diameter method A1

Group W ($\frac{1}{2}$ of D) n = 21

✓71	5015
✓32	4025
✓14	4007
✓46	4068
✓59	4081
✓113	8057
✓65	4087
✓115	8064

✓51	4073
✓54	4076
✓44	4065
✓60	4082
✓106	8034
✓23	4016
✓27	4020
✓49	4071
✓17	4010
✓124	8099
✓58	4080
✓80	5063
✓126	8101

diameter method A1

Group X (½ of D) n=22

✓7	3028	✓66	4088	✓108	8038
✓62	4084	✓93	5127	✓105	8016
✓120	8085	✓86	5107	✓122	8090
✓97	6020	✓15	4008		
✓85	~~409~~ 5097	✓101	7027		
✓99	7015	✓110	8046		
✓6	3019	✓40	4033		
✓123	8097	✓13	4006		
✓47	4069	✓104	8014		
✓38	4031				

diameter method A1

Group Y - n=69

Y1 (E) n= 27

✓43	4064	✓78	5061	✓26	4019
✓76	5037	✓91	5119	✓73	5017
✓83	5077	✓9	4002	✓95	6009
✓34	4027	✓92	5123	✓98	7007
✓100	7023	✓55	4077	✓19	4012
✓70	5006	✓29	4022	✓119	8079
✓75	5034	✓84	5094	✓3	2015
✓81	5064	✓109	8039	✓114	8059
✓90	5111	✓5	3009	✓121	8087

Y2 (F) n= 42

✓68	5003	✓36	4029	✓63	4085	✓112	8053
✓102	8003	✓72	5016	✓69	5005	✓56	4078
✓117	8073	✓89	5110	✓103	8007	✓128	9011
✓125	8100	✓30	4023	✓48	4070	✓107	8029
✓4	2031	✓52	4074	✓77	5050	✓50	4072
✓127	8104	✓8	4001	✓118	8076	✓94	6005
✓18	4011	✓24	4017	✓79	5062	✓129	9023
✓37	4030	✓42	~~4034~~ 4035	✓82	5065		
✓11	4004	✓61	4083	✓2	2009		
✓1	2007	✓25	4018	✓87	5108		
✓33	4026	✓88	5109	✓39	4032		
✓10	4003	✓41	4034				

diameter method

A1

Group α + β – n = 21 – sep from main gp at 41.66

~~X~~ W α 71, 32, 14, 46, 59, 113, 65, 115, ~~51~~

β 51 54, 44, 60, 106, 23, 27, 49, 17, 124, 58, 80, 126

D

~~Group~~ ~~Δ + λ~~ Δ + D + ? – break off at ~~33 32~~ 29.00 n = ~~12 24~~ 22

X ~~Δ~~ – 7, 62, 120, 97, 85, 99, 6, 123

~~λ~~ 47, 38, 66, 93, 86, 15, 101, 110, 40, 13, 104, 108, 105, 122

n = 69 Y. ~~break~~ Y1 – n = 27 43, 76, 83, 34, 100, 70, 75, 81, 90, 78, 91, 9, 92, 55, 29, 84, 109, 5, 26, 73, 95, 98, 19, 119, 3, 114, 121

Y1 + Y2 / γ break at 17.72 Y2, n = 42 –

68, 102, 117, 125, 4, 127, 18, 37, 11, 1, 33, 10, 36, 72, 89, 30, 52, 8, 24, 42, 61, 25, 88, 41, 63, 69, 103, 48, 77, 118, 79, 82, 2, 87, 39, 112, 56, 128, 107, 50, 94, 129

Z group Z – break off at 23.64 n = 18

31, 45, 12, 35, 53, 16, 111, 67, 20, 22, 116, 57, 96, 21, 28, 64, 74, 130

γ

g

group Z (g)

diameter method A 1

n=18

✓31	4024
✓45	4066
✓12	4005
✓35	4028
✓53	4075
✓16	4009
✓111	8052
✓67	4089
✓20	4013

✓22	4015
✓116	8068
✓57	4079
✓96	6015
✓21	4014
✓28	4021
✓64	4086
✓74	5018
✓130	9026

