendance per capita and only nine managed to reach 0.7 to 1.09. (Nationally, 21% of libraries are in those top two brackets.) Most libraries—54%—fall between 0.11 and 0.29 attendance per capita. Expenditures do track consistently with program attendance on the benchmark side, a bit less so on the budget side. Even for the best-funded libraries, only half managed more than 0.4 attendance per capita and only one-quarter managed at least 0.57. The median is 0.21, roughly one program attendance for each five patrons, less than two-thirds of the median for all libraries.

Patron visits per capita
These numbers also tend low, with only 15% of libraries having at least seven visits per capita (compared to 33% overall). There's consistent tracking between expenditures and visits; for the three libraries in the highest bracket (13 or more visits per capita), median funding is $103 per capita. On the budget side, expenditures track consistently with median visits, from 2.34 for the most poorly funded libraries to 8.21 for the best funded.

Computers per thousand patrons
Although most of these libraries and systems have lots of computers, they also have lots of patrons. No library falls into the top two brackets and only 8% have at least 1.2 computers per thousand (compared to 54% for libraries of all sizes). Two-thirds of the libraries have less than 0.8 computers per thousand patrons. I would say expenditures track smoothly with computers per thousand patrons, but there's one exception: The two libraries with two to 2.99 computers per thousand patrons have a median spending level of $41.12, considerably below the next lower brackets.

Circulation and patron visits per hour
Four out of ten of these large libraries circulate at least 110 items per hour across all outlets, and 93% circulate at least 320. Four libraries are quiet, circulating fewer than 14 items an hour (with one circulating fewer than 10). Looking at the budget side, you don't see the astonishing numbers of some slightly smaller libraries: The highest median is 152.23 circs per hour or roughly 2.5 per minute, and only one 75%ile (for the best-funded libraries) exceeds 200 circs per hour.

Nearly three-quarters of the libraries have 45 or more patron visits per hour, and 96% have at least 20; there are some lightly visited libraries, but not many.

And that's it…
…for chapter-specific comments, leaving most of the book—chapter 20, libraries by state—for later.

Oddities and Tidbits

Now let's look at some of the interesting items that turn up when you compare all table lines across chapters and (sometimes) across metrics. Are these meaningful? Sometimes yes, sometimes no—but they may be interesting. Or they may not. I wouldn't consider most of the rest of this essay to be important, only fun.

Expenditure outliers
As with every other metric, expenditures per capita brackets were chosen to make each bracket (row) as equal as possible (without odd bracket boundaries—for expenditures, that meant whole-dollar limits). Thus, overall, the range is from 8.7% to 11.0%, as close as I could come to 10% for each bracket without using cents as breakpoints. Six brackets range from 9.8% to 10.2%, a very narrow range; the other four are themselves slight outliers (two high, two low).

So how widely do distributions vary within library size groups? Quite widely.

- On the low side, the three most extreme cases are the smallest libraries (fewer than 700 patrons), where the three lowest expenditure brackets are, respectively, 1.6%, 4.0% and 4.4% of these libraries. That makes sense: Even at the highest of those three, $20.99, it's hard to run a library with some paid staffing on less than $14,700 a year.
- The next lowest is at the opposite extreme in both senses: only 4.9% of libraries serving 105,000 or more patrons are funded at $73 to $399.99. That also makes sense.
- No others are under 5%, and only two—the two lowest expenditure brackets for the next-smallest libraries, those serving 700 to 1,149 patrons—are under 6%.
- At the high end, we again see the very smallest libraries: 21.6% of those serving fewer than 700 people spend $73 to $399.99 and 16.0% spend $36 to $42. Only two others are 15% or higher: $12-$16.99 for libraries serving 54,000 to 104,999 people and $26-$30.99 for those serving 1,650 to 2,249.

Extreme percentages for all benchmarks

Silly as it is to lump all benchmarks for 10 different metrics together, let's do just that, noting that benchmarks have either eight, nine or ten brackets, so that an equal distribution might be 10%, 11% (nine brackets) or 12% (eight brackets).

There are 76 cases where a bracket has no libraries at all (those rows don't show up in the tables). Another 35 are singletons, and we'll get to those later. Since you need three libraries to reach 1%, there are also "0%" cases with two libraries; in all, there are 132 cases where a given benchmark for a given size library has a 0% figure.

There are in all 376 cases where the figure is 5% or less, that is, less than half a "normal" case—too many to mention.

The other extreme—cases where a single row has an unusually high percentage of libraries for a given size group—also has quite a few examples, although not nearly *as* many. Of 1,602 total rows (including the overall metrics), just as 23% are less than half the norm, 111—7% of the total—show 24% or higher, but that's not actually double the overall numbers for all rows (since a few rows in overall metrics are as high as 18%).

I think that last sentence is hard to parse and maybe harder to understand. Because I set benchmarks to be "whole" breakpoints as much as possible, there are cases where one benchmark row might represent as many as 18% of libraries across the nation, rather than the 10% to 12% I'm aiming for. Specifically, 18% of libraries have 6-8 PCs, 16% circulate 4-5.99 items per capita, 16% report less than 0.5 PC uses per capita and 16% have 0.5 to 0.79 PCs per thousand patrons. There are another six benchmark brackets representing 15% of all libraries: 4-6 PCs, 2-3.99 circ per capita, the *three* bottom program attendance per capita rows (0-0.1, 0.11-0.19, 0.2-0.29), and libraries with fewer than six circulations per hour.

Limiting the high extreme to 37% or more, that is, twice as high as *any* overall row, we're down to 20, just over 1% of the rows. Here are the top cases, those where a single bracket (out of at least eight) has more than *half* the libraries for its metric:

- **75%:** Three out of every four of the very largest libraries/systems (105,000 or more patrons) has at least 10,000 open hours including all branches and bookmobiles.
- **73%:** The percentage of the very *smallest* libraries (fewer than 700 patrons) with at least five PCs per thousand patrons, which of course may mean only one PC in a few cases.
- **70%:** This one might be surprising: The percentage of the very smallest libraries that circulate fewer than six items per hour (or one every ten minutes).

- **65%:** The percentage of the very *largest* libraries with 100 or more computers with internet access for patron use.
- **63%:** A tie between two metrics for the very *smallest* libraries: Hours (99 to 1,040, the lowest bracket) and patron visits per hour (less than 4, also the lowest bracket).
- **54%:** One of only two high-end outliers that isn't related to the very smallest or very largest libraries: Percentage of the *next* smallest libraries (700 to 1,149) that circulate fewer than six items per hour.
- **53%:** Percentage of the very smallest libraries with no more than three personal computers, including some with none at all. Note that a library this small with *four* personal computers also, automatically, falls into the 73% of these with more than five PCs per thousand patrons.
- **51%:** Percentage of libraries serving 54,000 to 104,999 patrons that have 40 to 99 PCs.

What I find interesting about these extremes is that they all make sense: You'd expect the very smallest and the very largest libraries to be extremes in other ways. In some ways, it says a lot *for* the very smallest libraries that two-thirds of them are open enough hours so that their small communities aren't checking out books rapidly in the few hours available. (There's a more pessimistic version of that, but it's not true: These libraries do pretty well in terms of circulation per capita, better than the overall average at most levels.)

Extreme dollars over all benchmarks

Benchmark tables show the median expenditures per capita for any given group of libraries at any given level of performance for a given metric.

The median for all libraries is $30.93 per capita. I've excluded libraries with less than $5 or more than $399.99 per capita in expenditures, so that's the range. What are some of the extremes?

Ignoring singletons and other groups of fewer than five libraries, there are six cases where a benchmark has a median expenditure per capita below $10.00:

- Libraries serving 3,000 to 3,999 patrons and open 99 to 1,040 hours: $8.56.
- Libraries serving 4,000 to 5,299 and circulating less than two items per capita: $9.01.
- Libraries serving 11,100 to 14,999 and open 1,500 to 1,820 hours: $9.24.
- Libraries serving 8,700 to 11,099 with fewer than four patron visits per hour: $9.35.
- Libraries serving 18,500 to 24,999 with fewer than six circs per hour: $9.57.
- Libraries serving 25,000 to 34,999 with fewer than six circs per hour: $9.61.

