

```
> source("../source/results_by_factors.r",echo=T)

> results.sales.by.grade.median<-by(results.7[,c("sales08","sales09","sales10","sales.total")]

> print(results.sales.by.grade.median)
results.7$grade: A
      sales08      sales09      sales10      sales.total
Min.   :   560  Min.   :   980  Min.   :  1100  Min.   :   2640
1st Qu.:  4430  1st Qu.:  7090  1st Qu.:  7433  1st Qu.:  17683
Median : 11236  Median : 16026  Median : 20300  Median :   44622
Mean   : 20431  Mean   : 26243  Mean   : 30930  Mean   :   77604
3rd Qu.: 31000  3rd Qu.: 45294  3rd Qu.: 51000  3rd Qu.: 132000
Max.   : 90600  Max.   : 89931  Max.   : 79687  Max.   : 215319
-----
results.7$grade: B
      sales08      sales09      sales10      sales.total
Min.   :   190  Min.   :   628  Min.   :   457  Min.   :   1702
1st Qu.:  1900  1st Qu.:  3666  1st Qu.:  4203  1st Qu.:  12316
Median :   4947  Median : 10520  Median : 12310  Median :   32718
Mean   : 45175  Mean   : 36572  Mean   : 38068  Mean   : 125510
3rd Qu.: 14710  3rd Qu.: 15008  3rd Qu.: 21403  3rd Qu.:   44370
Max.   :391742  Max.   :320583  Max.   :271179  Max.   : 921762
NA's   :     3  NA's   :     2  NA's   :     1  NA's   :     3
-----
results.7$grade: C
      sales08      sales09      sales10      sales.total
Min.   :   495  Min.   :   345  Min.   :    89  Min.   :   1679
1st Qu.:  1938  1st Qu.:  3392  1st Qu.:  2988  1st Qu.:   9843
Median :   5000  Median :   9276  Median :   9827  Median :  18874
Mean   : 17657  Mean   : 21986  Mean   : 38212  Mean   :   82024
3rd Qu.: 11188  3rd Qu.: 19363  3rd Qu.: 17386  3rd Qu.:  46623
Max.   :165000  Max.   :196626  Max.   :635562  Max.   : 997188
NA's   :     8  NA's   :     6  NA's   :     5  NA's   :     8
-----
> results.sales.by.grade.trmean<-by(results.7[,c("sales08","sales09","sales10","sales.total")]

> print(results.sales.by.grade.trmean)
results.7$grade: A
      sales08      sales09      sales10      sales.total
20430.71    26243.00    30930.24    77603.94
-----
results.7$grade: B
      sales08      sales09      sales10      sales.total
45175.42    22790.33    27778.79    125509.68
-----
results.7$grade: C
      sales08      sales09      sales10      sales.total
11458.14    15333.96    14911.00    42271.19
-----
> results.jobs.by.grade.median<-by(results.7[,c("jobs08","jobs09","jobs10","jobs.total")],res

> print(results.jobs.by.grade.median)
results.7$grade: A
      jobs08      jobs09      jobs10      jobs.total
Min.   :    2.0  Min.   :   16.0  Min.   :   18.0  Min.   :    45
1st Qu.:   15.0  1st Qu.:   34.0  1st Qu.:   44.0  1st Qu.:    94
Median :   38.0  Median :  112.0  Median :  102.0  Median :   321
Mean   :  236.5  Mean   :  354.8  Mean   :  425.8  Mean   :  1017
3rd Qu.:  265.0  3rd Qu.:  305.0  3rd Qu.:  212.0  3rd Qu.:   725
Max.   : 2187.0  Max.   : 2361.0  Max.   : 2791.0  Max.   :  6911
-----
```

```

results.7$grade: B
      jobs08      jobs09      jobs10      jobs.total
Min.   : 8.00   Min.   : 11.0   Min.   : 6.0   Min.   : 37.0
1st Qu.: 53.75  1st Qu.: 40.0   1st Qu.: 51.5  1st Qu.: 173.8
Median : 130.00  Median : 139.0   Median : 113.5  Median : 588.0
Mean   : 615.70  Mean   : 414.3   Mean   : 520.7  Mean   :1619.8
3rd Qu.: 424.50 3rd Qu.: 332.0   3rd Qu.: 376.0 3rd Qu.:1002.8
Max.   :4780.00  Max.   :2671.0   Max.   :3638.0  Max.   :9639.0
NA's   : 2.00   NA's   : 1.0

```

```

results.7$grade: C
      jobs08      jobs09      jobs10      jobs.total
Min.   : 1.0   Min.   : 2.00   Min.   : 2.00   Min.   : 17.00
1st Qu.: 5.0   1st Qu.: 18.00  1st Qu.: 11.00  1st Qu.: 57.75
Median : 23.0   Median : 33.00  Median : 31.00  Median :127.00
Mean   : 43.5   Mean   : 53.55  Mean   : 65.97  Mean   :167.50
3rd Qu.: 62.5   3rd Qu.: 74.00  3rd Qu.: 57.00  3rd Qu.:199.50
Max.   :155.0   Max.   :244.00  Max.   :370.00  Max.   :626.00
NA's   : 7.0   NA's   : 2.00  NA's   : 2.00  NA's   : 9.00

```

```
> results.jobs.by.grade.trmean<-by(results.7[,c("jobs08","jobs09","jobs10","jobs.total")],res
```

```
> print(results.jobs.by.grade.trmean)
results.7$grade: A
      jobs08      jobs09      jobs10 jobs.total
236.5294    354.7647    425.7647   1017.0588

```

```

results.7$grade: B
      jobs08      jobs09      jobs10 jobs.total
418.1111    316.7368    390.6000   1262.1667

```

```

results.7$grade: C
      jobs08      jobs09      jobs10 jobs.total
40.36364    48.40741    57.07407   152.10000

```

```
> results.corp.by.grade.median<-by(results.7[,c("corp08","corp09","corp10","corp.total")],res
```

```
> print(results.corp.by.grade.median)
results.7$grade: A
      corp08      corp09      corp10      corp.total
Min.   : 1.000   Min.   : 1.000   Min.   : 1.000   Min.   : 4.00
1st Qu.: 2.000   1st Qu.: 2.500   1st Qu.: 1.000   1st Qu.: 7.00
Median : 5.000   Median : 4.000   Median : 3.000   Median :16.50
Mean   : 6.231   Mean   : 7.067   Mean   : 6.692   Mean   :22.33
3rd Qu.:10.000   3rd Qu.:11.000   3rd Qu.:12.000   3rd Qu.:35.25
Max.   :20.000   Max.   :24.000   Max.   :16.000   Max.   :52.00
NA's   : 4.000   NA's   : 2.000   NA's   : 4.000   NA's   : 5.00