Comparison of mean and standard deviations of groups in sample A 1 - diameter method

variable	group W	group X	group Y	group Z	total sample
4 who lives w/ (own par =1)	2.429 (1.917) 3	4 2.955 (2.142)	1 1.406 (1.322)	2 2.333 (2.055)	
11 fam size tot sm=1	4 3.333 (1.727)	3 3.000 (1.809)	2 2.971 (1.579)	1 2.889 (1.449)	
12 fam size kn.	2 2.190 (1.006)	4 2.455 (1.117)	3 2.420 (1.256)	1 2.056 (0.970)	
15 wk. ward- dad (bor =1) look	4 1.900 (1.136)	2 2.727 (2.597)	1 2.838 (2.742)	3 2.056 (1.899)	
21 ch-part. dad least =1	2 2.750 (1.090)	1 2.125 (1.166)	4 2.836 (1.016)	3 2.750 (1.031)	
23 rel. [illegible] dad (bet =1)	4 1.850 (0.963)	1 1.389 (0.591)	2 1.441 (0.881)	3 1.733 (0.854)	
30 burdens ed.-mom	2 1.850 (1.195)	3 1.636 (1.693)	1 2.059 (1.969)	4 1.556 (1.117)	
36 ch. part. mom	1 1.857 (0.940)	2 2.300 (1.187)	3 2.368 (1.110)	4 2.556 (1.066)	
38 rel w/ mom	4 1.952 (0.999)	3 1.762 (1.151)	1 1.449 (0.826)	2 1.471 (0.696)	
46 Inc. sure 1=most sure	2 2.182 (0.575)	1 1.769 (0.697)	4 2.278 (0.606)	3 2.250 (0.595)	
48 rel. w/sibs	4 3.095 (1.509)	1 2.286 (1.485)	3 2.706 (1.707)	2 2.588 (1.331)	
49 w r r	3 1.900 (1.179)	2 1.952 (2.193)	1 2.014 (2.197)	4 1.278 (0.731)	
51 Home life	2 4.143 (0.774)	3 4.095 (1.019)	1 4.333 (0.943)	4 4.056 (0.911)	
52 Par mar	2 4.263 (0.714)	1 4.562 (0.496)	4 4.188 (1.080)	3 4.200 (0.748)	
55 [illegible]h part rep.	2 1.571 (1.050)	1 1.333 (0.777)	3 1.735 (0.917)	4 1.833 (1.118)	
64 disagr. 1=not author.	4 2.875 (1.053)	2 2.643 (1.109)	3 2.712 (0.950)	1 2.308 (0.991)	

Comparison of mean and standard deviations of groups in sample A1 - diameter method

1 = hi on SES scale

variable	group W (n=21)	group X (n=22)	group Y (n=69)	group Z (n=18)	total sample
16. TPR (his dad)	1.900 4 (1.136)	2.857 1 (1.207)	2.721 2 (1.211)	2.444 3 (1.343)	
17. ed. dad	5.263 2 (1.163)	4.118 1 (1.567)	5.403 3 (1.477)	5.625 4 (0.927)	
18. oc. dad	4.950 4 (1.244)	3.647 1 (1.185)	4.418 2 (1.373)	4.765 3 (1.165)	
19. hrs. w/wk dad	6.500 3 (1.740)	6.000 1 (1.840)	6.312 2 (1.789)	6.687 4 (1.793)	
20. ch. affil dad	19.952 (7.358)	20.643 (5.135)	12.304 (1.836)	13.333 (2.560)	
22. # org dad	2.368 3 (1.459)	3.562 1 (1.694)	~~4~~ 2.403 2 (1.649)	2.118 4 (1.231)	
24 YMW-total	6.067 (4.711)	6.545 (5.246)	3.205 (2.700)	12.111 (3.143)	
% working	15/21	11/22	39/69	18/18 = 100 %	
31 TPR mom	1.950 4 (1.244)	3.091 1 (0.996)	2.632 2 (1.271)	2.611 3 (1.297)	
32 Ed mom	4.474 2 (1.464)	3.944 1 (1.223)	5.191 4 (1.342)	5.000 3 (0.840)	
33 Oc mom	6.667 3 (1.960)	6.571 2 (1.866)	6.926 4 (1.630)	6.000 1 (1.856)	
34 H. w/wk mom	2.952 (2.420)	2.350 (2.080)	2.606 (2.443)	4.353 (3.009)	
35 Ch affil. mom	26.286 (4.881)	16.111 (4.943)	13.145 (2.209)	16.222 (4.802)	
37 # org mom	1.905 4 (0.971)	3.500 1 (1.979)	2.046 3 (1.408)	2.529 2 (1.882)	
43 next-own	1.800 (0.400)	1.810 (0.393)	1.884 (0.320)	1.778 (0.416)	
##					