Note that in all but one case the lowest funding matches the lowest bracket in the metric.

What about the high end? There are *no* examples showing median expenditures higher than $150 that involve more than three libraries, but there are two involving three each:

- Libraries serving fewer than 700 patrons and open 2,700 to 3,099 hours: $199.21.
- Libraries serving 700 to 1,149 patrons with 30 to 44 patron visits per hour: $163.61.

The highest figure involving at least half a dozen libraries is $129.73, for libraries serving 4,100 to 5,299 patrons and averaging 45 to 69 patron visits per hour.

Finally for this possibly-silly, possibly-obvious set of outliers, let's look at low and high benefit ratios. Yes, there are a few libraries with low benefit ratios, either because they're barely hanging on or because they serve their communities well in other ways. Ignoring rows with fewer than six libraries, there are—surprisingly, I think—only four cases in which the median benefit ratio for a given *group* of libraries is less than 3.00:

- **2.13:** Two dozen libraries serving 105,000 or more that circulate less than two items per capita. (The median expenditure for this group is $13.50 per capita.)
- **2.**14: Seven libraries serving 105,000 or more patrons that have 9-12 patron visits per hour. Median expenditure for this group: $14.79 per capita.
- **2.**79: Thirty-five libraries, again serving 105,000 or more patrons, with less than two patron visits per capita. Median expenditure: $12.91 per capita.
- **2.**87: Seven libraries serving 34,500 to 53,999 patrons with under four patron visits per hour. Median expenditure: $20.10.

At the other extreme, and again ignoring rows with fewer than six libraries, there are four cases in which the median benefit ratio for a given group of libraries and a given metric level is 10.5 or more:

- **12.91:** 14 libraries serving fewer than 700 patrons and open 1,822 to 2,099 hours. Median expenditure: $39.34.
- **12.**05: Eight libraries serving 1,150 to 1,649 patrons and having 30 to 44 circulation per hour. Median expenditure: $44.65.
- **11.**25: Seven libraries serving fewer than 700 patrons and having 20 to 29 circulation per hour. Median expenditure: $55.62.
- **10.**98: Six libraries serving 1,650 to 2,249 patrons and having 20 to 29 patron visits per hour. Median expenditure: $31.66.

Those aren't the absolute extremes, but they're extreme cases for groups of six or more libraries.

Singletons

The average benchmark row, except for the overall benchmark tables, should have somewhere in the neighborhood of 49 to 64 libraries, assuming an even distribution—but that's ridiculous on the face of it. We've already mentioned some of the highs and lows of percentages. In fact, there are relatively few cases where one and only one library fits a bracket: 35, or about 2% of the total. Some of these, arranged by expenditures per capita (not *median*: since these are singletons, they're actual figures):

- At the low end, one library serving 54,000 to 104,999 people has one *and only one* computer for patron access (that library spent $5.33 per capita). Another, spending $5.53 per capita, serves 8,700 to 11,099 patrons and is open less than 1,041 hours.
- A different library serving 54,000 to 104,999 patrons circulates less than one item every ten minutes; it spends $6.06 per capita.
- One small library is unusually busy for its size and funding: A library serving 1,150 to 1,649 people, spending $7.28 and with 45 to 69 patron visits per hour. (No, I'm not going to see just how few hours that library is open! These items are for fun, not to single out specific libraries.)
- Those are the only singletons with under $10 per capita funding, but there's one more under $11: a library serving 25,000 to 34,999 people and spending $10.66 that has four or five PCs for patron use.
- At the high end we have a library (or system) serving 1,150 to 1,649 people that's open 4,000 to 10,000 hours—it spends $398.04 per capita. Another, serving 1,650 to 2,249 patrons, is *also* open more than 4,000 hours and spends $259.40 per capita.
- One library (or system) serving 1,650 to 2,249 people has 40 to 99 computers; it spends $207.81 per capita.

The next three in terms of spending are also libraries serving relatively few people and open many hours or with lots of PCs (where "lots" is relative—in one case, 20 to 39 PCs in a library serving 1,150 to 1,649 people).

The budget tables don't lend themselves to this kind of cross-metric nonsense, but it might be interesting to see just how broadly spread a given bracket can be—that is, the extremes of ratios between, say, the median and 25%ile, the 75%ile and median, or the 75%ile and 25%ile. Heck, it might even be interesting to see how *closely* the three might fall.

Differences between first quartile and median

How wide a gap is there between the first quartile or 25%ile—the point at which ¼ of the libraries score lower—and the median (the point at which half score lower)?

There's one absurdly extreme case, a ratio of 152:1: PC use per capita in libraries serving 700 to 1,149 people and spending $43 to $52. The first quartile is 0.02 (which boils down to underreporting or essentially no uses); the median is 1.73.

More plausibly, a number of lines show ratios of 4:1 or greater—and they're all either reference per capita or program attendance per capita, both measures that can be *very* low. There are 14 of these in all, including three program attendance; the two most extreme are both reference transactions per capita, both for libraries serving 1,150 to 1,649 people: 9:1 for libraries spending $17 to $20.99, 6.67:1 for libraries spending $5 to $11.99.

At the low end, five lines—all of them number of PCs—have exactly the same values for first quartile and median. The next *49* lowest differences are, with one exception, all for open hours, and that's not too surprising (they're all 1.1:1 or lower—e.g., for libraries serving 6,800 to 8,699 and spending $26 to $30.99, one-quarter (those between the first quartile and the median) are open 2,217 to 2,244 hours, a ratio of 1.1 to 1. The exception? Visitors per hour for libraries serving 5,300 to 6,799 patrons and spending $31 to $36.99, where the first quartile is 12.27 and the median is 12.47.

Differences between median and third quartile

You won't see extremely high ratios here. No line shows a difference of 5:1 or greater and only four exceed 4:1:

- **4.54**: Reference transactions per capita for libraries serving 1,650 to 2,249 and spending $5 to $11.99. The third quartile is 0.59 while the median is 0.13.
- **4.48:** Program attendance per capita for libraries serving fewer than 700 and spending $26 to $30.99. The third quartile is 1.97—that is, some nine libraries have programs that attract early two (or more) attendance per patron, a high number—and the median is a more typical 0.44.
- **4.45**: Reference transactions per capita for libraries serving 700 to 1,149 and spending $5 to $11.99. The third quartile is 0.49 while the median is 0.11.
- **4.20**: Same metric but for libraries serving fewer than 700 and spending $12 to $16.99. The third quartile is 0.21, the median 0.05.

These are all small numbers and small libraries. Indeed, the 13 largest ratios are all either reference or attendance per capita, all for fairly small libraries.

At the low end, we're still talking almost entirely hours—16 of the 17 smallest ratios. For example, the top quarter of libraries serving 18,500 to 24,999 and spending $73 to $399.99 are open at least 3,536

hours—but the next quarter of those libraries (13 or 14 libraries in each case) are open from 3,406 to 3,356 hours, a ratio of 1.04:1.

Differences between first and third quartile

What's the ratio between the biggest and smallest measure for the "middle half" of libraries for a given metric, size and spending?

You can guess the outlier here, the same PC use per capita as for differences between first quartile and median, but this time the ratio is 263.34:1—which sounds impressive but translates to 3.99 for the third quartile and 0.02 for the first.

There are quite a few lines with a ratio of 8 or more, and ten with 10 or more—and they're all either reference or program attendance per capita, once again because the first-quartile numbers are so low.

At the low end, it's all hours: the first 54 lines (out of 1,981 total) are hours, as are 43 of the next 44 (that is, 97 of the lowest 98 ratios). Absolute lowest? You've already seen the line: Libraries serving 18,500 to 24,999 and spending $73 to $399.99. Half of those libraries are open 3,200 to 3,536 hours, a ratio of 1.11:1.