```

```

results.7$grade: B
      corp08      corp09      corp10      corp.total
Min.   : 1.000   Min.   : 1.000   Min.   : 1.000   Min.   : 3.0
1st Qu.: 2.000   1st Qu.: 2.500   1st Qu.: 1.000   1st Qu.: 8.5
Median : 3.000   Median : 5.000   Median : 2.000   Median :12.0
Mean   : 5.462   Mean   : 5.667   Mean   : 3.769   Mean   :17.0
3rd Qu.: 5.000   3rd Qu.: 9.000   3rd Qu.: 6.000   3rd Qu.:26.0
Max.   :31.000   Max.   :14.000   Max.   :10.000   Max.   :40.0
NA's   : 9.000   NA's   : 7.000   NA's   : 9.000   NA's   :11.0

```

```

results.7$grade: C
      corp08      corp09      corp10      corp.total
Min.   : 1.00   Min.   : 1.000   Min.   : 1.00   Min.   : 3.00

```

1st Qu.: 3.50	1st Qu.: 1.500	1st Qu.: 1.00	1st Qu.: 8.00
Median : 5.00	Median : 2.000	Median : 2.00	Median : 12.00
Mean :15.36	Mean : 7.947	Mean : 8.05	Mean : 42.78
3rd Qu.:13.00	3rd Qu.: 4.000	3rd Qu.: 4.25	3rd Qu.: 42.00
Max. :75.00	Max. :77.000	Max. :80.00	Max. :232.00
NA's :20.00	NA's :12.000	NA's :11.00	NA's : 22.00

```
> results.corp.by.grade.trmean<-by(results.7[,c("corp08","corp09","corp10","corp.total")],res
```

```
> print(results.corp.by.grade.trmean)
```

```
results.7$grade: A
      corp08      corp09      corp10 corp.total
6.230769    7.066667    6.692308    22.333333
```

```
-----
results.7$grade: B
      corp08      corp09      corp10 corp.total
5.461538    5.666667    3.769231    17.000000
```

```
-----
results.7$grade: C
      corp08      corp09      corp10 corp.total
15.363636    7.947368    4.444444    42.777778
```

```
> results.export.by.grade.median<-by(results.7[,c("export08","export09","export10","export.to
```

```
> print(results.export.by.grade.median)
```

```
results.7$grade: A
      export08      export09      export10      export.total
Min.   : 48000    Min.   :  9100    Min.   : 18100    Min.   : 268000
1st Qu.: 108750    1st Qu.: 122000    1st Qu.: 130500    1st Qu.: 427300
Median : 350500    Median : 390500    Median : 488000    Median : 1610000
Mean   :1575071    Mean   : 2190165    Mean   : 2789879    Mean   : 7586433
3rd Qu.:2907250    3rd Qu.: 3175282    3rd Qu.: 2790895    3rd Qu.: 9400000
Max.   :7413000    Max.   :18192000    Max.   :25533000    Max.   :51138000
NA's   :      3    NA's   :      1    NA's   :      2    NA's   :      4
```

```
-----
results.7$grade: B
      export08      export09      export10      export.total
Min.   : 38000    Min.   :  588    Min.   : 3432    Min.   : 94866
1st Qu.: 110250    1st Qu.: 49858    1st Qu.: 212194    1st Qu.: 690089
Median : 353000    Median : 189330    Median : 394000    Median : 1219500
Mean   : 2293939    Mean   : 2107442    Mean   : 3171480    Mean   : 8756372
3rd Qu.: 2216750    3rd Qu.: 982606    3rd Qu.: 1200750    3rd Qu.: 8625500
Max.   :11000000    Max.   :12081000    Max.   :15397000    Max.   :36571000
NA's   :      10    NA's   :      6    NA's   :      8    NA's   :      10
```

```
-----
results.7$grade: C
      export08      export09      export10      export.total
Min.   : 2000    Min.   : 2458    Min.   : 4382    Min.   : 8840
1st Qu.: 102696    1st Qu.: 209316    1st Qu.: 431000    1st Qu.: 831250
Median : 375500    Median : 419000    Median : 630000    Median : 3110000
Mean   : 997377    Mean   :1345384    Mean   :1687106    Mean   : 5007708
3rd Qu.:2005000    3rd Qu.:1346500    3rd Qu.:3380000    3rd Qu.: 8968250
Max.   :3022000    Max.   :7830000    Max.   :5484000    Max.   :15314000
NA's   :      19    NA's   :      16    NA's   :      18    NA's   :      21
```

```
> results.export.by.grade.trmean<-by(results.7[,c("export08","export09","export10","export.to
```

```
> print(results.export.by.grade.trmean)
```

```
results.7$grade: A
      export08      export09      export10 export.total
1575071    2190165    2789879    7586433
```

```
results.7$grade: B
```

export08	export09	export10	export.total
2293939	2107442	3171480	8756372

```
results.7$grade: C
```

export08	export09	export10	export.total
997377.3	1345383.5	1687106.3	5007708.1

```
> results.income.household.by.grade.median<-by(results.7[household, c("income08","income09",
```

```
> print(results.income.household.by.grade.median)
```

```
results.7$grade[household]: A
```

income08	income09	income10	income.total
Min. : 2.00	Min. : 1.00	Min. : 5.00	Min. : 14.00
1st Qu.: 10.50	1st Qu.: 10.00	1st Qu.: 11.00	1st Qu.: 30.75
Median : 17.00	Median : 20.00	Median : 21.50	Median : 58.50
Mean : 27.17	Mean : 34.67	Mean : 36.00	Mean : 97.83
3rd Qu.: 29.00	3rd Qu.: 31.25	3rd Qu.: 35.75	3rd Qu.: 95.25
Max. : 115.00	Max. : 173.00	Max. : 160.00	Max. : 448.00

```
results.7$grade[household]: B
```

income08	income09	income10	income.total
Min. : 11.00	Min. : 2.00	Min. : 3.0	Min. : 25.0
1st Qu.: 19.00	1st Qu.: 28.75	1st Qu.: 34.0	1st Qu.: 90.0
Median : 50.00	Median : 47.00	Median : 49.5	Median : 163.0
Mean : 51.44	Mean : 58.60	Mean : 55.1	Mean : 177.1
3rd Qu.: 67.00	3rd Qu.: 69.75	3rd Qu.: 63.5	3rd Qu.: 216.0
Max. : 116.00	Max. : 212.00	Max. : 175.0	Max. : 503.0
NA's : 1.00			NA's : 1.0

```
results.7$grade[household]: C
```

income08	income09	income10	income.total
Min. : 5.00	Min. : 5.00	Min. : 9.00	Min. : 19.0
1st Qu.: 24.50	1st Qu.: 18.00	1st Qu.: 21.50	1st Qu.: 68.0
Median : 40.00	Median : 36.00	Median : 39.00	Median : 112.0
Mean : 67.33	Mean : 62.27	Mean : 69.13	Mean : 198.7
3rd Qu.: 59.00	3rd Qu.: 40.50	3rd Qu.: 68.00	3rd Qu.: 163.0
Max. : 382.00	Max. : 417.00	Max. : 429.00	Max. : 1228.0

```
> results.income.household.by.grade.trmean<-by(results.7[household, c("income08","income09",
```

```
> print(results.income.household.by.grade.trmean)
```

```
results.7$grade[household]: A
```

income08	income09	income10	income.total
27.16667	34.66667	36.00000	97.83333

```
results.7$grade[household]: B
```

income08	income09	income10	income.total
51.44444	58.60000	55.10000	177.11111

```
results.7$grade[household]: C
```

income08	income09	income10	income.total
67.33333	62.26667	69.13333	198.73333

```
> results.income.total.by.grade.median<-by(results.7[total, c("income08","income09","income10
```

```
> print(results.income.total.by.grade.median)
```

```
results.7$grade[total]: A
```

income08	income09	income10	income.total
Min. : 1000	Min. : 1600	Min. : 1760	Min. : 4360