Comparison of mean and standard deviations of groups in sample A 1 - diameter method

variable	group W	group X	group Y	group Z	total sample
44 Inc. source	3 4.400 (0.663)	1 4.211 (0.694)	2 4.333 (0.846)	4 4.556 (0.685)	
45 Inc. #	~~[illegible]~~ 4 3.000 (1.095)	1 ~~[illegible]~~ 3.273 (1.420)	2 3.273 (1.543)	~~[illegible]~~ 3 3.000 (1.595)	
~~46~~ 50 T&R rep	3 3.667 (0.891)	1 3.818 (0.649)	2 3.696 (0.728)	4 3.611 (0.678)	
54 ch. af. rep	27.429 (3.874)	15.571 (4.686)	13.652 (2.587)	15.667 (3.266)	
56 Hog rep	2 2.905 (1.509)	1 3.227 (2.173)	3 2.652 (1.571)	4 2.500 (1.772)	
58 place live	4 3.571 (0.849)	2 3.952 (0.213)	3 3.884 (0.435)	1 4.000 (0.0)	
59 size hse	2 1.238 (0.683)	1 1.476 (1.052)	4 1.162 (0.656)	3 1.167 (0.687)	
61 type house	2 2.250 (1.220)	4 2.333 (1.357)	1 2.074 (1.142)	3 2.294 (1.318)	
62 Part town	1 2.611 (0.591)	3 2.762 (0.750)	2 2.727 (0.770)	4 2.882 (1.022)	
63 Dec made by [illegible] 1	3 2.524 (0.794)	1 2.381 (0.898)	4 2.710 (0.782)	2 2.500 (1.167)	

diameter method - sample A1 E

	position in compact. clus.
43	III M
76	III P
83	III P
34	III P
100	III P
70	III N
75	III N
81	III N
90	III N
78	III N
91	III N
9	III M
92	III N
55	III N
29	III N
84	III N
109	III N
5	III N
26	III N
73	III N
95	III N
98	III N
19	III N
119	III N
3	III N
114	III N
121	III N

total n = 27

I = 0	0%
II = 0	0%
III M = 2	7
III N = 21	78
III P = 4	15

Sample A 1 G

31

31	II
45	II
12	III N
35	II
53	II
16	II
111	II
67	II
20	III N
22	III N
116	II
57	III M
96	III M
21	II
58	II
64	II
74	III M
130	III P

n= 18	%
I= 0	0
II= 11	60
III M= 3	17
III N= 3	17
III P= 1	6

Sample A 1 F

		corresp. cat. in con. method
F_1 1	68	II
	102	III M
	117	III M
	125	III N
	4	III N
	127	III N
F_2	18	II
	37	III M
F_3	11	III M
	1	III M
	33	III N
	10	III M
	36	III M
	72	III M
	89	III N
	30	III M
	52	III M
	8	III N
	24	III N
	42	III N
	61	III N
	35	III N
	88	III N
	41	III N
	63	III N
	69	III N
	103	III M
	48	III N
	77	III N

	corresp. cat. in con. method
118	III N
79	III N
82	III N
2	III N
87	III N
39	III N
112	III N
56	III N
128	III N
107	III M
50	III M
94	III N
129	III N

n = 42	%
I = 0	0
II = 2	5
III M = 13	31
III N = 27	64
III P = 0	0

diameter method
Sample A1 D-

position in connectedness cl.

