

Effective data visualizations on the web (measured by visits and length of time on page)

I'm the data visualization developer at the Urban Institute, also a researcher on housing policy – I develop interactive graphics and work closely with a designer

I'm going to talk mostly about what I know – our successes and failures in data visualization and outreach

Over time, we've learned from both, and have two key questions you need to ask to be successful

Story (not stories)

What story (not stories) are you trying to tell?

# Audience Relates

Who is the audience, and how can they relate to the data?

Get rid of anything that doesn't tell that one story and allow the audience to connect with the data



What story are you trying to tell

Often, we have so much we care about that we think is important that we want to convey to people. But, we've found that the more we try to convey the less we are able to get across – the fewer stories we try to tell in one go the more the stories that are told stick with people

Think about it like an elevator speech – if you only had 30 seconds with an important person who could really help change your organization for the better or accomplish your goals, what would that message be? The same goes for data visualizations – that person just might be the one clicking on/viewing your piece

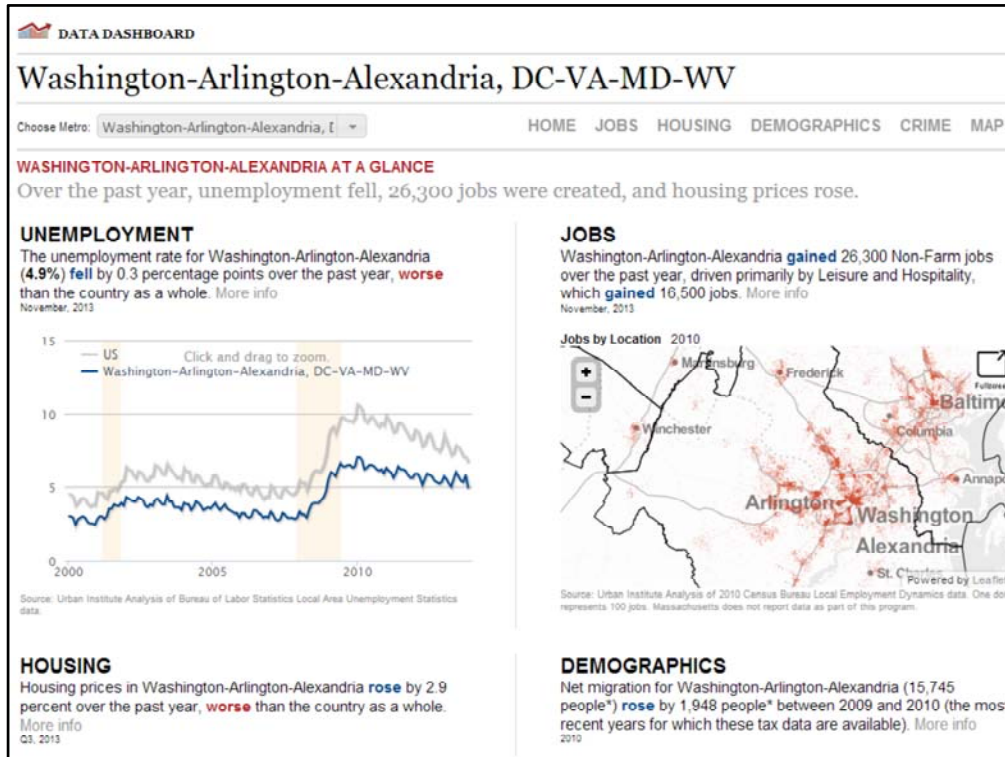


Who is the audience, and how can they relate to the data?