1st Qu.: 1283	1st Qu.: 2885	1st Qu.: 5047	1st Qu.: 9215
Median : 6429	Median : 6199	Median : 8612	Median : 21240
Mean : 22852	Mean : 12504	Mean : 15105	Mean : 50462
3rd Qu.: 14950	3rd Qu.: 20400	3rd Qu.: 28507	3rd Qu.: 63857
Max. : 90600	Max. : 31437	Max. : 31600	Max. : 153637

```
results.7$grade[total]: B
```

income08	income09	income10	income.total
Min. : 180	Min. : 401	Min. : 419	Min. : 1000
1st Qu.: 3810	1st Qu.: 3486	1st Qu.: 5534	1st Qu.: 15068
Median : 9852	Median : 14808	Median : 15906	Median : 36137
Mean : 18781	Mean : 14525	Mean : 18520	Mean : 51825
3rd Qu.: 14384	3rd Qu.: 17788	3rd Qu.: 18979	3rd Qu.: 46037
Max. : 123980	Max. : 58590	Max. : 84233	Max. : 266803

```
results.7$grade[total]: C
```

income08	income09	income10	income.total
Min. : 104	Min. : 154	Min. : 180.0	Min. : 563
1st Qu.: 800	1st Qu.: 945	1st Qu.: 531.5	1st Qu.: 2822
Median : 10000	Median : 6907	Median : 1214.5	Median : 23246
Mean : 22496	Mean : 18888	Mean : 4589.6	Mean : 48786
3rd Qu.: 22800	3rd Qu.: 13500	3rd Qu.: 9423.5	3rd Qu.: 36421
Max. : 128160	Max. : 123940	Max. : 14500.0	Max. : 263302
NA's : 3	NA's : 2	NA's : 2.0	NA's : 4

```
> results.income.total.by.grade.trmean<-by(results.7[total, c("income08","income09","income10
```

```
> print(results.income.total.by.grade.trmean)
```

```
results.7$grade[total]: A
```

income08	income09	income10	income.total
22852.4	12504.2	15105.2	50461.8

```
results.7$grade[total]: B
```

income08	income09	income10	income.total
18781.00	14524.82	18519.64	51825.45

```
results.7$grade[total]: C
```

income08	income09	income10	income.total
22495.56	18888.40	4589.60	48786.25

```
> results.leader.by.grade.median<-by(results.7[,c("leader08","leader09","leader10","leader.to
```

```
> print(results.leader.by.grade.median)
```

```
results.7$grade: A
```

leader08	leader09	leader10	leader.total
Min. : 30.0	Min. : 15.0	Min. : 20.0	Min. : 120.0
1st Qu.: 45.0	1st Qu.: 83.0	1st Qu.: 80.0	1st Qu.: 256.5
Median : 80.0	Median : 103.0	Median : 126.0	Median : 405.0
Mean : 102.7	Mean : 205.1	Mean : 220.9	Mean : 574.9
3rd Qu.: 119.5	3rd Qu.: 181.0	3rd Qu.: 285.0	3rd Qu.: 621.0
Max. : 343.0	Max. : 802.0	Max. : 791.0	Max. : 1600.0
NA's : 2.0			NA's : 2.0

```
results.7$grade: B
```

leader08	leader09	leader10	leader.total
Min. : 16.0	Min. : 25.0	Min. : 23.0	Min. : 73.0
1st Qu.: 37.0	1st Qu.: 53.0	1st Qu.: 50.0	1st Qu.: 205.0
Median : 79.0	Median : 116.0	Median : 94.0	Median : 412.0
Mean : 322.9	Mean : 289.7	Mean : 162.4	Mean : 810.6
3rd Qu.: 224.5	3rd Qu.: 301.0	3rd Qu.: 178.0	3rd Qu.: 641.0
Max. : 2430.0	Max. : 1764.0	Max. : 884.0	Max. : 4439.0

```
NA's : 3.0 NA's : 1.0 NA's : 1.0 NA's : 3.0
```

```
results.7$grade: C
```

	leader08	leader09	leader10	leader.total
Min. :	25.0	24.0	30.00	105
1st Qu.:	47.0	76.0	78.75	203
Median :	79.0	128.0	114.50	383
Mean :	599.7	245.1	230.69	1157
3rd Qu.:	160.0	278.0	305.00	983
Max. :	10596.0	1800.0	1500.00	11266
NA's :	8.0	4.0	5.00	10

```
> results.leader.by.grade.trmean<-by(results.7[,c("leader08","leader09","leader10","leader.to
```

```
> print(results.leader.by.grade.trmean)
```

```
results.7$grade: A
```

	leader08	leader09	leader10	leader.total
	102.7333	205.1176	220.9412	574.9333

```
results.7$grade: B
```

	leader08	leader09	leader10	leader.total
	322.9474	226.0526	131.7368	810.6316

```
results.7$grade: C
```

	leader08	leader09	leader10	leader.total
	151.0476	191.7200	186.1667	680.4211

```
> results.sales.by.Region.median<-by(results.7[,c("sales08","sales09","sales10","sales.total"
```

```
> print(results.sales.by.Region.median)
```

```
results.7$Region: 영남
```

	sales08	sales09	sales10	sales.total
Min. :	495	745	457	1702
1st Qu.:	4080	6847	5694	17204
Median :	7136	11868	14288	33657
Mean :	14973	22307	24473	61753
3rd Qu.:	13732	21221	27206	56926
Max. :	65000	89931	81000	221000
NA's :	1	1	1	1

```
results.7$Region: 중부
```

	sales08	sales09	sales10	sales.total
Min. :	223	628	180	1679
1st Qu.:	1950	2986	3578	9530
Median :	4430	7494	11540	23461
Mean :	20715	25373	45776	97114
3rd Qu.:	21597	29259	28202	99670
Max. :	165000	196626	635562	997188
NA's :	4	3	2	4

```
results.7$Region: 호남
```

