

```
libname mydata "/courses/d1406ae5ba27fe300" access=readonly;
Data new; set mydata.gapminder;
Keep armedforcesrate internetuserate employrate afr iur er;

/*data management for armedforcesrate*/
if armedforcesrate < 0.5 then afr=1;
if armedforcesrate >= 0.5 and armedforcesrate < 1 then afr=2;
if armedforcesrate >= 1 and armedforcesrate < 1.5 then afr=3;
if armedforcesrate >= 1.5 and armedforcesrate < 2 then afr=4;
if armedforcesrate >= 2 and armedforcesrate < 2.5 then afr=5;
if armedforcesrate >= 2.5 and armedforcesrate < 3 then afr=6;
if armedforcesrate >= 3 and armedforcesrate < 3.5 then afr=7;
if armedforcesrate >= 3.5 and armedforcesrate < 4 then afr=8;
if armedforcesrate >= 4 and armedforcesrate < 4.5 then afr=9;
if armedforcesrate >= 5 then afr=10;

/*data management for internetuserate*/
if internetuserate < 10 then iur=1;
if internetuserate >= 10 and internetuserate < 20 then iur=2;
if internetuserate >= 20 and internetuserate < 30 then iur=3;
if internetuserate >= 30 and internetuserate < 40 then iur=4;
if internetuserate >= 40 and internetuserate < 50 then iur=5;
if internetuserate >= 50 and internetuserate < 60 then iur=6;
if internetuserate >= 60 and internetuserate < 70 then iur=7;
if internetuserate >= 70 and internetuserate < 80 then iur=8;
if internetuserate >= 80 and internetuserate < 90 then iur=9;
if internetuserate >= 90 then iur=10;

/*data management for employrate*/
if employrate < 10 then er=1;
if employrate >= 10 and employrate < 20 then er=2;
if employrate >= 20 and employrate < 30 then er=3;
if employrate >= 30 and employrate < 40 then er=4;
if employrate >= 40 and employrate < 50 then er=5;
if employrate >= 50 and employrate < 60 then er=6;
if employrate >= 60 and employrate < 70 then er=7;
if employrate >= 70 and employrate < 80 then er=8;
if employrate >= 80 and employrate < 90 then er=9;
if employrate >= 90 then er=10;

run;

/*frequency tables*/
PROC FREQ; tables afr iur er;
run;

/*univariate graphs*/
PROC GCHART; VBAR afr /Discrete type=PCT Width=30;
```

```
run;
```

```
PROC GCHART; VBA iur /Discrete type=PCT Width=30;  
run;
```

```
PROC GCHART; VBA er /Discrete type=PCT Width=30;  
run;
```

```
/*bivariate graph*/
```

```
PROC GPLOT; PLOT armedforcesrate*internetuserate;  
run;
```

```
PROC GPLOT; PLOT armedforcesrate*employrate;  
run;
```

```
PROC GPLOT; PLOT internetuserate*employrate;  
run;
```

## **Wesleyan Data Management & Visualization: Coursera Course**

### **Week 4 Assignment Notes – Accompany Week 3 Code & Frequency Tables**

#### **Univariate Graph: Armed Forces Rate**

The graph is unimodal with progressively fewer countries at higher levels of armed forces participation. Accordingly, each of the first seven buckets gets progressively smaller until you reach the more extreme values.

#### **Univariate Graph: Internet User Rate**

The graph is unimodal with a third of the countries having under 10% internet user rates. The buckets between 10% and 90% user rates all range between 5% and 13% of total countries. Finally, there are only a handful of countries with over 90% internet user rates.

#### **Univariate Graph: Employment Rate**

The graph is unimodal with a third of the countries having 50% to 60% employment rates and then decreasing gradually to the left and right of the mode -- except for the first bucket, which breaks the pattern with a significant number of countries with employment of under 10%.

#### **Three Bivariate Graphs: Armed Forces, Internet User, & Employment Rates Plotted Against Each Other**

The bivariate scatter graphs do not show a clear relationship or trend between any of these three variables.