Highest median for each metric

Here's a measure that just might be meaningful. For each metric, what are the groups of libraries that have the highest median—the largest value that at least half of the libraries meet or exceed?

- **Program attendance per capita**: Five groups of libraries manage to exceed 1.0 as a median. They're consistently the best-funded libraries (you have to go down to the 10th line and 0.87 as a median to get any lower expense level), those spending $73 to $399.99. From the top, libraries serving fewer than 700 (1.59); those serving 2,250 to 2,999 (1.19), those serving 700 to 1,149 (1.13), those serving 3,000 to 3,999 (1.11) and those serving 5,300 to 6,799 (1.04).
- **Circulation per capita**: Surprise, surprise: the top 14 all represent libraries spending $73 to $399.99. Four of those exceed 20 circulation per capita: Libraries serving 5,300 to 6,799 (20.85), those serving 54,000 to 104,999 (20.44), those serving 2,250 to 2,999 (20.38) and those serving 8,700 to 11,099 (20.14).
- **Circulation per hour**: This time, the top median points are *not* all libraries spending $73 to $399.99. Eleven categories show a median higher than two per minute (that is, 120 per hour). Of those, the top five are libraries serving 54,000 to 104,999 and spending $73 to $399.99 (224.93), libraries serving 34,500 to 53,999 and spending $73 to $399.99 (171.89) followed by those spending $53 to $72.99 (161.13), and libraries serving 105,000 or more and spending $73 to $399.99 (152.23) followed by those spending $43 to $52.99 (145.38).

- **Hours**: Not surprisingly, the top ten are all the largest libraries, including the overall figure and all the others except those spending $5 to $11.99 (which come in 12th, after libraries serving 54,000 to 104,999 and spending $17 to $20.99). The order isn't strictly by expenditures, however: The highest median is libraries spending $31 to $35.99 (24,897), followed by those spending $73 to $399.99 (23,803), $53 to $72.99 (22.803), $36 to $42.99 (21,866) and $43 to $52.99 (21,800).
- **PC use per capita**: The top six are all libraries spending $73 to $399.99 (and, after two groups at $53 to $72.99—the two smallest library categories—there's another four at $73 to $399.99): Libraries serving fewer than 700 (4.30), 700 to 1,149 (3.78), 1,150 to 1,649 (3.37), 3,000 to 3,999 (2.87) and 1,650 to 2,249 (2.77).
- **PCs per thousand patrons**: A little too easy, as the top six and eight of the top nine are the smallest libraries (and the seventh is the best-funded libraries serving 700 to 1,149); this time around, there *is* a perfect correlation between expenditures and the metric (with the overall median for these libraries coming in between the top three expense categories and the fourth and fifth). The actual medians are 11.43, 9.45, 7.53, 7.52 (overall) and 7.02.
- **Computers for patron use with internet access**: Also a little too easy—the top ten are all libraries serving 105,000 or more, and they're in strict descending order of expenditures: 240, 228, 192, 191, and 172.5 respectively (moving down from $73-$399.99 to $31-$35.99).
- **Reference transactions per capita**: The top seven are all libraries spending $73 to $399.99 per capita, and five of them exceed 1.5: Libraries serving 18,500 to 24,999 (1.82), those serving 34,500 to 53,999 (1.77), those serving 105,000 and up (1.76), those serving 14,100 to 18,499 (1.70), and those serving 25,000 to 34,499 (1.60).
- **Visits per capita**: The top 14 are all libraries spending $73 to $399.99, including the overall group (11th at 12.30). The top five: Libraries serving fewer than 700 (15.78), those serving 5,300 to 6,799 (15.25), those serving 1,150 to 1,649 (15.04), those serving 2,250 to 2,999 (14.35) and those serving 700 to 1,149 (13.85).
- **Visits per hour**: This one's a little more varied, with only three of the top five being the best-funded libraries. From the top: Libraries serving 54,000 to 104,999 and spending $73 to $399.99 (105.16), libraries at that spending level serving 34,500 to 53,999 (98.48), the same-size libraries spending $53 to $72.99 (89.27), libraries serving 54,000 to 104,999 and spending $43 to $52.99 (86.71) and libraries serving 105,000 and up and spending $73 to $399.99 (85.95).

End of Part 1

I could go on with more cross-chapter tidbits about individual metrics; indeed, I could probably go on with that for another 5,000 words or more. But enough is enough: Anybody who buys the book (now in its third and, I hope, final minor revision, as of September 26, 2012, thanks to finding trivial errors when massaging these independent lines) can develop their own interesting facts comparing, say, program attendance per capita for different size libraries. This piece is already longer than it should be and, for those without a copy of the book and limited patience for numbers, probably an effective soporific.

That covers the first 128 pages of the book. There's also Chapter 20, Libraries by State, which takes up another 128 pages—with fewer metrics (five rather than 11) but a whole lot more instances (49 rather than 17: Hawaii and the District of Columbia each have a single public library system, so they don't have tables as such). I may cover the states in a similarly offhand fashion in Part 2. Or I may not.

The CD-ROM Project
The DK Touch

I've already noted a couple of Dorling-Kindersley CD-ROMs in this series of "do they work now?" commentaries, most recently in December 2010. In the interest of getting through this interminably delayed project before hell thaws out again, let's look at half a dozen DK titles I thought were worth saving when I reviewed them the first time.

Just looking at the packages, I wonder: None of them mentions any Windows newer than 98, and five have the Qiss of Death icon (the Quicktime logo that usually means they require a specific installed version of Quicktime)—but I've been pleasantly surprised by DK titles in the past.

In the day, Dorling-Kindersley consistently produced title CD-ROMs that both entertained and informed, using CD-ROM multimedia techniques to good effect. The CD-ROMs showed some of the same design skills you see in DK books. I didn't always give them Excellent ratings (and didn't keep all the ones I reviewed), but they were almost always interesting and worthwhile. (When I reviewed four Eyewitness titles in a single August 1998 roundup, three of the four—including two noted here—got Excellent scores; one got a Good score because it didn't run very well on Windows 95, apparently preferring Windows 3.1.)

Four of these are in DK's "Eyewitness" series of topical histories and encyclopedias; one is in DK's "Chronicle" series; and one is the second or third edition of David Macaulay's wonderful "Way Things Work," this time *The New Way Things Work*. I reviewed them in late 1997, the fall of

1998 and (in one case) late 1999, and the copyrights range from 1995 through 1998. Most of these listed for $39.95 new, although one or two came in at $29.95.

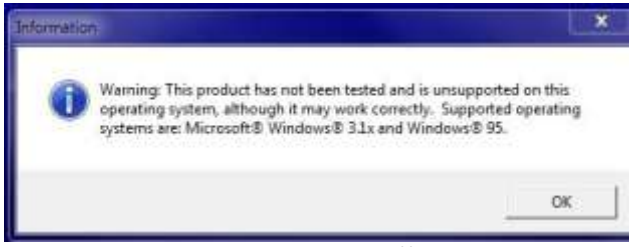
To save space and sanity, I'm not going to go looking for possible replacements for these CD-ROMs if they don't work. They're multimedia explorations: that's their strength. You could certainly find the same facts and some of the same media on the web; I don't believe you could wind up with the same sense of exploration, although I could be wrong.

Eyewitness Virtual Reality Earth Quest

That's what the spine says; the front of the package just says *Earth Quest* in big type, followed by "The ultimate interactive guide to the forces and forms of our dynamic planet." In December 1997, I gave the disk an Excellent score (93), calling it a "deep and well-presented panorama of information about the forces and forms that make up the planet." I didn't take the time to complete one major challenge, but I did find it interesting. It's heavy on mineralogy and related topics.

Installing and operation

The installation routine came up with this friendly alert (on a blue background screen):



I like that: It doesn't scare you off, but it does let you know there *could* be problems. Installation proceeded rapidly—and, of course, came to the QuickTime installation step, where it detected an "earlier version of QuickTime" and I told it not to replace it. After noting that things might not work properly, it finished. It doesn't add a shortcut to the desktop, but the start menu had an Earth Quest icon.