	sales08	sales09	sales10	sales.total
Min. :	190	345	89	2640
1st Qu.:	3744	4628	4203	15456
Median :	5202	11277	9865	30870
Mean :	48739	36143	36975	128670
3rd Qu.:	19386	20516	25723	61952
Max. :	391742	320583	271179	921762
NA's :	6	4	3	6

```
> results.sales.by.Region.trmean<-by(results.7[,c("sales08","sales09","sales10","sales.total"
```

```

> print(results.sales.by.Region.trmean)
results.7$Region: 영남
      sales08      sales09      sales10 sales.total
      12997.72      19748.39      22666.33      56241.67
-----
results.7$Region: 중부
      sales08      sales09      sales10 sales.total
      14199.53      18047.80      19862.10      54764.84
-----
results.7$Region: 호남
      sales08      sales09      sales10 sales.total
      48739.06      22329.72      26589.32      128670.11

> results.jobs.by.Region.median<-by(results.7[,c("jobs08","jobs09","jobs10","jobs.total")],re

> print(results.jobs.by.Region.median)
results.7$Region: 영남
      jobs08      jobs09      jobs10      jobs.total
Min.   :    2.0  Min.   :    5.0  Min.   :    6.0  Min.   :   37.0
1st Qu.:   19.5  1st Qu.:   31.0  1st Qu.:   45.0  1st Qu.:  125.0
Median :   63.0  Median :   58.0  Median :   58.5  Median :  162.0
Mean   :  206.8  Mean   :  222.6  Mean   :  244.4  Mean   :  716.1
3rd Qu.:  178.0  3rd Qu.:  244.0  3rd Qu.:  270.5  3rd Qu.:  707.5
Max.   : 2187.0  Max.   : 2361.0  Max.   : 2363.0  Max.   : 6911.0
NA's   :    1.0                NA's   :    1.0  NA's   :    2.0
-----
results.7$Region: 중부
      jobs08      jobs09      jobs10      jobs.total
Min.   :    2.0  Min.   :    2.0  Min.   :    2.0  Min.   :   17.0
1st Qu.:   11.0  1st Qu.:   17.5  1st Qu.:   17.0  1st Qu.:   74.0
Median :   31.5  Median :   35.0  Median :   46.5  Median :  100.0
Mean   :  393.1  Mean   :  191.3  Mean   :  312.3  Mean   :  981.6
3rd Qu.:  149.2  3rd Qu.:  120.8  3rd Qu.:  124.8  3rd Qu.:  594.0
Max.   : 4780.0  Max.   : 2671.0  Max.   : 3638.0  Max.   : 9639.0
NA's   :    3.0  NA's   :    1.0  NA's   :    1.0  NA's   :    4.0
-----
results.7$Region: 호남
      jobs08      jobs09      jobs10      jobs.total
Min.   :    1.0  Min.   :    9.0  Min.   :    2.0  Min.   :   17
1st Qu.:   27.5  1st Qu.:   36.5  1st Qu.:   28.0  1st Qu.:  127
Median :   50.0  Median :  109.5  Median :   58.5  Median :  212
Mean   :  241.8  Mean   :  319.0  Mean   :  342.6  Mean   : 1008
3rd Qu.:  152.5  3rd Qu.:  193.2  3rd Qu.:  223.8  3rd Qu.:  860
Max.   : 1654.0  Max.   : 1868.0  Max.   : 2791.0  Max.   : 5334
NA's   :    5.0  NA's   :    2.0                NA's   :    5

> results.jobs.by.Region.trmean<-by(results.7[,c("jobs08","jobs09","jobs10","jobs.total")],re

> print(results.jobs.by.Region.trmean)
results.7$Region: 영남
      jobs08      jobs09      jobs10 jobs.total
      108.1667      121.5263      139.9444      716.1053
-----
results.7$Region: 중부
      jobs08      jobs09      jobs10 jobs.total
      193.30000      87.22727      175.27273      576.73684
-----
results.7$Region: 호남
      jobs08      jobs09      jobs10 jobs.total
      241.8421      257.0000      246.8182      1007.8947

```

```
> results.corp.by.Region.median<-by(results.7[,c("corp08","corp09","corp10","corp.total")],re
```

```
> print(results.corp.by.Region.median)
```

```
results.7$Region: 영남
```

corp08	corp09	corp10	corp.total
Min. : 1.000	Min. : 1.000	Min. : 1.000	Min. : 4.00
1st Qu.: 3.000	1st Qu.: 2.000	1st Qu.: 1.000	1st Qu.:14.00
Median : 5.000	Median : 5.000	Median : 2.000	Median :24.00
Mean : 8.636	Mean : 6.286	Mean : 4.462	Mean :24.78
3rd Qu.: 9.000	3rd Qu.:11.250	3rd Qu.: 8.000	3rd Qu.:32.00
Max. :43.000	Max. :13.000	Max. :16.000	Max. :52.00
NA's :10.000	NA's : 7.000	NA's : 8.000	NA's :12.00

```
results.7$Region: 중부
```

corp08	corp09	corp10	corp.total
Min. : 1.00	Min. : 1.000	Min. : 1.000	Min. : 3.00
1st Qu.: 1.50	1st Qu.: 1.500	1st Qu.: 1.000	1st Qu.: 6.00
Median : 2.00	Median : 3.000	Median : 2.000	Median : 16.00
Mean :12.27	Mean : 9.667	Mean : 9.214	Mean : 40.11
3rd Qu.: 8.50	3rd Qu.: 7.500	3rd Qu.: 5.500	3rd Qu.: 34.00
Max. :75.00	Max. :77.000	Max. :80.000	Max. :232.00
NA's :14.00	NA's :10.000	NA's :11.000	NA's : 16.00

```
results.7$Region: 호남
```

corp08	corp09	corp10	corp.total
Min. : 1.000	Min. : 1.00	Min. : 1.000	Min. : 3.00
1st Qu.: 2.000	1st Qu.: 2.00	1st Qu.: 2.000	1st Qu.: 7.25
Median : 4.000	Median : 3.00	Median : 2.000	Median :10.50
Mean : 6.067	Mean : 5.45	Mean : 5.789	Mean :18.29
3rd Qu.: 8.500	3rd Qu.: 6.25	3rd Qu.: 7.500	3rd Qu.:28.00
Max. :20.000	Max. :24.00	Max. :28.000	Max. :52.00
NA's : 9.000	NA's : 4.00	NA's : 5.000	NA's :10.00

```
> results.corp.by.Region.trmean<-by(results.7[,c("corp08","corp09","corp10","corp.total")],re
```

```
> print(results.corp.by.Region.trmean)
```

```
results.7$Region: 영남
```

corp08	corp09	corp10	corp.total
8.636364	6.285714	4.461538	24.777778

```
results.7$Region: 중부
```

corp08	corp09	corp10	corp.total
12.272727	9.666667	9.214286	40.111111

```
results.7$Region: 호남
```

corp08	corp09	corp10	corp.total
6.066667	4.666667	5.789474	18.285714

```
> results.income.household.by.Region.median<-by(results.7[household, c("income08","income09",
```

```
> print(results.income.household.by.Region.median)
```

```
results.7$Region[household]: 영남
```