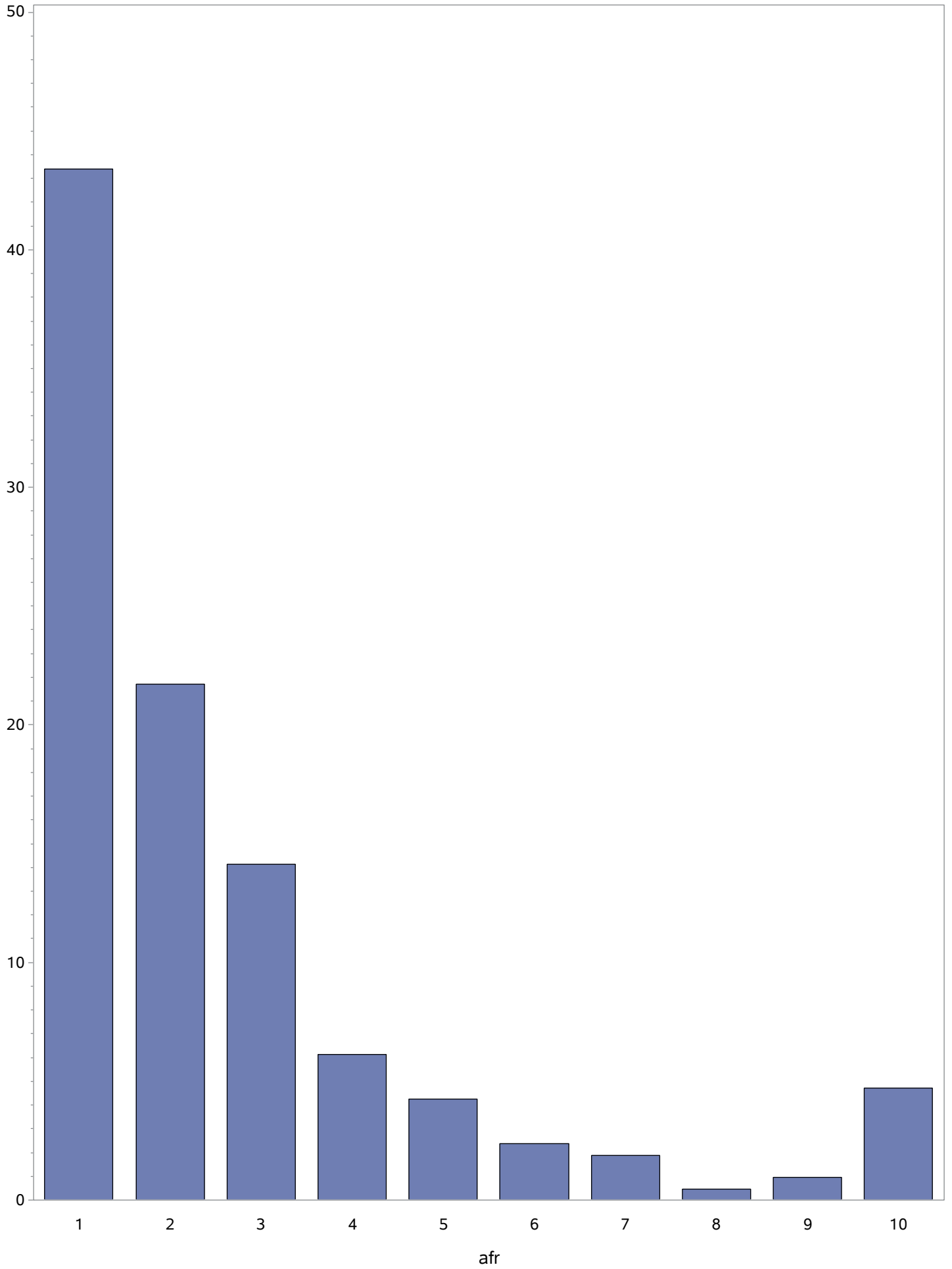
### The FREQ Procedure

afr	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	92	43.40	92	43.40
2	46	21.70	138	65.09
3	30	14.15	168	79.25
4	13	6.13	181	85.38
5	9	4.25	190	89.62
6	5	2.36	195	91.98
7	4	1.89	199	93.87
8	1	0.47	200	94.34
9	2	0.94	202	95.28
10	10	4.72	212	100.00
Frequency Missing = 1				