Which, sigh, *didn't work*. First it warned that QT wasn't installed and videos wouldn't played. Then it said the "sound decompression software" wasn't installed properly and terminated. In other words, no luck: This disc just isn't going to run under Windows 7. Too bad.

Eyewitness Encyclopedia of Nature 2.0

In 1998, this one got a low Excellent (91)—but that's still excellent, with more than 700 primary articles, 200,000 words, ten panoramas to

explore habitats, extensive "green" coverage and more—all arranged to encourage exploration.

Installing and operation
No Windows-version warning this time, but the usual Quicktime issue. Fast setup. Attempting to run yields a similar "sound software" message.

Once again, no luck. Once again, a shame.

Eyewitness Encyclopedia of Science 2.0

This disc earned a 94 (Excellent) in 1998 for its interface and content, offering a range of ways to find out more on quite a few aspects of science—not necessarily dumbed down. Forty videos, 800 illustrations, 80 animations. 3.5 hours of audio, and about 900,000 words in 1,800 articles. The retail package included a neat little 160-page pocket paperback, *Science Facts*.

Installing and running
Similar messages and QT issues, but this one copies a lot more to the disk—and wants to restart the computer before it can run. Does that help?

Nope—but this time, the failure's a little more bizarre. The program won't recognize the data path to the DVD drive. I suspect it would fail for other reasons, but that stops it cold.

This time around, the actual files on the disc are mostly viewable—the neat little biographies as image files, a variety of pronunciations and commentary as .wav files. But the whole thing doesn't work. Again, a shame.

Eyewitness History of the World 2.0

Because of difficulties running on either Windows 95 (where it didn't work at all for me) or Windows 98 (where it ran, but not perfectly), this disc only earned a strong Very Good (87). It earned that high a score because the graphics were stunning, the methodology encouraged exploration and there was loads of content (more than 450,000 words of text, 700 illustrations, 24 video clips and three hours of audio).

Installing and operation
The Windows-version warning screen, and the need to restart—but no QuickTime messages (this is one of two CD-ROMs that has an indeo logo for Intel video, this time alongside the QT logo). Will that help? Nope. Sound software again, even though there were no installation problems. At least this one uninstalls properly (perhaps not completely, but InstallShield goes through the steps).

Chronicle Encyclopedia of History

When I reviewed this in 1998, it got an Excellent score (94), calling it "a surprisingly effective view of man's history, using a news style to present several thousand key events." The main interface is an "interactive newspaper" offering major illustrated stories, a timeline to get to other stories and several sidebars. Stories may include archival video clips, historic sound records or actor's recreations (consistently labeled as such) or links to other stories. In all, the disc has about 1.6 million words in 4,000 major stories, 12,000 brief stories, one hundred biographies and a dozen essays. (Remember when 24 to 40MB of hard disk space was "a fair amount"? That was one of my few mild complaints.)

Installing and operation

This one says it needs 411MB of disc space, a lot for 1997 if trivial in 2012. Once again, there's no QT issue (and no QT logo); once again, it needs a restart. Same results—even though QT isn't an issue, the "sound software" is.

The New Way Things Work

David Macaulay had a knack for making machines and inventors fascinating in *The Way Things Work*, both book and CD-ROM. This third version earned an Excellent (93) for its content and methodology—even though it wouldn't run David Macaulay's own video clips unless I *downgraded* QuickTime (other videos ran just fine). The disc includes 24 Mammoth Movies (using humor to show how machines work), 300 animations, 70,000 words and loads of illustrations and pop-ups.

Installing and operation

This time, just for fun, I let QT install its version (but didn't let it delete other versions, although the only one I can find is a QT browser plugin, since Windows Media Player handles QuickTime files natively). No restart required. It also installs a demo for another Macaulay CD-ROM.

For some reason, it didn't leave tracks on the start menu—but going to DK Multimedia in the All Programs menu yields an icon for the program, the demo, and all the other programs I supposedly uninstalled. And, sigh, both the program and the Pinball demo bring up the "sound software" message.

Six Up, Six Down

I had hoped that some of these would run because I remember them fondly. Unfortunately, I also suspected they were so intriguing and so involving because they used hardware hooks or other techniques that

are, *for good reason* (stability, security), simply not possible in modern versions of Windows (from XP on and possibly from later iterations of 98).

There are more CD-ROMs to check, but this is discouraging enough that it may be a while. Surprising? No, not really.

Funny thing, though: I have books I purchased in 1997 and 1998 that run just fine in 2012. I have CDs purchased in 1985 that play just fine in 2012.

By the way, some or all of these are probably still available on Amazon or elsewhere. (I see *Earth Quest* offered for, gasp, $141.42; *Encyclopedia of History* for $20; *History of the World* for $29.95; and so on.) Unless they're post-1998 versions, there is no reason to believe they would run, although it's possible you could find software patches in some cases. There *is* a 3.0 version of *Eyewitness Encyclopedia of Nature* that claims to be compatible with Vista and XP and a similar 3.0 version of *Encyclopedia of Science*, but it's not clear that it's actually available.

The Back

Hi-Fi Fun and Other Nonsense

My opportunities to snark about pricing and other oddities in the audiophile and home theater fields have diminished somewhat (but not entirely, for those who hate this—then again, you've closed the issue by now, haven't you?). I didn't renew *The Abso!ute Sound* last year for various reasons and—after subscribing to *Stereo Review* under various names for probably 30 years or more—I finally gave up on *Sound & Vision*, the magazine's current name, because it cost too much for what I was getting (the "best offer" was $18 for 8 largely-empty issues) and seemed to be a phonyzine—a magazine that no longer does much in print except separate ads with glossy features, with most actual content on the web (or in iPad versions). Print magazines aren't dying in general (roughly as many new ones are being created as old ones shut down, and overall subscriptions are actually up slightly)—but some magazines have become suicidal, and far be it from me to stand in their way. When the print package is mostly teasers to get you to scan silly codes with your smartphone or go to the web or your iPad, running at the minimal 50% ad/50% "copy" level but with most copy being big pictures and little text, well, why bother?

Ah, but there's still *Stereophile*, where discount renewal offers have me subscribed through December 2017 (at $10 per 12-issue year) and *Home Theater*, where I'm renewed through 2016 at least. So there are still good sources for the occasional snark (and *PC World* offers good material now and then)…along with, to be sure, web items I tag for later discussion. I'll mix them up so you don't get *too* tired of my audiorants. You get other rants as well!

Perspicacious readers, if there are any for this section of oddments, may note that most magazine-sourced items are fairly recent—and most web-sourced items are fairly old. I deal with a small stack of magazines (with items to comment on—usually less than one out of four magazines I actually read) after it reaches 6-10 or so, while I deal with Diigo items in chronological order (oldest first), more or less.

So Long, Coffeepot

This could belong in a deathwatch section but it's just a misleading caption on a one-page "article" in the September 2012 *Fast Company*. The article is mostly infographics (and as light on meaning as most infographics). The topic: Keurig single-cup coffeemakers and the fact that two of the patents expire in September 2012, making it easier for other companies to produce K-Cup coffee pods. Green Mountain Coffee Roasters owns Keurig and is defending against this by partnering with more coffee companies and introducing a *new and better way to spend too much money making coffee at home*, the Vue, which makes espresso and comes with a Starbucks alliance, and doubtless has a whole new set of patents.

The infographic shows 2010 and 2012 brew-at-home coffee sales as two coffee-cup pie charts featuring wedges for the single-cup segment. Since the Keurig really didn't catch on until 2010-2011, it's a dramatic story: overall sales going from $289 to $360 million, but with the single-cup portion growing from $14 to $63 million. (In other words: bagged coffee sales grew by 8% while single-cup sales grew by 350%. Or, rather, "were predicted to grow," since the 2012 figures are of necessity estimates. And it may be worth noting that bagged coffee sales still grew by more than the entire single-cup market.)