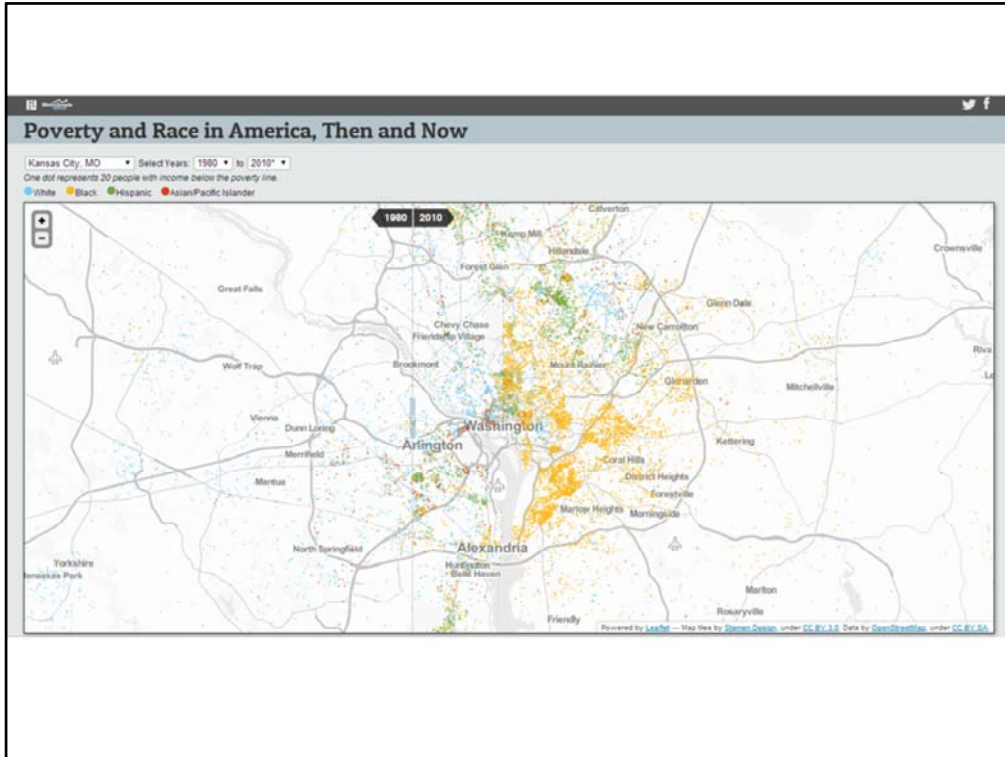
Need to define the relevant audience. Too many audiences, and you may write too generically and not appeal to any. Also, focusing on your main audience makes it much easier to understand how they will be able to relate to the data, and better understand it and internalize it

Two examples that typify this

Released two relatively large initiatives over the last couple of years:

