

```
> 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.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","income1
> 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.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			NA's : 1.0

```
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

```

```

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

```