I find a much smaller bar graph more interesting: It shows why coffeemakers *love* single-cup brewers. Folgers in a can costs a nickel a cup; Folgers in a K-Cup costs 67 cents (and leaves you with non-recyclable packaging). Starbucks isn't quite so extreme a difference, but still: 27 cents in a bag, 83 cents in a cup.

So far, so good. Lots of people have lots of money and spend it on overpriced single-cup coffeemakers and coffee. That's their privilege and, for households where there's only one coffee drinkers and pouring hot water into a cone is *way too complicated*, well, why not? Hey, *$ has demonstrated for years that lots of people will pay for overpriced coffee and coffee-flavored sugar drinks if you give them the right image.

Here's the kicker (and the reason for this item): A little chart over in the corner that shows 118 million U.S. homes and 10.8 million U.S. homes with Keurig brewers. (The chart really *is* junk: It's an area chart, but the Keurig segment is about 10% of the height and 10% of the width of the entire square, making it look like 1% of the whole, not nearly 10%). There's no reason to believe the rest of American homes are

getting ready to buy Keurigs, any more than any other pricey single-purpose appliance achieves huge market share. But the headline on the little chart is…well, you saw it at the top of this story. And that's just stupid. (Why did I keep *Fast Company* and not *Wired*? Because, in comparison, *Fast Company* seemed more sensible. Without *Wired* as a comparison, not so much…)

Addiction or Dependency?

I've poked fun at Nicholas Carr and his *Rough Type* blog from time to time, but I suppose that's shallow. (Sorry.) "Not addiction; dependency," posted May 14, 2010 at *Rough Type* is interesting and fairly long for a Carr post. It's about internet "addiction" and the Russian teenager who created Chatroulette and seems to view the computer as the only thing he needs. Quoting a Julia Joffe *New Yorker* article quoting him:

> "I always believed that computer might be that thing that I only need, that I only need that thing to survive," he says. "It might replace everything."

Carr finds the teenager's case "extreme…but also…representative." This is in keeping with Carr's overall shtick that we all spend all our time staring at screens and are becoming incapable of deep thought. Then he goes into a discussion of addiction and the claims of college students to be addicted to media, social media or the internet. Carr doesn't argue with the survey results. He does argue that addiction itself is the wrong term, as it's a clinical term that makes it easy to ignore the actual ~~problem~~ situation. And he provides quotes showing how terrible students felt if asked to go a few hours without their devices, such as this one:

> "Texting and IMing my friends gives me a constant feeling of comfort. When I did not have those two luxuries, I felt quite alone and secluded from my life. Although I go to a school with thousands of students, the fact that I was not able to communicate with anyone via technology was almost unbearable."

Two hours without texting. *Almost unbearable*—with thousands of students actually out there who this person could, you know, *talk* to face-to-face. Or this one, maybe even sadder from a college student:

> "My short attention span prevented me from accomplishing much, so I stared at the wall for a little bit. After doing some push-ups, I just decided to take a few Dramamine and go to sleep to put me out of my misery."

Or this, presumably about going two hours without social media: "Honestly, this experience was probably the single worst experience I

have ever had." You're young, kid: You'll have worse. Unless you spend the time at your parent's funeral (they *will* die, sooner or later) or respond to being laid off by texting and checking Friendfeed, of course. Here's what Carr argues (noting that I omitted quotes actually using "addiction"):

> The problem with the addiction metaphor, which as these quotes show is easy to indulge in, is that it presents the normal as abnormal and hence makes it easy for us to distance ourselves from our own behavior and its consequences. By dismissing talk of "Internet addiction" as rhetorical overkill, which it is, we also avoid undertaking an honest examination of how deeply our media devices have been woven into our lives and how they are shaping those lives in far-reaching ways, for better and for worse. In the course of just a decade, we have become profoundly dependent on a new and increasingly pervasive technology.

Maybe. In two senses: Maybe it's overkill or maybe not. And maybe "we" (all?) have become "profoundly dependent" on whatever Carr's talking about. (I sometimes have trouble figuring out just what he *is* focusing on; maybe it's that short attention span thingie?)

He also argues that the addiction metaphor is bad because it assumes that becoming dependent on [whatever Carr's target is] is a personal choice. I'm not sure I see that at all: What makes addictions addictions is that people no longer *have* easy choices. Indeed, the first sentence of the next paragraph is almost a classic addiction definition:

> When it comes to the digital networks that now surround us, the fact is that most us can't just GTFO, even if we wanted to.

"We can't stop even if we wanted to." Isn't that addiction? (Is it true? For some folks, maybe so. For others, maybe not.)

It's YOUR Outdoors, Dammit

The penultimate issue on my *Sound and Vision* subscription, the June/July/August 2012 issue (80 pages for three months of what used to be a 120-page or larger monthly!), has a long feature—about 10.5 pages—on outdoor gear. The first paragraph:

> Heading outdoors but don't want to leave your music and movies behind? Whether you're hitting the pool or beach, or simply taking a long drive, the outdoor-friendly A/V solutions we offer over the next 9 pages are sure to enhance your sum-sum-summertime fun quotient.

As for "simply taking a long drive," there's certainly nothing wrong with listening to music while you're driving—or watching a DVD if you're a

back-seat passenger. Even there, though, the segment of the section pushes my buttons: "Of course, it's dangerous to look down at a smartphone's small screen while driving. To solve this problem, [piece of gear] connects to a smartphone (via a separately purchased accessory cable) for access to certain apps on the head unit's 6.1-inch touchscreen." In other words, *it's not dangerous* to be staring at a 6" screen off to the right of the driving controls so you can control your apps? Oh, and of course, one featured item is a radar detection system, since only idiots actually obey speed laws—the same idiots who think that they should be paying attention to the road when driving.

No, my main problem is with the rest of the piece, mostly about how you can get Big Sound and Big Vision in your backyard or on the beach. How big? Big enough so that you're providing your music to your neighbors. Whether they want it or not. After all, it's YOUR outdoors: Let them find their own!

The writer has a solution, since the recommended gear pumps out "party-level tunes" at high volumes and can be set up to have multiple speakers. "You'd have to invite the neighbors over or risk alienating them." If they have other plans, such as a quiet evening at home? Tough. You made the offer. Now you're in the clear to blast out them tunes or that action movie.

It's not just *Sound and Vision*. The July 2012 *Home Theater* has a cluster of articles on the wonders of outdoor home theater and sound, including an example where a big-screen TV appears to be adjacent to the fence and thus, presumably, the neighbors. The outdoor system has a 2,000-watt surround sound system. I trust the neighbors like to hear the movie soundtracks… (The same issue has ratings for various speakers to make Big Sound in the Great Outdoors. And offers the same advice: "Oh, and unless your neighbors are ax murderers, invite them to the party. A little diplomacy may raise the socially acceptable decibel level.")

I'm not a complete spoilsport: If someone's having an outdoor party next door once or twice a summer, that's cool. But when we walk by nearby places—fortunately, not close enough to us—that have outdoor gear, we pretty much hear it all. the. time., or at least all the time during the summer.

Mid-Level is What You Make It

The same *Sound and Vision* has a test report on the Rega RP6 turntable, since *S&V* has now bought into the idea that LPs always sound better than CDs. They call the Rega a "mid-level deck aimed at folks who want to step up to more serious vinyl playback." What's mid-level? $1,999. I guess when entry-level units run $200-$300 or more and the high end is $150,000, $1,999 is either mid-level or lower. Oddly enough, the favorable review says the RP6 sounds more like a CD player than a

turntable: technically clean rather than sonically charming. Now, if only you could get a good CD player for $1,999 or less…

Writing Readers Off

Closing out this issue is a little item that was a reminder to me that the magazine is dying or suicidal as a print item. There's a *very* brief review of a Blu-ray release of *Men in Black I & II*. The minireview ends with this: "My deeper *MIB I & II* extras dissection can be found on this issue's iPad edition." No, there's not a URL as an alternative. Don't have an iPad? Forget you, chump: You're not our target audience. Message received loud & clear. (But wait: Haven't proper iPad using technophiles given up on Blu-ray as being Obsolete Physical Media? Never mind…)

Your Next PC Probably Won't be a Tower

For many of us, that's either a reasonable prediction or a little late. I moved away from a tower to a notebook-as-desktop more than four years ago, and many people may be adopting tablets, notebooks or netbooks as primary computers.