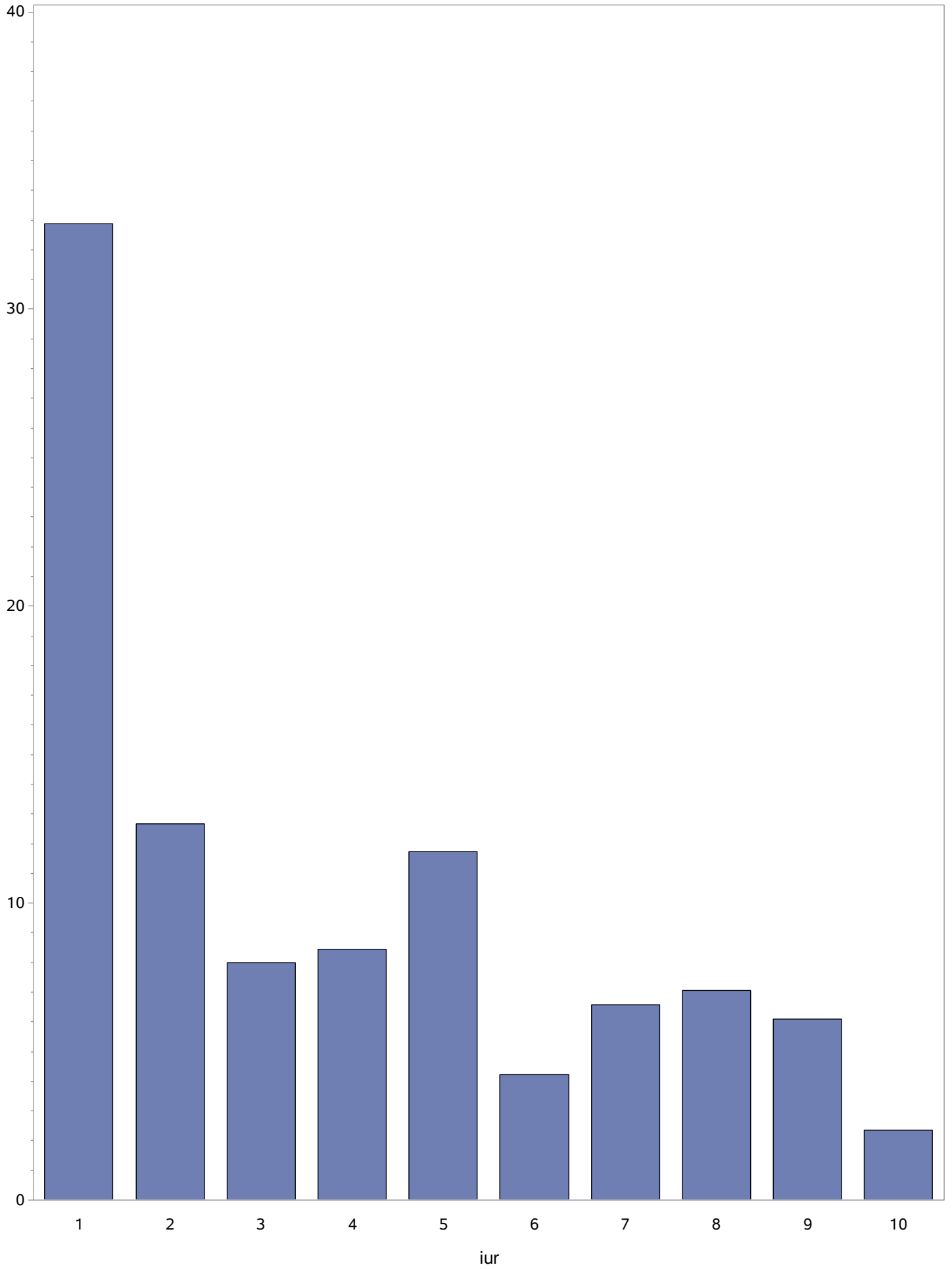
iur	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	70	32.86	70	32.86
2	27	12.68	97	45.54
3	17	7.98	114	53.52
4	18	8.45	132	61.97
5	25	11.74	157	73.71
6	9	4.23	166	77.93
7	14	6.57	180	84.51
8	15	7.04	195	91.55
9	13	6.10	208	97.65
10	5	2.35	213	100.00

er	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	35	16.43	35	16.43
4	5	2.35	40	18.78
5	32	15.02	72	33.80
6	67	31.46	139	65.26
7	47	22.07	186	87.32
8	21	9.86	207	97.18
9	6	2.82	213	100.00

