

## DATA ANALYSIS LOG

<Week 8>

I've looked through a lot of data but had a hard time finding the right one.

I initially thought about doing something that's related to Hispanics' wealth and divorce rate. I recently wrote an article based on a study released by the Pew Research Center that showed that Hispanics were hit the hardest during the recession (late 2007 to mid-2009).

\*Story: <http://www.marketwatch.com/story/black-and-hispanic-wealth-hit-hardest-by-recession-2011-07-26>

In relation to this study result, I was interested in finding out the relationship between wealth decline and divorce rates among Hispanics, during the recession. But there were some problems—first, I could only find data related to divorce rate before 2007 (as shown in the attachment, birth.marriage file). I've looked at other files but they were not that useful to come up with a good conclusion for this topic.

My second thought is analyzing the attached plastic surgery statistics file that was released by the American Society of Plastic Surgeons in 2010. I'll have to spend more time analyzing it but my focus is plastic surgery trends in relation to regions and race. It's in PDF format so I'll have to contact them and ask for an excel version.

What do you think about this idea? I was going to focus on government/census files but thought this one could be interesting. Let me know if you have any other suggestions. Thanks.

<Week 9>

I've looked at the previously attached 'American Society of Plastic Surgeons Report of the 2010 Plastic Surgery Statistics' but it was hard to come up with questions that I can ask and come up with a good answer by comparing to previous data.

But I was interested in the topic so I did more research on it and found good data that I can do a good comparison.

I decided to use the attached two data from the American Society for Aesthetic Plastic Surgery. It was from the below website:

<http://www.surgery.org/media/statistics>

The first question I want to ask is

**How the number of procedures have changed, comparing '2000 national totals for cosmetic procedures (pg 3 of attachment 1)' and '2010 national totals for**

cosmetic procedures (pg 5 of attachment 2).’ For your reference, as below:

## 2000 National Totals for Cosmetic Procedures

Procedure	Overall Rank	Number of Procedures	Percent of Total
Abdominoplasty (tummy tuck)	17	58,426	1.0%
Blepharoplasty (cosmetic eyelid surgery)	8	212,133 <sup>2</sup>	3.7%
Botox injection	1	1,096,611 <sup>A</sup>	19.1%
Breast augmentation	9	203,310 <sup>3</sup>	3.5%
Breast lift	19	45,710	0.8%
Breast reduction (women)*	13	90,042	1.6%
Buttock lift	30	2,122	0.0%
Cellulite treatment (mechanical roller massage therapy)	18	51,253	0.9%
Cheek implants	27	7,059	0.1%
Chemical peel	2	630,194 <sup>B</sup>	11.0%
Chin augmentation	23	20,499	0.4%
Collagen injection	4	592,195 <sup>D</sup>	10.3%
Dermabrasion	21	29,905	0.5%
Facelift	12	102,842 <sup>S</sup>	1.8%
Fat injection	15	84,724	1.5%
Forehead lift	16	60,756	1.1%
Gynecomastia, treatment of (male breast reduction)	25	15,968	0.3%
Hair transplantation	20	38,978	0.7%
Laser hair removal	6	487,807	8.5%
Laser skin resurfacing	11	116,901	2.0%
Laser treatment of leg veins	14	85,907	1.5%
Lip augmentation (other than injectable materials)	22	21,266	0.4%
Lipoplasty (liposuction)**	7	376,633 <sup>1</sup>	6.6%
Lower body lift	29	3,362	0.1%
Microdermabrasion	3	610,705 <sup>C</sup>	10.6%
Otoplasty (cosmetic ear surgery)	24	19,542	0.3%
Rhinoplasty (nose reshaping)	10	135,795 <sup>4</sup>	2.4%
Sclerotherapy	5	525,237 <sup>B</sup>	9.1%
Thigh lift	26	10,357	0.2%
Upper arm lift	28	4,913	0.1%
<b>TOTALS</b>		<b>5,741,154</b>	<b>100.0%</b>