income08	income09	income10	income.total
Min. : 4.00	Min. : 5.00	Min. : 5	Min. : 14.0
1st Qu.: 16.00	1st Qu.: 18.00	1st Qu.: 20	1st Qu.: 54.0
Median : 26.00	Median : 35.00	Median : 34	Median : 98.0
Mean : 40.54	Mean : 45.69	Mean : 48	Mean :134.2
3rd Qu.: 43.00	3rd Qu.: 41.00	3rd Qu.: 64	3rd Qu.:150.0
Max. :121.00	Max. :173.00	Max. :160	Max. :448.0

```
results.7$Region[household]: 중부
```

income08	income09	income10	income.total
Min. : 2	Min. : 1.00	Min. : 11	Min. : 14.0
1st Qu.: 12	1st Qu.: 27.00	1st Qu.: 26	1st Qu.: 79.0
Median : 39	Median : 36.00	Median : 45	Median : 123.0
Mean : 69	Mean : 79.31	Mean : 83	Mean : 231.3
3rd Qu.: 67	3rd Qu.: 72.00	3rd Qu.: 74	3rd Qu.: 216.0
Max. : 382	Max. : 417.00	Max. : 429	Max. : 1228.0

```
results.7$Region[household]: 호남
```

income08	income09	income10	income.total
Min. : 11.0	Min. : 2.00	Min. : 3.00	Min. : 25.00
1st Qu.: 17.0	1st Qu.: 13.50	1st Qu.: 10.50	1st Qu.: 55.75
Median : 23.5	Median : 22.00	Median : 25.00	Median : 76.50
Mean : 37.5	Mean : 28.27	Mean : 28.82	Mean : 99.70
3rd Qu.: 49.0	3rd Qu.: 36.50	3rd Qu.: 36.50	3rd Qu.: 147.75
Max. : 104.0	Max. : 76.00	Max. : 86.00	Max. : 230.00
NA's : 1.0			NA's : 1.00

```
> results.income.household.by.Region.trmean<-by(results.7[household, c("income08","income09",
```

```
> print(results.income.household.by.Region.trmean)
```

```
results.7$Region[household]: 영남
```

income08	income09	income10	income.total
40.53846	45.69231	48.00000	134.23077

```
results.7$Region[household]: 중부
```

income08	income09	income10	income.total
69.00000	79.30769	83.00000	231.30769

```
results.7$Region[household]: 호남
```

income08	income09	income10	income.total
37.50000	28.27273	28.81818	99.70000

```
> results.income.total.by.Region.median<-by(results.7[total, c("income08","income09","income1
```

```
> print(results.income.total.by.Region.median)
```

```
results.7$Region[total]: 영남
```

income08	income09	income10	income.total
Min. : 800	Min. : 415	Min. : 1010	Min. : 2890
1st Qu.: 2255	1st Qu.: 1626	1st Qu.: 4910	1st Qu.: 11427
Median : 7636	Median : 5261	Median : 12330	Median : 28381
Mean : 6719	Mean : 7179	Mean : 12255	Mean : 26153
3rd Qu.: 10244	3rd Qu.: 12921	3rd Qu.: 17746	3rd Qu.: 42178
Max. : 12668	Max. : 16250	Max. : 25870	Max. : 44715

```
results.7$Region[total]: 중부
```

income08	income09	income10	income.total
Min. : 104.0	Min. : 154	Min. : 180.0	Min. : 563
1st Qu.: 940.5	1st Qu.: 1396	1st Qu.: 768.5	1st Qu.: 4266
Median : 2776.0	Median : 4082	Median : 3602.0	Median : 10414
Mean : 16201.3	Mean : 8905	Mean : 7585.8	Mean : 32773
3rd Qu.: 19707.5	3rd Qu.: 13854	3rd Qu.: 10476.5	3rd Qu.: 44426
Max. : 90600.0	Max. : 31437	Max. : 31600.0	Max. : 153637
NA's : 1.0	NA's : 2	NA's : 1.0	NA's : 2

```
results.7$Region[total]: 호남
```

income08	income09	income10	income.total
Min. : 1000	Min. : 327	Min. : 372	Min. : 4360
1st Qu.: 7607	1st Qu.: 7424	1st Qu.: 7169	1st Qu.: 31180
Median : 11132	Median : 16812	Median : 11202	Median : 36986

Mean	: 38098	Mean	: 27905	Mean	: 18685	Mean	: 91004
3rd Qu.:	42208	3rd Qu.:	22553	3rd Qu.:	14500	3rd Qu.:	113718
Max.	:128160	Max.	:123940	Max.	:84233	Max.	:266803
NA's	: 2			NA's	: 1	NA's	: 2

```
> results.income.total.by.Region.trmean<-by(results.7$total, c("income08","income09","income10"))
```

```
> print(results.income.total.by.Region.trmean)
```

```
results.7$Region$total]: 영남
  income08  income09  income10 income.total
  6719.333  7179.167  12254.833  26153.333
```

```
-----
results.7$Region$total]: 중부
  income08  income09  income10 income.total
  16201.273  8905.300  7585.818  32773.100
```

```
-----
results.7$Region$total]: 호남
  income08  income09  income10 income.total
  38097.88  27905.00  18685.00  91003.50
```

```
> results.leader.by.Region.median<-by(results.7[,c("leader08","leader09","leader10","leader.total")], results.7$Region, FUN=median)
```

```
> print(results.leader.by.grade.median)
```

```
results.7$grade: A
  leader08  leader09  leader10  leader.total
Min.    : 30.0    Min.    : 15.0    Min.    : 20.0    Min.    : 120.0
1st Qu.: 45.0    1st Qu.: 83.0    1st Qu.: 80.0    1st Qu.: 256.5
Median : 80.0    Median :103.0    Median :126.0    Median : 405.0
Mean    :102.7    Mean    :205.1    Mean    :220.9    Mean    : 574.9
3rd Qu.:119.5    3rd Qu.:181.0    3rd Qu.:285.0    3rd Qu.: 621.0
Max.    :343.0    Max.    :802.0    Max.    :791.0    Max.    :1600.0
NA's    : 2.0                                NA's    : 2.0
```

```
-----
results.7$grade: B
  leader08  leader09  leader10  leader.total
Min.    : 16.0    Min.    : 25.0    Min.    : 23.0    Min.    : 73.0
1st Qu.: 37.0    1st Qu.: 53.0    1st Qu.: 50.0    1st Qu.: 205.0
Median : 79.0    Median :116.0    Median : 94.0    Median : 412.0
Mean    :322.9    Mean    :289.7    Mean    :162.4    Mean    : 810.6
3rd Qu.:224.5    3rd Qu.:301.0    3rd Qu.:178.0    3rd Qu.: 641.0
Max.    :2430.0    Max.    :1764.0    Max.    :884.0    Max.    :4439.0
NA's    : 3.0    NA's    : 1.0    NA's    : 1.0    NA's    : 3.0
```

```
-----
results.7$grade: C
  leader08  leader09  leader10  leader.total
Min.    : 25.0    Min.    : 24.0    Min.    : 30.00    Min.    : 105
1st Qu.: 47.0    1st Qu.: 76.0    1st Qu.: 78.75    1st Qu.: 203
Median : 79.0    Median :128.0    Median :114.50    Median : 383
Mean    : 599.7    Mean    :245.1    Mean    :230.69    Mean    :1157
3rd Qu.:160.0    3rd Qu.:278.0    3rd Qu.:305.00    3rd Qu.: 983
Max.    :10596.0    Max.    :1800.0    Max.    :1500.00    Max.    :11266
NA's    : 8.0    NA's    : 4.0    NA's    : 5.00    NA's    : 10
```

```
> results.leader.by.Region.trmean<-by(results.7[,c("leader08","leader09","leader10","leader.total")], results.7$Region, FUN=trmean)
```

```
> print(results.leader.by.grade.trmean)
```

```
results.7$grade: A
  leader08  leader09  leader10 leader.total
  102.7333  205.1176  220.9412  574.9333
```

```
-----
results.7$grade: B
```