PERCENT



PERCENT



PERCENT

40

30

20

10

0

1

4

5

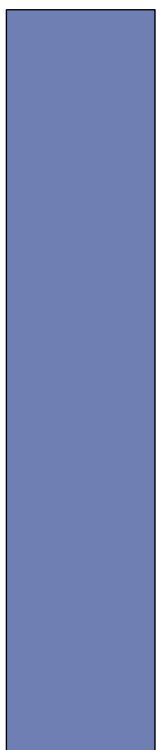
6

7

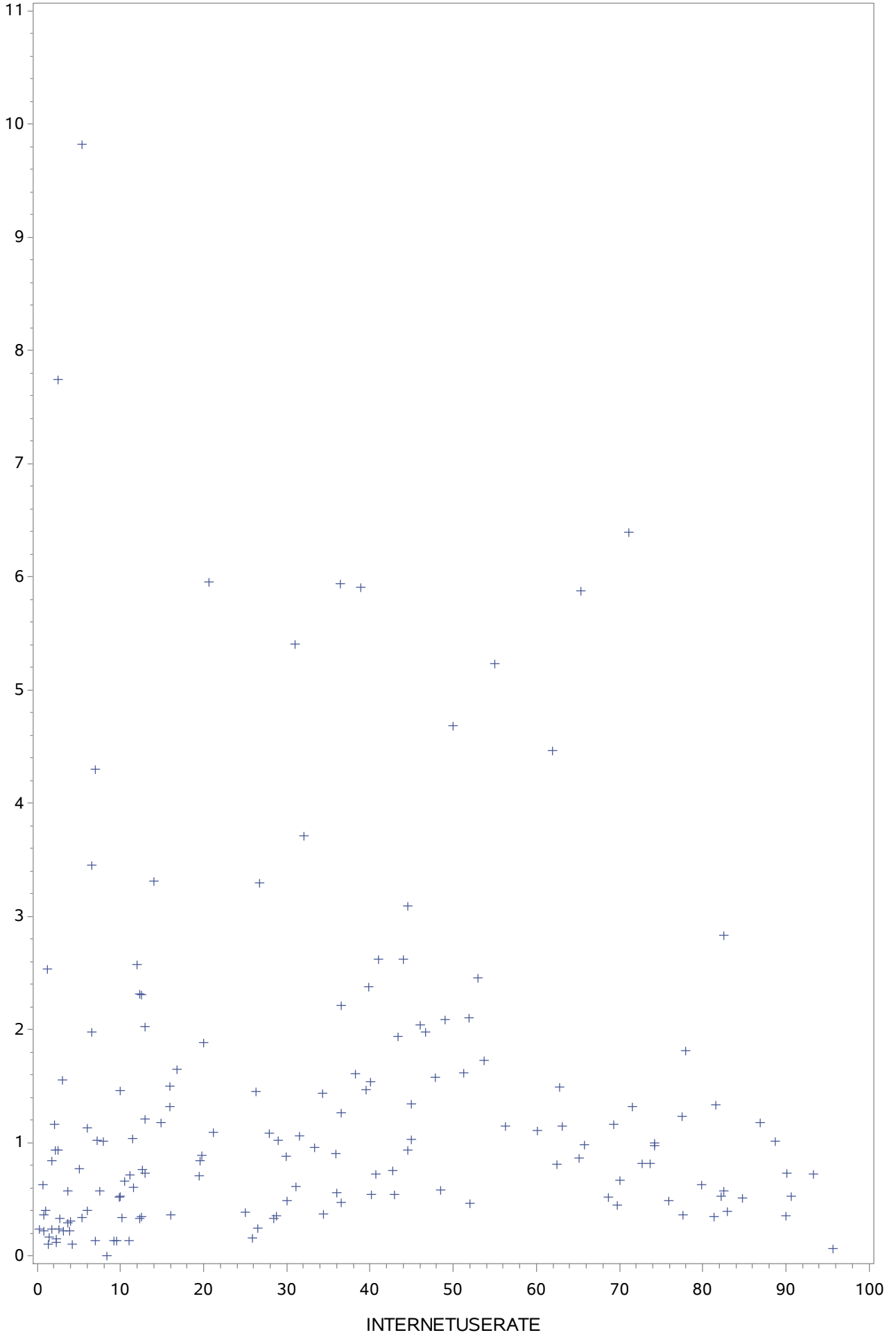
8

9

er

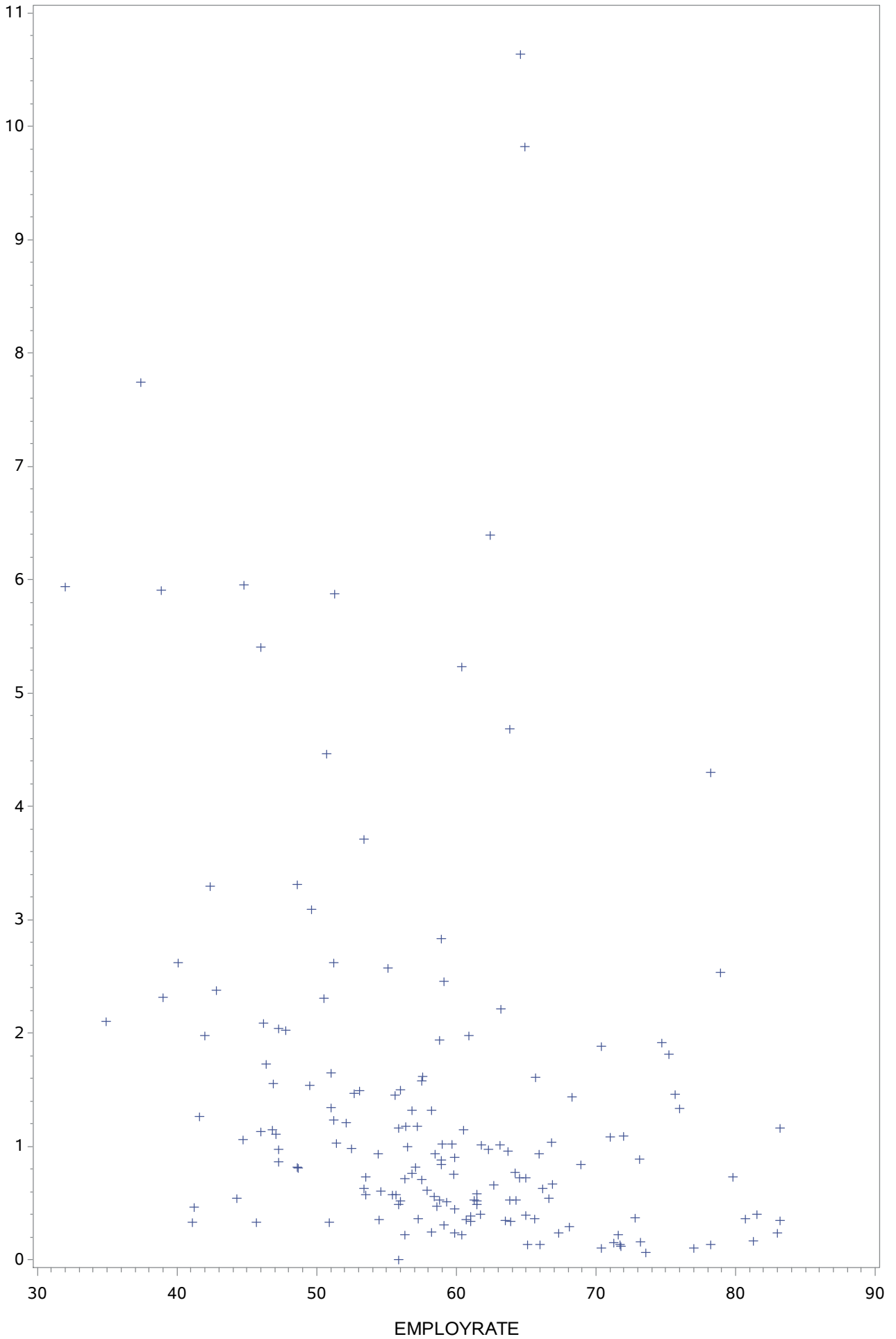


ARMEDFORCESRATE