But that's not the sense in which the May 2012 *PC World* uses that assertion. No, they think you're going to buy an all-in-one instead—a desktop computer with the computer hidden in the display. The article rates the top seven (*PC World* continues to rely on Top X equipment lists in general), from the $1,599 HP TouchSmart 9300 Elite to the $1,250 Dell Inspiron One 2320. The reviewed units are mostly well equipped (apart from the $900 Lenovo ThinkCentre Edge M91z, all have at least one terabyte of disk storage and half of them have 8GB RAM; half have Blu-ray drives, the others DVD burners; they all use either Core i5 or Core i7 CPUs running at 2.5GHz or faster). Screen size, an important factor since the screen *is* the computer, ranges from 21.5 inches (the most common) to 27 inches.

My next PC? Hard to say. An all-in-one? Possibly; probably not. This writeup could be in TECHNOLOGY, but the overstated claim puts it back here.

Magic Beans

Audiophilia is rife with magic beans—things that Magically Improve The Sound Of Your System at a Not-So-Modest Price. They range from remarkably expensive cables to a variety of feet for your equipment (and stones and wooden blocks to put on *top* of your equipment) to, well, one of the few cases where most critics called BS: A "specially treated clock" (the Tice clock) that would clean up your sound if it was in the listening room. *Anywhere* in the listening room.

Some magic beans have semi-plausible explanations (e.g., AC power conditioners); some make perfectly good sense under the right circumstances; some fall into the "if you think you hear a difference and it's your money, why not?" category. And, frankly, if you've paid good money for something and *don't* think you hear a difference in sound quality, you're lacking in imagination.

Sam Tellig's review of the Passive Multivocal Resonator (PMR) in the May 2012 *Stereophile* is interesting because he uses "Magic Beans" as part of the column title and retells the Jack & the Beanstalk story with a new finish: "Jack grew up to become an audiophile." He claims to be "neither believer nor skeptic," although I'd suggest that if you're *not* a skeptic, you're inherently a believer. Tellig's such a non-believer that he has Shun Mook Mpingo discs in his listening room, little ebony wood discs you put on various things to "control resonance." (One reviewer claimed that putting one on, ahem, the AC plug made an enormous difference in sound quality.)

The PMR is basically a gong: A 14" bronze bowl cast of bell bronze, costing a mere $2,190. The bowl (which stands upright on its own tripod) has edges sharp enough to scratch furniture, and no two PMRs are exactly alike—they're cast individually. "When struck, the PMR rings like a bell." Tellig convinced himself that the PMR's presence in his listening room "imparted a bell-like quality to the music, a richness of timbre that rang true." Oddly enough, even the maker says the PMR is *adding* its own sound to your system: "only harmonics that are perceived by the human ear as pleasant and harmonious." It even cleaned up the sound from his Vizio TV.

I can't prove that this stuff *doesn't* improve sound. I don't accept that adding another set of sounds is legitimately "improving" the fidelity of reproduction equipment, but I've always wondered whether part of the magic of vinyl—to some people—is the "air" added by surface noise. And there's the long-standing argument over whether good audio gear should reproduce what's recorded as accurately as possible, or whether it should Make Pretty Music; if you're in the latter camp, adding a bell in your listening room may make sense. And it's Tellig's money—or, rather, it isn't, since he wasn't impressed enough to buy the review unit.

There are more extreme (albeit less expensive) magic beans in the issue, this time from Art Dudley, to my mind the most crazed writer on *Stereophile*'s staff. He writes a rave review of P.W.B. Cream Electret, a "reportedly nontoxic emollient" that sells for £20 for a 15ml jar. (Dudley never misses a chance to strike out at anybody he doesn't like: He says the cream is "as free of odor as New York State wine is free of flavor," nicely sniping at a fair number of well-regarded wineries.) Oh, and there are also P.W.B. Rainbow Electret Foils, three 170x15mm strips for the same price (about $32 as I write this). The foils are at least pretty.

What do you do with the cream? Smear it on your tonearm (that didn't seem to do much) or "under the front edge of my preamp" (*seriously*—Dudley assures us that there was small but definite improvement) or "on the outlet strip into which all my components are plugged" which yielded a bigger improvement.

The odd thing is that Dudley's sane enough to recognize that, of three possible explanations for the improvements he heard, two have nothing to do with actual effects of the cream or foils: Namely, he psyched himself into hearing the change (my first bet for most Magic Beans) or he heard the change because his system was warming up more.

The strips? You cut them into smaller strips, then stick a strip onto the label on each side of your record (*of course* you're listening to vinyl), "specifically to cover the number 33 1/3 on each label." Right. And, sure enough, *it made a difference*. Ah, but not so much on CDs—except that Dudley grew to believe that attaching a sticker over the CD logo *damaged* the sound. Right.

The people who sell these particular magic beans have other ideas—e.g., that photographing somebody "imposes a temporal asymmetry on the subject's internal energy patterns, thus disrupting that person's ability to perceive any number of things, sound included." There it is: The reason you can't hear the difference when you add Magic Beans is because somebody took your photograph, creating a temporal asymmetry. Oh, but you can reverse the effect by finding an old photograph of the person, sealing it in a plastic bag, and putting the bag in a freezer—and then doing the same with a recent photograph. That's almost too much even for Dudley.

On the other hand, there are things you could think of as magic beans that absolutely do work. Stephen Mejias writes about one of them in the same issue: the Zerostat, now the Milty Zerostat 3 (when I used LPs, it was a different company and wasn't a "3"—and it cost significantly less than the current $100). It's a gun-shaped gadget with, I think, a quartz crystal inside. You squeeze the trigger and it produces positive ions, release the trigger and it produces negative ions (no electricity except that generated by the squeeze). Why do you want to do that? To neutralize static electricity on your LPs—and on your stylus. Maybe the stylus more than the LP: neutralizing static electricity means dust doesn't build up so fast and screw up the sound. The maker suggests that it works for CDs as well (which may be more in the magic-beans territory). Mine disappeared years ago (I think it broke, after a mere 20 years or so) and I question that one. On the other hand, a third suggestion—"tired of those pesky coffee grinds sticking to the side of your grinder's plastic basket? Grind, then shoot"—*absolutely* worked for me and was the easiest way to clean the plastic portions: the ground coffee slides right off. But in the case of the Zerostat there's a clear, well-understood physical phenomenon involved: static electricity attracts

dust, and the Zerostat reduces static electricity through well-understood means.

The biggest and best library around…

That's the remarkably arrogant headline on an ad for The Cable Company's Cable Library, "over $2.5 million in cable samples you can try at home." After the ellipsis comes "…has all cables and no books," which may be the key: It's best because it's cables, not books. Biggest? Wanna count the number of libraries with more than a $2.5 million collection? (Of course, given the price of some cables, $2.5 million might not amount to all that many…)

If you're the right reviewer (like Michael Fremer, who's apparently incredibly wealthy), super-expensive cables make sense. In the same May 2012 *Stereophile* the ad appears in, he reviews the B.M.C. Audio Amplifier C1 Integrated Amplifier, which he regards as "modestly priced" since it's only $7,990. To test it, he used his very expensive (and quite possibly worth it) Wilson Audio MAXX 3 speakers, a Simaudio CD player and Ypsilon preamp…and, for cables, Balanced Stealth Indra interconnects to the CD player, ZenSati Seraphim cable to the preamp, and TARA Labs Omega and AudioQuest WEL Signature speaker cables. The interconnects *cost more than the amplifier*—that is, more than $8,000.

