# Marketing research

Part 12 - determining the size of a sample

Sample size refers to the number of respondents in a survey rather than how these respondents are selected.

But before we begin to study this chapter, we have to understand 2 things:

- 1. There is <u>no relationship</u> between the size of the sample and its representativeness of the population from which it is drawn.
- 2. The size of the sample <u>affects</u> the sample accuracy of results.

doesn't mean, that the research is 2 times more accurate!

# The Confidence Interval method of determining sample size



- 1. Sample size and accuracy
- Nonsampling error all sources of error other than sample selection method size

Sampling error - is the difference between the sample finding and the true population value due to the fact that a sample was taken.





3. p and q: The notion of Variability Variability is defined as the amount of dissimilarity (or similarity) in respondent's answers to a particular question.

For example, we may find that question: "the next time you order pizza, will you use Domino's?"





#### 4. The notion of a confidence interval





Sample error is less with larger sample sizes

- 5. The accuracy of a probability sample is independent of the size of the population.
- 6. Accuracy desired from the estimate it is used to indicate how close your sample percentage finding will be to the true population percentage if you were to report the study many, many times.

Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000.	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.Z	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2612	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
14	4192	.1207	.4222	.4236	.425i	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
> 4	R101	4070	4077	4925	4977	4979	4931	.4932	.4934	.4936

(p.27. Question 9)

<u>Case</u>

Last year, Lipton Tea Company conducted a mall-intercept study at six regional malls around the country and found that 20% of study the public preferred tea over coffee as a midafternoon hot drink.

This year, Lipton wants to have a nationwide telephone survey performed with random digit dialing. What sample size should be used in this year's study in order to achieve an accuracy level of  $\pm 12.5\%$  at the 99% level of confidence? What about at the 95% level of confidence?

	Market	ing resear	'ch				
F	Part 12 – de	termining t	he size 💧				
	of a sample						
	Sample	Sample size	Sample cost				
	accuracy						
	± 3,5%	784	\$ 15 680				
	± 4%	600	\$ 12 000				
	± 4,5%	474	\$ 9 480				
	± 5%	384	\$7680				
	• ± 5,5%	317	\$6340				
	± 6%	267	\$ 5 340 🗸				

Here are some numbers that you can use to sharpen your computational skills for sample size determination. Crest Toothpaste is reviewing plans for its annual survey of toothpaste purchasers. With each case that follows, calculate the sample size pertaining to the key variable under consideration. Where information is missing, provide reasonable assumptions.

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Key Variable	Variability	Acceptable Error	Confidence Level
Market share of Crest Toothpaste	23% share last year	4%	95%
Percent of people who brush their teeth per week	Unknown	5%	99%
How likely Crest buyers are to switch brands	30% switched last year	5%	95%
Percent of people who want tartar-control features in their toothpaste	20% two years ago; 40% one year ago	3.5%	95%
Willingness of people to adopt the toothpaste brand recommended by their family dentist	Unknown	6%	99%