

- **Question:** Do the distributions of heart rate for men and women differ in terms of scale?
- **Study:** A blood bank keeps records of the heart rates of blood donors. A random sample of $m=8$ men and a separate random sample of $n=9$ women are selected from the blood bank records.
- **Data:** Heart rates, heart beats per minute.

Men, X	Women, Y
58	66
65	67
73	68
74	69
76	71
79	72
82	75
86	77
	78

Sex	X	X	Y	Y	Y	Y	Y	Y	X	X	Y	X	Y	Y	X	X	X
Rate	58	65	66	67	68	69	71	72	73	74	75	76	77	78	79	82	86
Rank	16	15	2	11	8	7	4	3	1	2	5	6	9	10	13	14	17

- **Siegel-Tukey test: Is the scale greater for men than women?**

$$S-T_X = 84 \Rightarrow U_X = 84 - \frac{8(9)}{2} = 84 - 36 = 48$$

$$S-T_Y = 69 \Rightarrow U_Y = 69 - \frac{9(10)}{2} = 69 - 45 = 24$$

Table H	Left	P	Right
n	U	P	U
	$m=8$		
9	24	0.138	48

The P-value is 0.138. This is larger than 0.05 and so we should not reject the hypothesis of no difference in scales. The distribution of heart rates for both men and women could have the same scale.