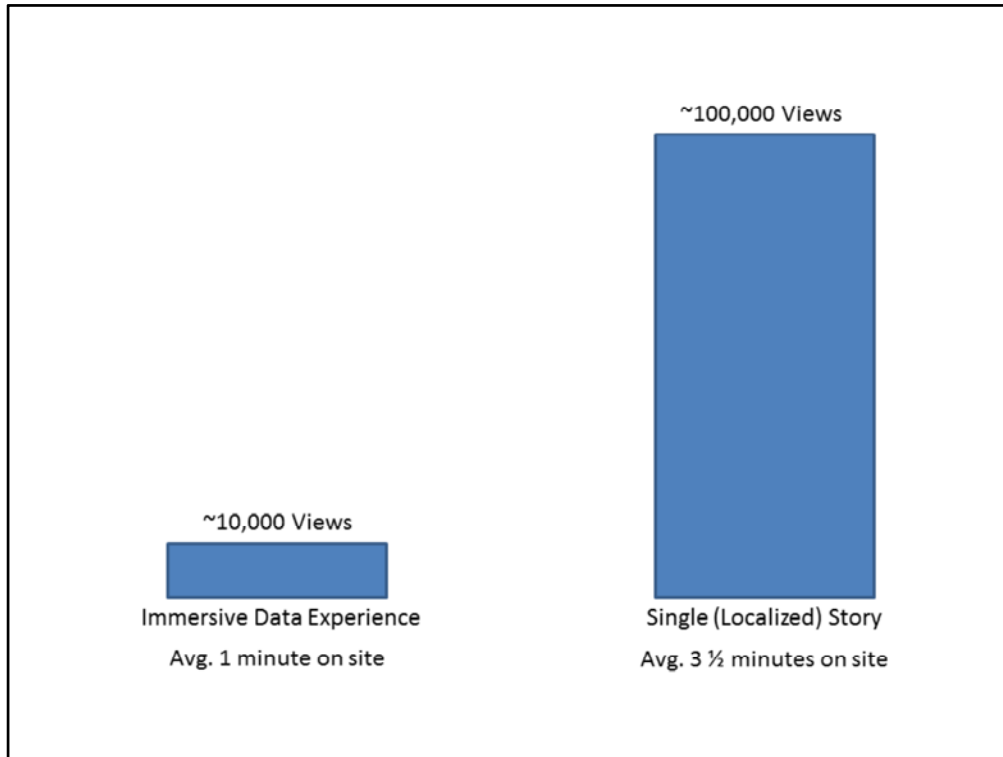


Data dashboard



### Poverty by Race

By far the most popular, by number of clicks, time on page, and news coverage was the Poverty by Race



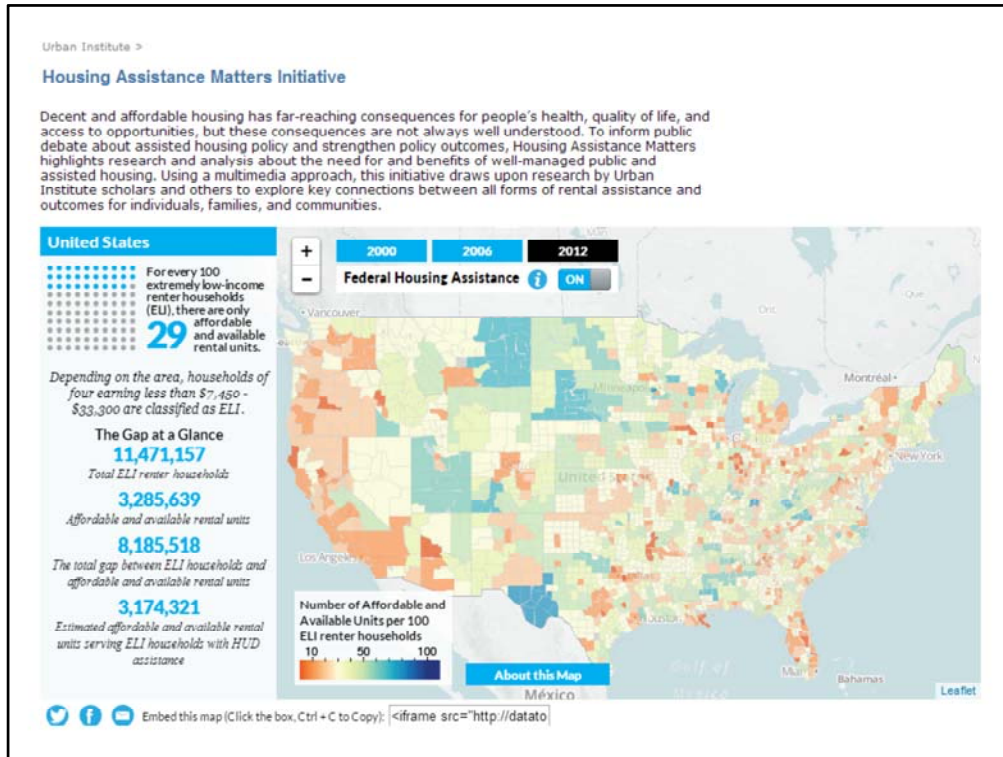
Poverty by Race – About 100,000 unique pageviews since last July – most came within a month – despite it being 9 months later, still gets over 1,000 unique pageviews per month

Data dashboard – Less than 10,000 unique pageviews since January of last year – and now only gets between 100 and 200 pageviews per month