leader08	leader09	leader10	leader.total
322.9474	226.0526	131.7368	810.6316

```
results.7$grade: C
```

leader08	leader09	leader10	leader.total
151.0476	191.7200	186.1667	680.4211

```
> results.sales.by.class.median<-by(results.7[,c("sales08","sales09","sales10","sales.total")]
```

```
> print(results.sales.by.class.median)
```

```
results.7$class: Better
```

sales08	sales09	sales10	sales.total
Min. : 223	Min. : 939	Min. : 1300	Min. : 3460
1st Qu.: 3025	1st Qu.: 5246	1st Qu.: 5698	1st Qu.: 16316
Median : 6880	Median : 14702	Median : 13744	Median : 37706
Mean : 34324	Mean : 35183	Mean : 53598	Mean : 126652
3rd Qu.: 31284	3rd Qu.: 48764	3rd Qu.: 47025	3rd Qu.: 143270
Max. : 391742	Max. : 196626	Max. : 635562	Max. : 997188
NA's : 7	NA's : 6	NA's : 5	NA's : 7

```
results.7$class: Middle
```

sales08	sales09	sales10	sales.total
Min. : 190	Min. : 728	Min. : 180	Min. : 1679
1st Qu.: 2239	1st Qu.: 3829	1st Qu.: 4372	1st Qu.: 11101
Median : 4465	Median : 7142	Median : 8371	Median : 20827
Mean : 13287	Mean : 14194	Mean : 18507	Mean : 45987
3rd Qu.: 9138	3rd Qu.: 14326	3rd Qu.: 20828	3rd Qu.: 41646
Max. : 90600	Max. : 75000	Max. : 81000	Max. : 221000

```
results.7$class: Under
```

sales08	sales09	sales10	sales.total
Min. : 500	Min. : 345	Min. : 89	Min. : 1702
1st Qu.: 2373	1st Qu.: 4310	1st Qu.: 2952	1st Qu.: 13630
Median : 8893	Median : 11485	Median : 11088	Median : 34402
Mean : 32012	Mean : 30694	Mean : 26939	Mean : 97986
3rd Qu.: 18054	3rd Qu.: 19836	3rd Qu.: 20270	3rd Qu.: 60234
Max. : 330000	Max. : 320583	Max. : 271179	Max. : 921762
NA's : 4	NA's : 2	NA's : 1	NA's : 4

```
> results.sales.by.class.trmean<-by(results.7[,c("sales08","sales09","sales10","sales.total")]
```

```
> print(results.sales.by.class.trmean)
```

```
results.7$class: Better
```

sales08	sales09	sales10	sales.total
20852.92	30094.88	33225.77	95512.79

```
results.7$class: Middle
```

sales08	sales09	sales10	sales.total
13286.61	14193.67	18506.89	45987.17

```
results.7$class: Under
```

sales08	sales09	sales10	sales.total
32011.80	30693.94	26939.22	97985.93

```
> results.jobs.by.class.median<-by(results.7[,c("jobs08","jobs09","jobs10","jobs.total")],res
```

```
> print(results.jobs.by.class.median)
```

```
results.7$class: Better
```

jobs08	jobs09	jobs10	jobs.total
Min. : 1.0	Min. : 2.0	Min. : 2.0	Min. : 17
1st Qu.: 15.0	1st Qu.: 18.0	1st Qu.: 12.0	1st Qu.: 60

Median :	44.0	Median :	40.0	Median :	36.0	Median :	131
Mean :	426.6	Mean :	326.1	Mean :	357.3	Mean :	1274
3rd Qu.:	239.5	3rd Qu.:	119.5	3rd Qu.:	203.8	3rd Qu.:	725
Max. :	4780.0	Max. :	2671.0	Max. :	2791.0	Max. :	9639
NA's :	7.0	NA's :	2.0	NA's :	1.0	NA's :	8

results.7\$class: Middle

jobs08	jobs09	jobs10	jobs.total
Min. : 2.00	Min. : 18.0	Min. : 14.0	Min. : 36.0
1st Qu.: 24.75	1st Qu.: 54.0	1st Qu.: 58.0	1st Qu.: 162.0
Median : 76.00	Median : 179.5	Median : 154.0	Median : 534.0
Mean : 178.78	Mean : 255.5	Mean : 258.4	Mean : 713.6
3rd Qu.: 228.75	3rd Qu.: 300.5	3rd Qu.: 370.0	3rd Qu.: 917.0
Max. : 1339.00	Max. : 1463.0	Max. : 1300.0	Max. : 4102.0
		NA's : 1.0	NA's : 1.0

results.7\$class: Under

jobs08	jobs09	jobs10	jobs.total
Min. : 5.0	Min. : 11.00	Min. : 2.0	Min. : 37.0
1st Qu.: 15.0	1st Qu.: 29.25	1st Qu.: 31.0	1st Qu.: 120.0
Median : 49.0	Median : 46.50	Median : 49.0	Median : 144.0
Mean : 180.6	Mean : 87.61	Mean : 251.6	Mean : 552.4
3rd Qu.: 98.0	3rd Qu.: 127.00	3rd Qu.: 92.0	3rd Qu.: 321.0
Max. : 2084.0	Max. : 388.00	Max. : 3638.0	Max. : 6110.0
NA's : 2.0	NA's : 1.00		NA's : 2.0

> results.jobs.by.class.trmean<-by(results.7[,c("jobs08","jobs09","jobs10","jobs.total")],res

> print(results.jobs.by.class.trmean)

results.7\$class: Better

jobs08	jobs09	jobs10	jobs.total
262.9167	256.3793	288.0000	964.8696

results.7\$class: Middle

jobs08	jobs09	jobs10	jobs.total
178.7778	255.5000	258.4118	713.6471

results.7\$class: Under

jobs08	jobs09	jobs10	jobs.total
180.58824	87.61111	251.63158	552.35294

> results.corp.by.class.median<-by(results.7[,c("corp08","corp09","corp10","corp.total")],res