Ah, but that's just the interconnects—the cables connecting the sources to the amplifier. The speaker cables? "Both of which cost more than twice the Amp C1's price." In other words, *more than $16,000* for a pair of speaker cables, or more than $24,000 ~~worth~~ of wiring in all. After all, if you've got it, flaunt it…as he shows when he discusses another amplifier that the $8,000 unit rivaled: the darTZeel NHB-458 monoblocks, $130,000 a pair. Yowza.

How *Dare* Microsoft?

Heard of the DNT flag? That's the Do Not Track flag, which the Digital Advertising Alliance says it will support. If you've set the flag for your browsing session, you'll see generic ads rather than ads based on tracking your activity. As Steve Fox's editorial in the August 2012 *PC World* puts it, "Run-of-site [generic] ads are less invasive, but they are also less effective and yield less revenue for the site."

Which doesn't bother advertisers much because browsers leave the DNT flag off by default: You have to explicitly turn it on. And, of course, honoring the DNT flag is voluntary.

Ah, but Microsoft decided that Internet Explorer 10 would be designed to favor user privacy: It would ship with DNT turned *on* by default. Advertisers went nuts. As a senior VP for IAB, the online ad trade association, put it

> Microsoft is telling advertisers, "You cannot sell the more expensive ads from our browser." Imagine if Microsoft started printing coupons for its users that said "60 percent off all Walmart items in Walmart stores." Walmart wouldn't honor those coupons, just as publishers won't honor Microsoft's DNT flags, because they're a catastrophe for the ad industry.

I must be dense: The Walmart analogy makes no sense to me at all. What this makes clear: The ad industry only supports DNT because they assume almost nobody will use it—and they'll ignore it if they find out otherwise.

Didn't think you'd find Microsoft on the side of user privacy, did you? How *dare* they?

It ain't the meat…

Old folks may recognize the lyric (originally, apparently, The Swallows, but I remember Maria Muldaur's version). The item is the (deep breath for model name) D-Box SRP-230 Motion Platform and Standalone Series IV-BD Motion Controller (whew), as reviewed in the July 2012 *Home Theater*—a rave review with the headline "Virtual Reality for Real."

See, if you really *care* about movies, you only watch action flicks, and the sound—or, rather, the *feel* of all those explosions—is what *really matters*. A big enough subwoofer or subwoofers might work, but those suckers are huge and expensive. So there's an alternative: tactile transducers, which you either buy as part of a special home theater chair or sofa or attach to your existing furniture. What they do is, they "vibrate the furniture's frame in correlation with the amount of bass in the audio signal."

Or, if you want to get *really* fancy and have the deep understanding that an interesting plot with good direction, good acting and good cinematography *ain't enough* for real cineastes, you get actuators that can move the seats in various direction, not just back and forth—and you feed them with a "motion track" specific to a movie, so when an automobile bounces on a pothole in the road, *you bounce with it*. Yay! Now you can actually *enjoy* movies!

Yes, these things exist. The D-Box combines hardware that you put under a sofa with a controller with motion codes for more than 1,000 movie titles. It apparently works just great, and for *true cinema devotees*, it makes all the difference:

> [T]he fact is that motion control—when done properly—does as much to engage you with a movie as having a 5.1-channel surround system (and certainly more than 3D). I know that statement may sound heretical, but physical movement is an unmistakable

missing dimension of the movie experience that's virtually impossible to re-create audibly and visibly.

And it's cheap! The controller (electronics: it won't move a thing except your electric bill) costs a trivial $4,000; the actuator costs $8,000 to $10,000, depending on how heavy your sofa and your guests are. So for a mere $12,000, you can *actually enjoy your movies!*

Don't ask me. We watch romantic comedies, dramas, comedies and more; so far, we've gotten by with the internal speakers in our 54" (definitely not 3D, by choice) plasma HDTV—and when we do get around to it, we'll get a soundbar for cleaner sound at reasonable levels. By *Home Theater* standards (as has become clear over the years), we don't really watch movies at all, since it's all about the sound—and the motion. (We haven't been to a movie theater in years. I assume they now all have seats that vibrate and move up and down with movie action? Otherwise, how can you actually be *engaged* with the movie?)

Summertime, and the Writers are Lazy

Maybe that's unfair, but that's how I felt reading the August 2012 *PC World*. The issue is 96 pages long. Not including the contents pages, masthead and similar overhead, I count 70 editorial pages, which is an unusually high ratio of content to ads (*PC World* must be low on advertisers). Of course, a big chunk of that editorial space is columns and tips and the usual by-the-numbers monthly features.

I was struck by the longest editorial feature by far: nine full pages of "Top Gear: What to Buy Now." Which consists of *one-paragraph* notes on 18 different devices, with lots of pictures and white space. (One of the 18 devices is remarkable given *PC World*'s earlier list of the "seven best" all-in-one PCs, mostly in the $800 to $1,900 range: apparently the *best* all-in-one is another HP, the Z1, and it costs $5,673.) I call these "notes"; lacking most specs and detail, they're not reviews. At two big pictures and little paragraphs per page, they mostly strike me as filler.

Absinthe Makes The Heart Grow Fonder?

Sorry about that. In the June 2012 *Stereophile*, Art Dudley reviews the Allnic Audio A-5000 DHT monoblock power amplifier. The Allnic's a tube amplifier (of course), and Dudley's superior knowledge is such that he can assure you that a 300B (a particular tube) "is clearly absinthe" in the liquor mart of tubes. He says it can "deliver some of the most intoxicating music playback imaginable"—and I think this says something about tube lovers and audiophiles of a particular bent: It's not about accuracy, it's about making things pretty. It is *of course* a rave (or

raving) review. He does offer a note about price, but answers that with the suggestion that, well, *there are more expensive amplifiers out there*. That's a truism: If there *aren't* more expensive units, someone will create them. (See my earlier note on a $130,000 amplifier.)

Is this a great amplifier if you love the tube sound? Maybe. On the other hand…it's rated at 10 watts, which is very low power, so you need *very* efficient speakers, which tend to be expensive as well (think Klipsch). Oh, but when John Atkinson put the Allnic on the test bench, it turns out that 10 watts is, um, optimistic. See, most solid-state amplifiers have power ratings at around 0.1% distortion. Atkinson defines clipping—past the reasonable output limit, and the point at which an amplifier may damage the speaker—as 1% distortion, ten times as high. The Allnic only managed 4.7 watts at 1% distortion. That's for an 8 ohm speaker; for a 4 ohm speaker, it managed 1.6 watts, truly flea power. As a comparison, the McIntosh MC8207 multichannel amplifier, high-end by most standards, delivers 236 watts per channel at 0.1% distortion for two channels, 201 watts per channel at 0.1% distortion driving all seven channels. Ah, but the McIntosh costs $6,000: It's a seriously expensive unit.

Did I mention the price of this underpowered high-distortion Allnic? Since it's a monoblock, you need two for a stereo system (five for a surround-sound system, but never mind). Two of them cost $19,900. That's right: More than three times as much as a high-end amplifier that delivers at least 40 times the power into each of seven channels, not two. But the McIntosh is a clean reproduction system; it doesn't make its own sweet music out of whatever's fed into it. (You can get a good medium-power receiver for a lot less than $6,000—for example, *Stereophile* regards the $699 Outlaw Audio RR2150, 100 watts per channel stereo, as good enough to be in its Recommended Components list, as is the $380 NAD C 316BEE if you only need 40 watts per channel, or 8.5 times the 8-ohm output of the Allnic.)

Why Most Hardware Specs are Total Bullshit

That's the title of this December 10, 2010 post by Bryan Gardiner at *Gizmodo*. Gardiner notes that most of us look at specs before making selections of various pieces of hardware:

> Frequency responses will be consulted, dynamic contrast ratios compared, and color gamuts critiqued—all in an effort to gauge performance, determine value, and quickly pit one product against one another. The only problem? In many cases, you'd better off consulting chicken bones and fingernail clippings. Not only are a growing number of published specs misleading and/or

> overinflated, some have become downright meaningless. And it's getting worse.