total n = 43
I = 22, 100%
II = 17, 57%
III M = 2, 10%
III N = 2, 4%
III P = 0, 0%

71	I
32	II
14	II
46	II
59	II
113	II
65	II
? 115	III M
51	I
54	I
44	I
60	I
106	I
? 23	II
27	II
49	II
17	II
124	II
58	II
80	II
? 126	II
7	I
62	I
120	I
97	I
85	I
99	I
6	I
123	I
47	I

38	I
66	I
93	I
86	I
15	II
101	II
110	I
40	III M
13	III N
104	III N
108	II
105	I
122	I

I -

	oc.	freq	
I	22	50	190% >
II	17	40	74% >
III M	2	5	67% <
III N	2	5	88% <
III P	0	0	100% <
tot	43	100	

Osometh Method - Q 1

Σ 4 variable

	Z	X
N	18	22
ΣM	127.773	127.543
$\overline{m}$	5.324	5.314
$\Sigma\sigma$	38.453	45.246
$\overline{\sigma}$	1.602	1.885

	Y	W
N	69	21
ΣM	111.359	146.629
$\overline{m}$	4.640	6.110
$\Sigma\sigma$	33.713	44.320
$\overline{\sigma}$	1.405	1.847

$|M_x - M_y| = .674 \quad \sqrt{\frac{\sigma_x^2}{n_x} + \frac{\sigma_y^2}{n_y}} = \sqrt{.162 + .029} = .44 \quad 2\sigma = .88$

$|M_x - M_z| = .010 \quad \sqrt{x+z} = \sqrt{.162 + .143} = .55 \quad 2\sigma = 1.10$

$|M_x - M_w| = .796 \quad \sqrt{x+w} = \sqrt{.162 + .162} = .57 \quad 2\sigma = 1.14$

$|M_y - M_z| = .684 \quad \sqrt{y+z} = \sqrt{.029 + .143} = .41 \quad 2\sigma = .82$

$|M_y - M_w| = 1.470 \quad \sqrt{y+w} = \sqrt{.029 + .162} = .44 \quad 2\sigma = .88$

$|M_z - M_w| = .786 \quad \sqrt{z+w} = \sqrt{.143 + .162} = .55 \quad 2\sigma = 1.10$

dif. between gps Y + W is significant —

5.635
24 /135.261
120
15 2
144
86
72
141
120
21

5.720
24 /137.281
120
172
168
48

4.731
24 /113.5[illegible]
96
175
168
78
72
62
48
14

5.052
24 /121.259
120
125
59
48
11

4.560
24 /109.459
96
134
120
145
144
19

5.156
24 /123.750
120
37
24
135
120
150
144

2.206
24 /52.948
48
49
148

3
2.097
24 /50.344
48
234
216
184
168
160

3
1.498
24 /35.958
24
119
96
235
216
198
192

1.520
24 /36.499
24
124
120
49
190

1.354
24 /32.498
24
84
72
129
120
98
96

.739
24 /17.722
168
92
72
202
216

sp. 1 at 29-58 -

group α n = 8 I 1
II 6
III m 1

group β n = 13 I = 5
II = 8
III

group Δ n = 8 I - 8

group γ n = 4 I - 4

group ε n = 97

I	4	4%
II	16	16
III m	19	19
III N	53	54
III P	5	5

method #1
project clump

Total Sample A1	Subsample A 1 III M	Variable	
		Subsample A1 III N	Subsample A 1 III P
	mean =	mean =	mean =
	var =	var =	var =
	s.d. =	s.d. =	s.d. =
	N =	N =	N =
	dif | %	dif | %	dif | %

Sep. 2 at 23.64

α is intact

β has split

1) $n = 2$, both in group I

2) $n = 11$, I = 3
II = 8

Δ has split

1) $n = 3$ all in I

2) $n = 5$ " " "

γ is intact

ε:

a) $n = 1$ in I

b) $n = 9$

I	1
II	5
III M	1
III N	2

c) $n = 69$

method #1 project clump Total sample A1	Subsample A 1 III M	Variable Subsample A1 III N	Subsample A 1 III P
	mean= var = s.d. = N=	mean= var = s.d. = N=	mean= var= s.d. = N=
	dif | %	dif | %	dif | %

d) n = 18 (= G)