> print(results.corp.by.class.median)

results.7\$class: Better

corp08	corp09	corp10	corp.total
Min. : 1.00	Min. : 1	Min. : 1.00	Min. : 4.00
1st Qu.: 2.75	1st Qu.: 2	1st Qu.: 1.00	1st Qu.: 12.00
Median : 6.00	Median : 5	Median : 2.00	Median : 24.00
Mean : 13.69	Mean : 10	Mean : 8.05	Mean : 39.77
3rd Qu.: 10.00	3rd Qu.: 11	3rd Qu.: 6.50	3rd Qu.: 40.00
Max. : 75.00	Max. : 77	Max. : 80.00	Max. : 232.00
NA's : 17.00	NA's : 14	NA's : 13.00	NA's : 20.00

results.7\$class: Middle

corp08	corp09	corp10	corp.total
Min. : 1.000	Min. : 1.000	Min. : 1.000	Min. : 3.00
1st Qu.: 1.500	1st Qu.: 1.500	1st Qu.: 1.000	1st Qu.: 7.00
Median : 5.000	Median : 4.000	Median : 3.000	Median : 18.00
Mean : 5.818	Mean : 6.667	Mean : 5.357	Mean : 20.55
3rd Qu.: 7.500	3rd Qu.: 11.500	3rd Qu.: 8.750	3rd Qu.: 30.50

Max.	:20.000	Max.	:24.000	Max.	:16.000	Max.	:52.00
NA's	: 7.000	NA's	: 3.000	NA's	: 4.000	NA's	: 7.00

```
results.7$class: Under
```

corp08		corp09		corp10		corp.total	
Min.	: 1.00	Min.	: 1.000	Min.	: 1.000	Min.	: 4.00
1st Qu.:	1.25	1st Qu.:	2.000	1st Qu.:	1.000	1st Qu.:	6.25
Median :	3.00	Median :	3.000	Median :	2.000	Median :	8.00
Mean :	3.80	Mean :	3.467	Mean :	5.083	Mean :	12.12
3rd Qu.:	3.75	3rd Qu.:	3.500	3rd Qu.:	3.250	3rd Qu.:	12.00
Max.	:16.00	Max.	:12.000	Max.	:28.000	Max.	:42.00
NA's	: 9.00	NA's	: 4.000	NA's	: 7.000	NA's	:11.00

```
> results.corp.by.class.trmean<-by(results.7[,c("corp08","corp09","corp10","corp.total")],res
```

```
> print(results.corp.by.class.trmean)
```

```
results.7$class: Better
```

corp08	corp09	corp10	corp.total
13.687500	10.000000	4.444444	39.769231

```
results.7$class: Middle
```

corp08	corp09	corp10	corp.total
5.818182	6.666667	5.357143	20.545455

```
results.7$class: Under
```

corp08	corp09	corp10	corp.total
3.800000	3.466667	5.083333	12.125000

```
> results.export.by.class.median<-by(results.7[,c("export08","export09","export10","export.to
```

```
> print(results.export.by.class.median)
```

```
results.7$class: Better
```

export08		export09		export10		export.total	
Min.	: 2000	Min.	: 588	Min.	: 4382	Min.	: 8840
1st Qu.:	87750	1st Qu.:	148750	1st Qu.:	230000	1st Qu.:	427300
Median :	320000	Median :	389500	Median :	550500	Median :	1196000
Mean :	1732106	Mean :	2340034	Mean :	3106724	Mean :	8320542
3rd Qu.:	2766500	3rd Qu.:	2339250	3rd Qu.:	2616342	3rd Qu.:	9790000
Max.	:8496000	Max.	:18192000	Max.	:25533000	Max.	:51138000
NA's	: 15	NA's	: 11	NA's	: 13	NA's	: 16

```
results.7$class: Middle
```

export08		export09		export10		export.total	
Min.	: 38000	Min.	: 26250	Min.	: 3432	Min.	: 94866
1st Qu.:	67500	1st Qu.:	61500	1st Qu.:	247738	1st Qu.:	781452
Median :	277636	Median :	217830	Median :	435000	Median :	1269000
Mean :	1531527	Mean :	1550987	Mean :	1931611	Mean :	6018646
3rd Qu.:	478500	3rd Qu.:	549625	3rd Qu.:	754150	3rd Qu.:	1652300
Max.	:11000000	Max.	:12081000	Max.	:13490000	Max.	:36571000
NA's	: 8	NA's	: 6	NA's	: 7	NA's	: 9

```
results.7$class: Under
```

export08		export09		export10		export.total	
Min.	: 81000	Min.	: 2000	Min.	: 18100	Min.	: 386000
1st Qu.:	174471	1st Qu.:	123000	1st Qu.:	176000	1st Qu.:	1280000
Median :	805500	Median :	515000	Median :	756000	Median :	5024000
Mean :	1505363	Mean :	1449990	Mean :	2254464	Mean :	6462238
3rd Qu.:	2423500	3rd Qu.:	1590000	3rd Qu.:	3290000	3rd Qu.:	9400000
Max.	:5207000	Max.	:7084000	Max.	:10769000	Max.	:23060000
NA's	: 9	NA's	: 6	NA's	: 8	NA's	: 10

```

> results.export.by.class.trmean<-by(results.7[,c("export08","export09","export10","export.to
> print(results.export.by.class.trmean)
results.7$class: Better
      export08      export09      export10 export.total
      1732106      1664408      2033172      8320542
-----
results.7$class: Middle
      export08      export09      export10 export.total
      1531527      1550987      1931611      6018646
-----
results.7$class: Under
      export08      export09      export10 export.total
      1505363      1449990      2254464      6462238

> results.income.household.by.class.median<-by(results.7[household, c("income08","income09","
> print(results.income.household.by.class.median)
results.7$class[household]: Better
      income08      income09      income10      income.total
Min.   : 5      Min.   : 5.00      Min.   : 9.00      Min.   : 19.0
1st Qu.: 21      1st Qu.: 22.00      1st Qu.: 25.00      1st Qu.: 74.0
Median : 39      Median : 36.00      Median : 43.00      Median : 120.0
Mean   : 62      Mean   : 66.06      Mean   : 72.24      Mean   : 200.3
3rd Qu.: 50      3rd Qu.: 69.00      3rd Qu.: 69.00      3rd Qu.: 200.0
Max.   :382      Max.   :417.00      Max.   :429.00      Max.   :1228.0
-----
results.7$class[household]: Middle
      income08      income09      income10      income.total
Min.   : 2.00      Min.   : 1.00      Min.   : 4.00      Min.   : 14.0
1st Qu.: 11.00      1st Qu.: 6.25      1st Qu.: 8.75      1st Qu.: 31.0
Median : 16.00      Median : 15.00      Median : 16.00      Median : 54.0
Mean   : 33.67      Mean   : 31.70      Mean   : 33.00      Mean   :104.9
3rd Qu.: 50.00      3rd Qu.: 51.00      3rd Qu.: 47.00      3rd Qu.:163.0
Max.   :121.00      Max.   :120.00      Max.   :126.00      Max.   :367.0
NA's   : 1.00
-----
results.7$class[household]: Under
      income08      income09      income10      income.total
Min.   : 9.0      Min.   : 7.00      Min.   : 3.0      Min.   : 25.0
1st Qu.: 17.5      1st Qu.: 20.25      1st Qu.: 20.0      1st Qu.: 59.5
Median : 27.0      Median : 35.00      Median : 33.5      Median :100.0
Mean   : 44.2      Mean   : 49.60      Mean   : 46.2      Mean   :140.0
3rd Qu.: 61.0      3rd Qu.: 38.00      3rd Qu.: 38.5      3rd Qu.:158.0
Max.   :116.0      Max.   :212.00      Max.   :175.0      Max.   :503.0

> results.income.household.by.class.trmean<-by(results.7[household, c("income08","income09","
> print(results.income.household.by.class.trmean)
results.7$class[household]: Better
      income08      income09      income10 income.total
      62.00000      66.05882      72.23529      200.29412
-----
results.7$class[household]: Middle
      income08      income09      income10 income.total
      33.66667      31.70000      33.00000      104.88889
-----
results.7$class[household]: Under
      income08      income09      income10 income.total
      44.2          49.6          46.2          140.0