Poverty by Race told one single story, and told it in a way that was very visually compelling – one dot = one person, and allowed people to see what it was like where they live and in their area. It had much less data, fewer words, was less technically sophisticated, yet was much more successful. Data dashboard showed our data expertise, but it tried to tell too many stories at once, and although it was meant for the general public and reports, it ended up being used mostly by researchers – our audience eyes’ glossed over

The process – removing anything that doesn’t tell the story and allow the audience to connect with the data





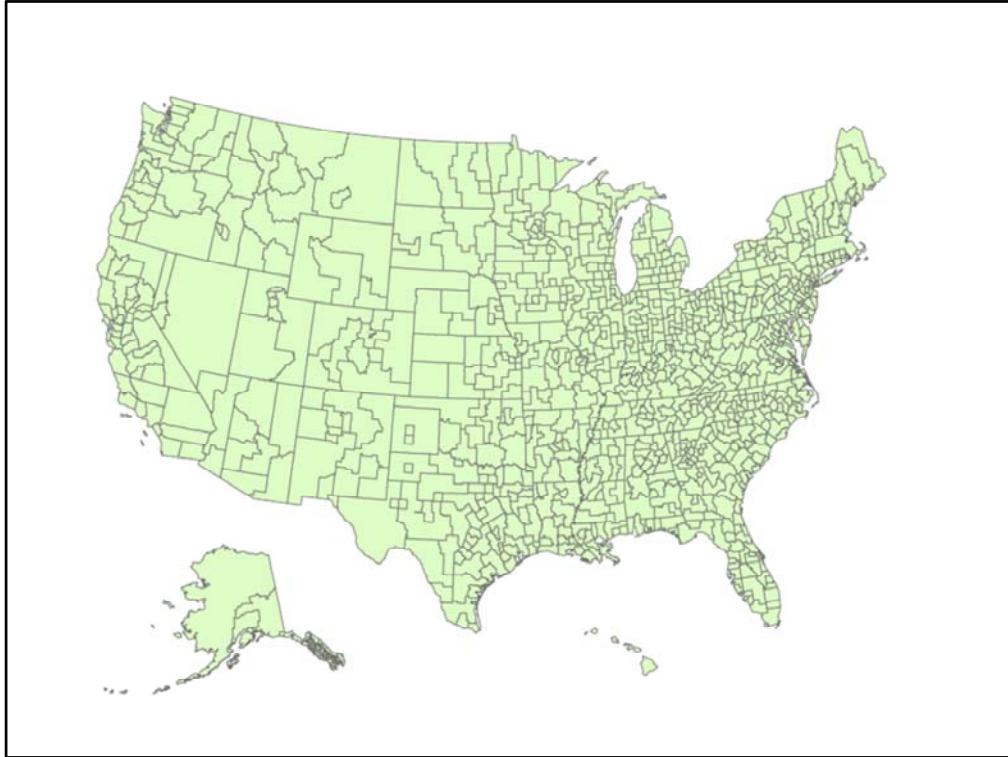
Recently, Erika Poethig and I calculated the affordable housing gap at the county level, and created a very successful interactive map that helped to get our research out