I		0
II		11
III	M	3
III	N	3
III	P	1

Examine E C only

at 17.72 splits off F

if continue minute analysis
do tend to find
members of groups dis.
in con. method
clustered in diameter
method — though
groups obtained are by no
means as distinct.

method # 1 project clump Total sample A 1	Subsample A 1 III M	Variable Subsample A 1 III N	Subsample A 1 III P
	mean = var = s.d. = N = dif | %	mean = var = s.d. = N = dif | %	mean = var = s.d. = N = dif | %

comp of cox & diam: ~~method~~

In diameter method:
first sep. 4 groups labeled D, E, F, G –

result of method.

group D n=

members of ~~subgroup~~ group in cox. meth	occurances	freq.
I	22	50%
II	17	40%
III M	2	5%
III N	2	5%
III P	0	
total	43	100

III M + III N: > 10%

group E n=

	oc	freq
I	0	0
II	0	0
III M	2	7
III N	21	78
III P	4	5
	27	100

III M + III N: > 83

group F

I	0	0
II+	2	5
III M	13	31
III N	27	64
III P	0	0
	42	100

III M + III N: > 95%

group G

I	0	0
II	11	60
III M	3	17
III N	3	17
III P	1	6
	18	100

III M + III N: > 40%

method #1 project clump Total sample A1	Subsample A1 III M	Variable Subsample A1 III N	Subsample. A1 III P
	mean = var = s.d. = N =	mean = var = s.d. = N =	mean = var = s.d. = N =
	dif | %	dif | %	dif | %

tape # 000136

Sample 1 A

1. 2007 (draw 4)
2. 2009
3. 2015
4. 2031
5. 3009 (draw 3)
6. 3019
7. 3028
8. 4001 (draw 60)
9. 4002
10. 4003
11. 4004
12. 4005
13. 4006
14. 4007
15. 4008
16. 4009
17. 4010
18. 4011
19. 4012
20. 4013
21. 4 14
22. 15
23. 16
24. 17
25. 18
26. 19
27. 20
28. 21
29. 22
30. 23
31. 24
32. 25
33. 26
34. 27
35. 28
36. 29
37. 30
38. 31
39. 32
40. 33
41. 34
42. 35
43. 64
44. 65
45. 66
46. 68
47. 69
48. 70
49. 71
50. 72
51. 73
52. 74
53. 75
54. 76
55. 77
56. 78
57. 79
58. 80
59. 81
60. 82
61. 83
62. 84
63. 85
64. 86
65. 87
66. 88
67. 89
68. 5003 (draw 26)
69. 5
70. 6
71. 15
72. 16
73. 17
74. 18
75. 34
76. 37
77. 50
78. 61
79. 62
80. 63
81. 64
82. 65
83. 77
84. 94
85. 97
86. 5107
87. 5108
88. 5109
89. 5110
90. 5111
91. 5119
92. 5123
93. 5127
94. 6005 (draw 4)
95. 9
96. 15
97. 20
98. 7007 (draw 4)
99. 7015
100. 7023
101. 7027
102. 8003 draw 26
103. 7
104. 14
105. 16
106. 34
107. 29
108. 38
109. 39
110. 46
111. 52
112. 53
113. 57
114. 59
115. 64
116. 68
117. 73
118. 76
119. 79
120. 85
121. 87
122. 90
123. 97
124. 99
125. 100
126. 101
127. 8104
128. 9011 draw 3
129. 23
130. 26

III. Hypothesis ly

A. No clear distinguished groups would appear

1. impossible to distinguish groups from results of the clumping process or

→ 2. groups that did appear had no systematic differences that could demonstrate any clear typing, ordering, or classification system.(i.e. ~~either~~ no SES groups could be distinguished and therefore no stratification system.)