```

```

> results.income.total.by.class.median<-by(results.7[total,c("income08","income09","income10"
> print(results.income.total.by.class.median)
results.7$class[total]: Better
      income08      income09      income10      income.total
Min.   :   598   Min.   :   327   Min.   :   372   Min.   :   2616
1st Qu.:  1142   1st Qu.:  1470   1st Qu.:  1214   1st Qu.:  5574
Median :  2776   Median :  4082   Median :  3602   Median : 10414
Mean   : 28960   Mean   : 20368   Mean   :11658   Mean   : 64444
3rd Qu.: 23879   3rd Qu.: 16543   3rd Qu.:  8124   3rd Qu.: 38007
Max.   :128160   Max.   :123940   Max.   :84233   Max.   :266803
NA's   :     2   NA's   :     1   NA's   :     2   NA's   :     3
-----
results.7$class[total]: Middle
      income08      income09      income10      income.total
Min.   :   104   Min.   :   154   Min.   :   180   Min.   :   563
1st Qu.:  1490   1st Qu.:  2116   1st Qu.:   362   1st Qu.:  5906
Median :  6710   Median :11754   Median :   7169   Median : 27560
Mean   :19113   Mean   :12471   Mean   :   9387   Mean   : 42506
3rd Qu.:  9781   3rd Qu.:18556   3rd Qu.:13018   3rd Qu.: 42160
Max.   :90600   Max.   :31437   Max.   :31600   Max.   :153637
NA's   :     1   NA's   :     1   NA's   :     1
-----
results.7$class[total]: Under
      income08      income09      income10      income.total
Min.   :  1200   Min.   :   415   Min.   :  3898   Min.   :  8361
1st Qu.:  8996   1st Qu.:  5465   1st Qu.:11010   1st Qu.:31689
Median :12466   Median :12953   Median :16311   Median :40164
Mean   :11260   Mean   :11492   Mean   :16398   Mean   :39150
3rd Qu.:15238   3rd Qu.:16615   3rd Qu.:21368   3rd Qu.:49740
Max.   :16615   Max.   :20401   Max.   :28507   Max.   :63857
-----
> results.income.total.by.class.trmean<-by(results.7[total,c("income08","income09","income10"
> print(results.income.total.by.class.trmean)
results.7$class[total]: Better
      income08      income09      income10      income.total
28959.55      20367.92      11658.45      64444.30
-----
results.7$class[total]: Middle
      income08      income09      income10      income.total
19113.333      12471.000      9386.857      42505.667
-----
results.7$class[total]: Under
      income08      income09      income10      income.total
11259.75      11492.12      16398.38      39150.25
-----
> results.leader.by.class.median<-by(results.7[,c("leader08","leader09","leader10","leader.to
> print(results.leader.by.grade.median)
results.7$grade: A
      leader08      leader09      leader10      leader.total
Min.   :  30.0   Min.   :  15.0   Min.   :  20.0   Min.   : 120.0
1st Qu.:  45.0   1st Qu.:  83.0   1st Qu.:  80.0   1st Qu.: 256.5
Median :  80.0   Median :103.0   Median :126.0   Median : 405.0
Mean   :102.7   Mean   :205.1   Mean   :220.9   Mean   : 574.9
3rd Qu.:119.5   3rd Qu.:181.0   3rd Qu.:285.0   3rd Qu.: 621.0
Max.   :343.0   Max.   :802.0   Max.   :791.0   Max.   :1600.0
NA's   :   2.0   NA's   :   2.0
-----
results.7$grade: B

```

leader08	leader09	leader10	leader.total
Min. : 16.0	Min. : 25.0	Min. : 23.0	Min. : 73.0
1st Qu.: 37.0	1st Qu.: 53.0	1st Qu.: 50.0	1st Qu.: 205.0
Median : 79.0	Median : 116.0	Median : 94.0	Median : 412.0
Mean : 322.9	Mean : 289.7	Mean : 162.4	Mean : 810.6
3rd Qu.: 224.5	3rd Qu.: 301.0	3rd Qu.: 178.0	3rd Qu.: 641.0
Max. : 2430.0	Max. : 1764.0	Max. : 884.0	Max. : 4439.0
NA's : 3.0	NA's : 1.0	NA's : 1.0	NA's : 3.0

```
results.7$grade: C
```

leader08	leader09	leader10	leader.total
Min. : 25.0	Min. : 24.0	Min. : 30.00	Min. : 105
1st Qu.: 47.0	1st Qu.: 76.0	1st Qu.: 78.75	1st Qu.: 203
Median : 79.0	Median : 128.0	Median : 114.50	Median : 383
Mean : 599.7	Mean : 245.1	Mean : 230.69	Mean : 1157
3rd Qu.: 160.0	3rd Qu.: 278.0	3rd Qu.: 305.00	3rd Qu.: 983
Max. : 10596.0	Max. : 1800.0	Max. : 1500.00	Max. : 11266
NA's : 8.0	NA's : 4.0	NA's : 5.00	NA's : 10

```
> results.leader.by.class.trmean<-by(results.7[,c("leader08","leader09","leader10","leader.to
```

```
> print(results.leader.by.grade.trmean)
```

```
results.7$grade: A
```

leader08	leader09	leader10	leader.total
102.7333	205.1176	220.9412	574.9333

```
results.7$grade: B
```

leader08	leader09	leader10	leader.total
322.9474	226.0526	131.7368	810.6316

```
results.7$grade: C
```

leader08	leader09	leader10	leader.total
151.0476	191.7200	186.1667	680.4211