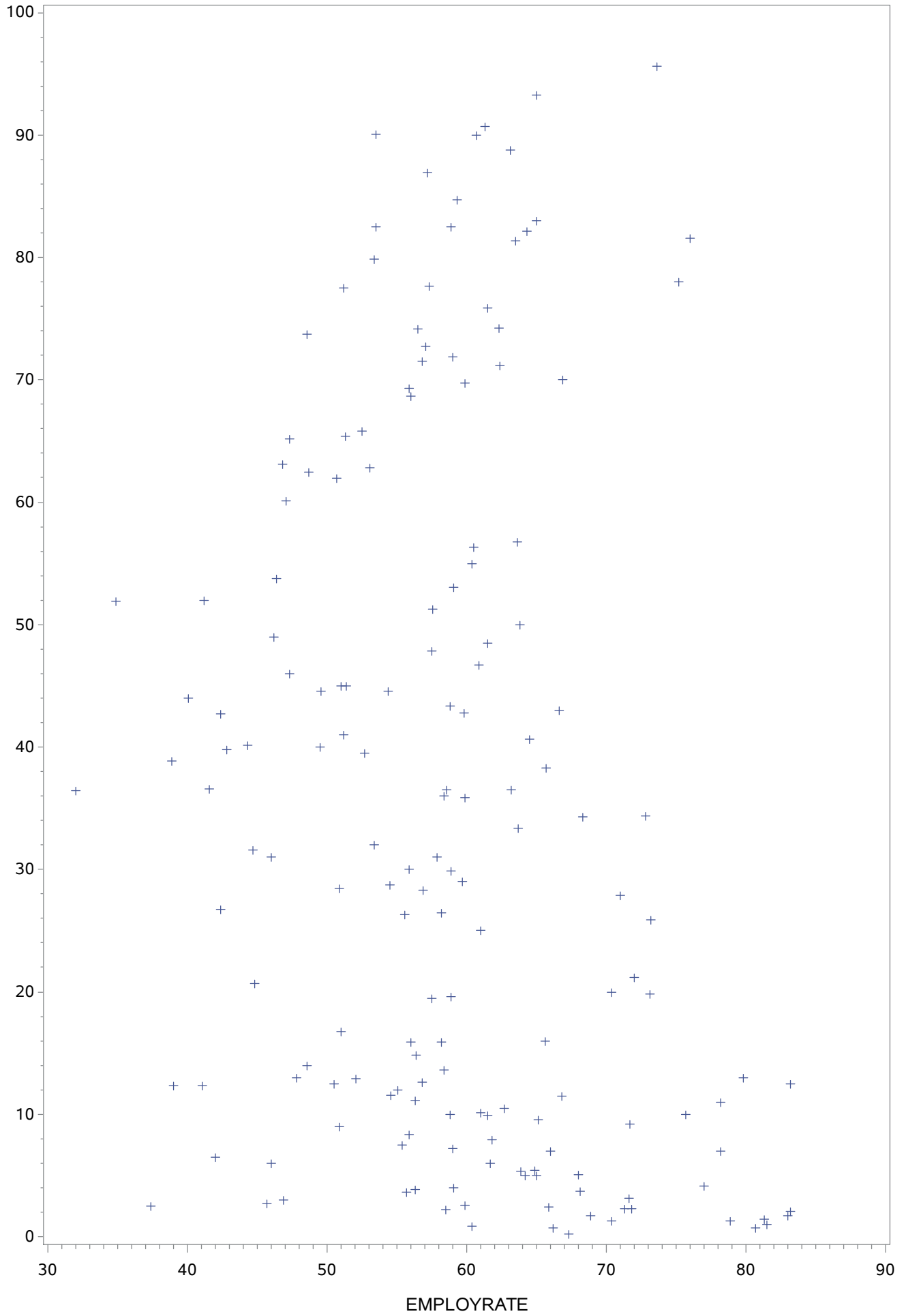


ARMEDFORCESRATE



EMPLOYRATE

INTERNETUSERATE



INTERNETUSERATE