B. Clearly distinguished groups would appear

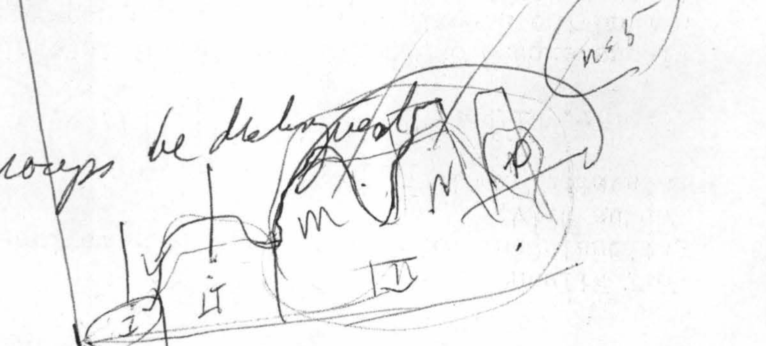
1. Clear cut, significant differences would appear in distributions of the variables used in clustering, but no significant differences would be determined in other variables pertaining to life styles. Thus socio-economic status groups could be apparent, but no conclusive evidence suggesting the existence of a stratification system would be apparent.

2. Clear cut significant differences would appear in both the comparison of variables used in clumping and in the comparison of distributions of other life-style variables.

C. Significant differences would appear in both variables used in the clustering process and in those pertaining to life styles, but the differences ~~was~~ between groups would not be significant enough and the varainces and standard deviations would be too great to say that the groups were discrete, instead an overlapping of the groups along a socio-economic continuum would ~~be~~seem to occur.

No real hyp. due to lacking of lit.
use empirical test to throw more light on subject
possible results

(1) To what extent d- gps
not at al
overlapp. → distinct
· wh. var. assoc. w/
no → st.
→ st + l.s.
Yes



To what extent may groups be distinguished

1. Not at all
2. Overlapping
3. distinct
   a. no dif. in l.s.
   b. dif. in l.s.

III. D. Definitions

1. Sample: A sample is defined to be the entire group of individuals that were submitted to the clumping process at any one time.
2. Group: Any part of the sample that appears to be clearly distinguished from the rest of the sample will be designated a group.
3. Clearly distinguished groups: When in the clumping process a group of individuals is within a certain distance of each other in the n-space and no other individuals are within that distance of any members of that group, then that group is said to be clearly distinguished from the others.
4. Systematic differences: When characteristics of individual and related variables hold throughout each subsample and are consistent within the sample, then systematic differences are said to occur. (e.g.: Tendencies for lower income, occupational and educational levels tend to hold for all family members and the individuals in the sample also tend to have lower quality homes or live in less desirable areas.)
5. Significant difference: The difference between the mean of a variable in any group and the mean of that variable for the total sample is defined to be significant if the difference between the mean being considered and the mean of the total sample is greater than or equal to   of the mean of the total.
6. SES (Socio-Economic Status): The position of an individual or group within a sample with respect to the other members of the sample in regard to factors relating to economic or social prestige and/or power within the community (e.g. income, education, occupation, type of home) will be defined as SES.
7. Stratification System: A stratification system or social class system will be said to exist if the various SES groups as defined in 6 exist and may be distinguished by styles of life that are uniform with the group and unique between the groups or within the sample.

Euclid. dist.^{E} between person X + person Y in an n-space is

$$E = \left((x_1 - y_1)^2 + (x_2 - y_2)^2 + \cdots + (x_n - y_n)^2 \right)^{1/2}$$

where $x_1, x_2, \ldots, x_n$ + $y_1, y_2, \ldots, y_n$

represent the values of the various indices for X + Y respectively.

values placed in matrix pairing each individual w/ every other ind

Clumping

A. Diameter method

1. ~~people~~ pair w/ greatest E are placed in 2 sep. gps. then ~~the~~ pair w/ next highest E are placed w/ them + so on -

B. Connectedness method

pair w/ smallest E are clumped together then ind. ~~next~~ w/ next smallest E with either of that pair is clumped w/ that part of the gr.

In essence we are determining the membership of the groups of individuals within the n-space - We can visualize the existance of such clumps within a two or three - dimensional space but the limits of our powers of abstraction are quickly reached when dimensions go much beyond 3!