## 2010 National Totals for Cosmetic Procedures

	Procedure	Number of Procedures	Rank within Category (Surgical/Nonsurgical)	Rank in 2006	Rank in 2002	
Surgical	Abdominoplasty (tummy tuck)	<b>144,929<sup>P</sup></b>	4	4	7	
	Autologous fat	53,840	9	x	x	
	Blepharoplasty (cosmetic eyelid surgery)	<b>152,123<sup>P</sup></b>	3	3	3	
	Breast augmentation*	<b>318,123<sup>A</sup></b>	1	2	2	
	Breast lift	121,377	8	8	10	
	Breast reduction (women)**	<b>138,152<sup>F</sup></b>	5	5	5	
	Buttock augmentation	7,034	18	19	19	
	Buttock lift	3,929	19	18	18	
	Chin augmentation	10,166	15	14	13	
	Facelift	127,512	7	7	6	
	Forehead lift	26,514	10	10	8	
	Gynecomastia, treatment of (male breast reduction)	18,256	13	11	14	
	Lip augmentation (other than injectable materials)	8,638	17	17	12	
	Lipoplasty (liposuction) ***	<b>289,016<sup>B</sup></b>	2	1	1	
	Lower body lift	9,147	16	16	16	
	Otoplasty (cosmetic ear surgery)	25,999	11	12	11	
	Rhinoplasty (nose reshaping)	133,511	6	6	4	
	Thigh lift	15,366	14	13	17	
	Upper arm lift	18,659	12	15	15	
	<b>Totals - Surgical Procedures</b>	<b>1,622,290</b>				
Injectables:	Botulinum Toxin Type A (including Botox and Dysport)	<b>2,437,165<sup>A</sup></b>	1			
	Calcium hydroxylapatite (Radiesse)	119,503	10			
	Collagen	53,662	14			
	Hyaluronic Acid (including Hylaform, Juvederm, Perlane/Restylane)	<b>1,315,121<sup>F</sup></b>	2			
	Poly-L-Lactic Acid (Sculptra)	59,376	13			
	<b>Totals - Injectables</b>	<b>3,984,818</b>				
	Nonsurgical	<b>Skin Rejuvenation:</b>				
		Chemical Peel	<b>493,896<sup>B</sup></b>	5		
		Dermabrasion	22,763	15		
		Fraxel	102,016	11		
IPL Laser Treatment		381,480	8			
Laser Skin Resurfacing****		<b>562,706<sup>F</sup></b>	4			
Microdermabrasion		450,744	6			
Noninvasive Tightening		247,500	9			
<b>Totals - Skin Rejuvenation</b>		<b>2,261,105</b>				
<b>Other:</b>						
Laser Hair Removal	<b>936,270<sup>B</sup></b>	3				
Laser Treatment of Leg Veins	87,444	12				
Sclerotherapy	444,887	7				
<b>Totals - Other Nonsurgical Procedures</b>	<b>1,468,601</b>					
<b>Totals - Nonsurgical Procedures</b>	<b>7,714,524</b>					
<b>TOTALS ALL PROCEDURES</b>	<b>9,336,814</b>					

I thought it would be interesting to see which procedures have become more popular and have become less popular during the last 10 years.

So for comparison, I moved the chart to excel as attached. I'm considering comparing only 'the number of procedures' in 2000 and 2010.

I thought it would be better to consider 'percent of total' rather than just comparing 'the number of procedures,' but that information is not provided in 2010 data. In the process, I also realized that we should always double-check the numbers when copy and past from PDF to excel because in the original chart in 2010 data, the top 5 surgical procedures are indicated in bold superscript letters in the column headed 'number of procedures' which, when pasted in excel, will mess up the original number (it's attached to the original number which makes the number significantly higher than it is). So I cleared that out so the attached excel is what I'll keep working on to answer my question.

Then I sorted out the procedures (line procedures in alphabetical order for the 2010 data) as shown in the attached excel file sheet '2000 stats.' (I excluded newly-introduced procedures)

Findings:

- Breast lift (166%), Laser skin resurfacing (381%), Lower body lift(172%) and Upper arm lift(280%) have gained popularity
- People do not prefer Chin augmentation (-50%), Collagen injection (-91%), Forehead lift (-56%), Laser hair removal (-92%), Lip augmentation (other than injectable) (-59%) compared to 2000 level

<Week 9>

I realized that when I did the calculation last time, I left out the below part from 2000 procedure

Abdominoplasty (tummy tuck)
Blepharoplasty (cosmetic eyelid surgery)
Botox injection

and the below from 2010 procedure.

Abdominoplasty (tummy tuck)
Autologous fat
Blepharoplasty (cosmetic eyelid surgery)

I included them in the 'week 9\_1' sheet and found out that Abdominoplasty (tummy tuck) have gained a lot of popularity—by 148%. Therefore, last week's findings should be updated as below:

Findings:

- **Abdominoplasty (tummy tuck)(148%)**, Breast lift (166%), Laser skin resurfacing (381%), Lower body lift(172%) and Upper arm lift(280%) have gained popularity
- People do not prefer Chin augmentation (-50%), Collagen injection (-91%), Forehead lift (-56%), Laser hair removal (-92%), Lip augmentation (other than injectable) (-59%) compared to 2000 level

Glad that I found this out this time because if not, the next calculation, 'percent of total' will be incorrect.

As shown in 'week 9\_2' sheet, the below are the top 5 'percent of total' procedures in 2000 and 2010:

Findings:

Procedure(2000)	Number of Procedures	Percent of total
1. Botox injection	1,096,611	19.10%
2. Chemical peel	630,194	11%
3. Microdermabrasion	610,705	10.60%
4. Collagen injection	592,195	10.30%
5. Sclerotherapy	525,237	9.10%

Procedure(2010)	Number of Procedures	Percent of total
1. Botulinum Toxin Type A (including Botox and Dysport)	2,437,165	26.10%
2. Hyaluronic Acid (including Hylaform, Juvederm, Perlane/Restylane)	1,315,121	14.09%
3. Laser Hair Removal	936,270	10.03%
4. Laser Skin Resurfacing****	562,706	6.03%
5. Chemical Peel	493,896	5.29%

- From the above tables, it's possible to infer that people prefer non-surgical procedures than surgical procedures both in 2000 and 2010.

-Questions for the final project-

I am going to focus on finding out interesting trends in non-surgical and surgical procedures between 2000 and 2010. The focus will be analyzing:

- In most cases, the percentage of females going through procedures was much higher than that of males. Find out which procedures have higher percentage of men (e.g., hair transplantation)
- The top 5 procedures for age groups (18 and under, 19-34, 35-50, 51-64, 65 and above)
- See which age group is undergoing more procedures compared to a decade ago