Data we wanted to show Data we ended up showing

County	Rent At Risk	Total	At This	Vacant	Substandard	Substandard	eli	vii	li	Gap No.	Per100	Per100	Assisted
1	Extremely	8185518	11471157	3205570	206840	96258	30513	3174321	790814.6	200196.1	1135983	28.64261	0.970414
2	Very low (	982119	7759384	5958062	1092380	124869	148308	3174321	790814.6	200196.1	1772934	87.34282	77.1511
3	Low (51-8	-4493524	8360147	11509592	1685305	167451	173775	3174321	790814.6	200196.1	-4293328	153.7493	151.3547
4	Middle (8	2852042	7157766	3931991	493249	68593	50923	3174321	790814.6	200196.1	2852042	60.15458	60.15458
5	High (over	5558546	6993308	1338505	232830	102891	33682	3174321	790814.6	200196.1	5558546	20.51621	20.51621
6	1001 Extremely	496.0556	802.8776	383.2863		76.46453		169.2	64.04	10.76	665.255	38.21529	17.14109
7	1001 Very low (	-106.344	503.1238	438.5466	170.9207	0	0	169.2	64.04	10.76	-42.3035	121.1367	108.4082
8	1001 Low (51-8	-22.1683	955.1641	970.5855	27.30876	20.56189	0	169.2	64.04	10.76	-11.4083	102.3209	101.1944
9	1001 Middle (8	835.0056	1033.235	198.2295		0		169.2	64.04	10.76	835.0056	19.18532	19.18532
10	1001 High (over	1365.109	1365.109	0		94.77747		169.2	64.04	10.76	1265.199	0	0
11	1003 Extremely	3981	6831	2335	902	0	387	572.26	133.07	21.67	4553.2	41.72156	33.34417
12	1003 Very low (	1574	5270	2875	894	0	73	572.26	133.07	21.67	1707.07	70.13283	67.60778
13	1003 Low (51-8	-5598	5989	9966	1621	0	0	572.26	133.07	21.67	-5576.33	193.4714	193.1098
14	1003 Middle (8	3269	4468	1600		401		572.26	133.07	21.67	3269	26.83527	26.83527
15	1003 High (over	3340	4935	630	1088	123	0	572.26	133.07	21.67	3340	32.32016	32.32016
16	1005 Extremely	633.6981	913.1698	352.5094		73.03774		539.23	234.4	105.37	1172.92	30.60457	28.4458
17	1005 Very low (	-58.9057	433.4717	457.9057	77.92453	0	43.45283	539.23	234.4	105.37	175.4943	113.5893	59.51423
18	1005 Low (51-8	-87.434	605.0377	567.9245	140.3962	0	15.84906	539.23	234.4	105.37	17.93604	114.451	97.03555
19	1005 Middle (8	160.4717	389.6226	229.1509		0		539.23	234.4	105.37	160.4717	58.81356	58.81356
20	1005 High (over	374.3019	381.8302	7.528302		0		539.23	234.4	105.37	374.3019	1.971636	1.971636
21	1007 Extremely	221.3299	585.908	324.8197	57.48499	0	17.72665	88	20.5	11.5	309.329	62.22446	47.20504
22	1007 Very low (	71.91955	283.1199	211.2004	12.66189	0	12.66189	88	20.5	11.5	92.41955	74.5975	67.35675
23	1007 Low (51-8	-58.2447	219.0507	277.2954		0		88	20.5	11.5	-46.7447	126.5896	121.3397
24	1007 Middle (8	142.4885	158.6113	16.12281		0		88	20.5	11.5	142.4885	10.16498	10.16498
25	1007 High (over	124.0865	124.0865			0		88	20.5	11.5	124.0865	0	0
26	1009 Extremely	512.773	1083.264	536.7047	33.786	0	0	304.85	99.25	11.9	817.623	32.66407	34.52226
27	1009 Very low (	11.96588	970.2918	705.2828	253.0431	0	0	304.85	99.25	11.9	111.2159	98.76678	88.53788
28	1009 Low (51-8	420.2134	729.5665	309.3531		0		304.85	99.25	11.9	432.1134	42.40232	40.77121
29	1009 Middle (8	413.5266	603.2209	282.6058		92.91151		304.85	99.25	11.9	413.5266	31.44691	31.44691

We really wanted to tell the story across different income levels, but after a number of conversations between ourselves and the communications team, decided to limit the story to those most impacted – told just one story to make the message clearer

We simplified – originally as researchers we wanted to show 15 statistics on the side bar and include lots of text before the graphic – instead, we allowed interested parties to click on the “About the Map” tab to get more information and whittled down the 15 to the 4 or 5 most relevant statistics, making them more powerful.