Gardiner calls it "spec cooking" and asserts that companies lie about specs for competitive reasons—and because us poor consumers don't understand technology anyway, so why not? He asserts that it's now *necessary* for companies to lie:

> The temptation to exaggerate is now so overwhelming that attempting to stay out of the gimmick game is now seen as akin to product suicide. Try to anchor your specifications in the real world (with meaningful numbers) and your product will look inferior. Don't publish them at all, and you'll look like you're trying to hide something. It's an insidious Catch-22 for anyone with an ounce of integrity, so manufacturers and marketers simply make the easy choice.

Well… not necessarily. *Stereophile*, for all its faults, does do fairly rigorous testing of the products it reviews. Most solid-state stereo amplifiers, for example, meet or exceed published specifications—and most manufacturer claims for surround-sound receivers are hedged: They typically state power with two channels driven, not all channels driven. (In real-world use, this is not implausible: It's extremely rare for all channels to require very high sound levels, unless you're playing back explosions, I suppose.)

The list of specific "spec gimmicks" is interesting. As to color gamut—where a fair number of TV and equipment makers tout expanded or "deep" color capabilities—it's either meaningless or destructive. Meaningless because no deep-color content is available—or destructive because displays are oversaturating the colors that are there, leading to neon-green lawns and the like. For contrast ratio, the writeup in the original post is probably correct, except that it seems to claim that LCD TVs have better contrast ratios than plasmas, which isn't true for most of the tests I've seen (and 1500:1 is an awfully high real-world contrast ratio for an LCD set). What *is* true: Measuring the contrast between a fully-black screen (which on many LED-lit LCDs will cause all the lights to go off) and a fully-white screen may yield infinite contrast ratios, but it's bullshit. Agreed there.

Response time? Only relevant for LCD TVs and monitors and the discussion may be spot-on. Viewing angle? In practice, all plasma displays have essentially unlimited viewing angles with optimum performance and very few LCD sets have particularly wide viewing angles.

The above relate to displays and mostly come from Soneira commentary. Then there are audio issues. I find the discussion of dynamic range misleading, frankly, partly because *real* measurements of dynamic range are mostly measuring how low noise and distortion are

(and some of us *do* have extremely quiet listening environments, so "sounds in the spaces" isn't that relevant) and because the major problem these days is that so many recordings have been compressed to the point that there really isn't much of any dynamic range.

The discussion of frequency response or bandwidth is, in part, *simply wrong*:

> When manufacturers make and sell audio gear, they cheat. Period. Today, it's very common to specify 20 Hz-20 kHz bandwidth, which is ridiculous. First, very little audio gear will do that in really rigorous way. Second, your speakers definitely won't —unless they cost you about as much as the house in which they're installed....

The second statement is more-or-less true (if you have a relatively cheap house). The first is pure nonsense. Any well-engineered solid-state receiver or preamp has clean 20 Hz-20kHz bandwidth, plus or minus a fraction of a decibel, and so do many good tube amps. The supposed expert David Moulton, who says "everybody has, more or less, poor frequency response" is either talking only about inexpensive loudspeakers or is in some alternate reality.

As for power handling (wattage), the discussion overstates the meaninglessness of the spec. True: There's not much difference in everyday use between a 300-watt and 1200-watt amplifer, since it takes 10x the power to double the loudness. Not true: Power is irrelevant. An underpowered amp can fry your speakers, and many speakers require pretty powerful amps. The differences between a 3-watt tube amp, a 30-watt receiver and a 300-watt receiver may be essential differences.

We're then told that *Gizmodo* is a trustworthy site for choosing equipment. Maybe. This article doesn't convince me of that, even though I was inclined to agree with the article's title before I read the article.

It doesn't help that some comments say that *real, visible, obvious* differences don't exist—e.g., that a cheap LCD TV looks as good as a well-engineered plasma set. It doesn't.

"Worth Thousands"

Here's an old item that's still relevant—"How the Media Gets It Wrong," posted August 27, 2010 by Victoria Strauss at the *Writer Beware® Blogs!* (that's the blog name, ® and ! included). She notes a "news item" published in a UK newspaper and picked up elsewhere, one that says a boy of six "won a book deal worth thousands"— awarded a "23-story contract with an American company" after reading his "book," which he started writing when he was five years old.

> There's just one problem. Although the deal probably is worth thousands, the money isn't flowing in the direction the news

> coverage assumes—from publisher to author. In fact, it's going the other way. Because little Leo's publisher, Strategic Book Publishing, charges fees.

That link now winds up at a new place, "SBPRA," presumably because of complaints about Strategic Book Publishing. The new site uses scare-quotes around "submission" and has other oddities, and mostly seems to dwell on this company buying up other "publishers." (Those are *my* scare quotes.) The site looks pretty casual in a number of areas—e.g., in the FAQ, a question begins "I am not from the US?" (followed by an actual question, unless the person really doesn't know whether they're from the US). There's a remarkable absence of answers in the FAQ; you really can't tell that this is a fee "publisher"/vanity press.

Strauss says it wouldn't take much research to reveal that the company is a fee publisher and adds that the story is "improbable on its face":

> When was the last time you heard about anyone getting a 23-book deal, let alone a six-year-old child?

Good point. Strategic, now SBPRA, operates as a whole galaxy of companies to get you in various ways—a bunch of literary agencies, a bunch of book publishing agencies, editing services and more. Portions of the "group" sued *Writer Beware*, never a good sign. (The suit was dismissed with prejudice; the court granted legal fees to *Writer Beware*).

I've done several books through Lulu and wrote *The Librarian's Guide to Micropublishing*, which encourages libraries to make it feasible for patrons to use Lulu or CreateSpace. What's the difference? Lulu doesn't claim to be a publisher—and unlike SBPRA (where the author's apparently in for a minimum of roughly $1,000, plus editing fees, plus marketing fees, plus, plus…), Lulu and CreateSpace don't charge a cent up front (unless you want to get an author's copy to check over, which CreateSpace requires but which costs very little). The two support self-publishing and fulfillment. Fee publishers claim to be publishers, but the money flows the wrong way. And, let's face it, no real publisher is going to give a 23-book contract to a six-year-old, or much of anybody else.

Writer's Block

I'll wind up this section with a brief note on two seminal research papers published in peer-reviewed journals, one in 1974 and another (referencing the first) in 2007. In both cases, the PDF is freely available. I strongly urge all readers—especially those who have ever experienced writer's block or suffered from tl;dr—to read both papers in their entirety.

Dennis Upper published "The Unsuccessful Self-Treatment of a Case of 'Writer's Block'" in the *Journal of Applied Behavior Analysis* in the Fall of

1974. Research this groundbreaking takes time to review and digest, but 33 years later, a team of five authors from five different institutions replicated the study in "A Multisite Cross-Cultural Replication of Upper's (1974) Unsuccessful Self-Treatment of Writer's Block," published in the Winter 2007 *Journal of Applied Behavior Analysis* with a note from the editor.

Both articles are available thanks to PubMedCentral. Hat-tip to *Improbable Research* for pointing out these seminal articles.

That $130,000 Amplifier

Earlier in this section, I mentioned a $130,000 amplifier as an example of something that makes a $19,000 pair of low-power amps seem reasonably priced by comparison. The full review of the DarTZeel NHB-458 monoblock amplifier appears in the August 2012 *Stereophile*. It is, *of course*, a rave review. It is also a seriously well-engineered solid-state power amp. (And *huge*: Each single-channel amp is 18x11x20" and weighs 154lb.) Oh, and it's actually 135,000 Swiss francs/pair—or $144,500 when the issue went to press. No further comment. I'm unlikely to buy a pair (and probably couldn't differentiate good solid-state amplifiers anyway).

Masthead

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