We asked who our audience was – ultimately, we wanted to impact decision makers, and allow them to track their progress over time, so we felt it was crucial to display the data at the most relevant level for decision makers our data would allow – at the county level – instead of allowing the data to dictate our geographic level, we recalculate the statistics at the relevant level for our audience, allowing our audience to connect with the data.



We made it interactive – this is a key level for many geographic explorations, the ability to interact with the data – it’s difficult to show local area effects on a national scale without allowing users to zoom in to their neighborhood. If you’re only creating visualizations for a local area, a static map may suffice. Titles are very important – again, to the casual person in the elevator who isn’t as interested in your organization or its goals as you are, “The implications of rental affordability for ELI households” is much less interesting than “We’ve mapped America’s rental housing crisis” – as is reaching out to reporters and telling them why it might be interesting to them.

**To:** Reporter

**Subject:** We've mapped America's (and the Chicago area's) rental housing crisis (The Urban Institute)



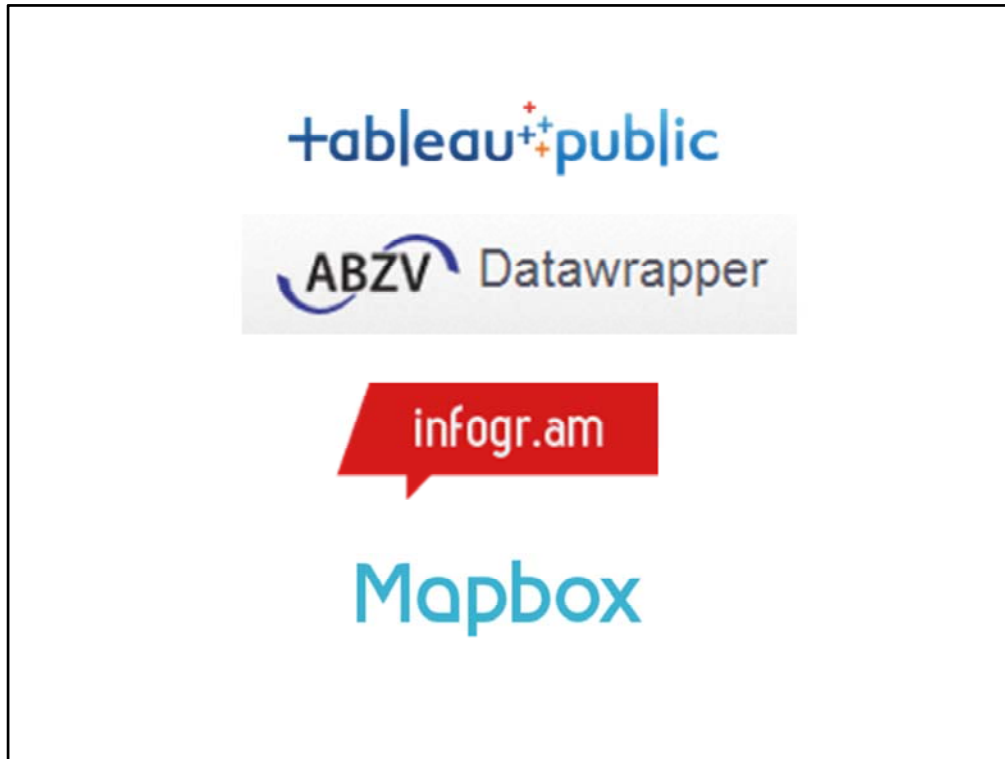
If you don't have the technical expertise

People

Code for America CFA Brigades - <http://codeforamerica.org/brigade/> -  
<http://codefordc.org/>

Azavea Summer of Maps - <http://www.summerofmaps.com/>

Local Design firms - <http://www.makedc.org/#!designing-dreams/cfva>



#### Apps

Tableau Public - <http://www.tableausoftware.com/public/>

Datawrapper - <https://datawrapper.de/>

Infogram - <http://infogr.am/>

Mapbox - <https://www.mapbox.com/>