

Block 3: Analysing two variables (and sometimes three)

3.3 Multiple response

3.3.3.3 Analysing multiple response

[Draft only: 5 March 2017]

Exercise 3 - More response categories than code values

Exemplar: British Social Attitudes 1986

Previous tutorial: [3.3.3.2 Multiple response exercise 2 - More values than fields](#)

SPSS saved file **bsa86.sav**

Example 1: Single multiple response question

Using a question about welfare benefits received, this exercise demonstrates how to deal with a situation in which there are fourteen possible categories, one value to each of thirteen columns, and one of three values in a fourteenth, but only nine codes used of which six are duplicated.

AQ117/BQ125 Welfare benefits received [showcard **GG**]

<u>ASK ALL</u>			
<u>CARD GG</u>			
125.	Have you or anyone in this household been in receipt of any of the benefits on this card during the last <u>five years</u> ?		
<u>IF YES:</u>	Which ones? Any others? Child benefit (family allowance)	1	(1739)
<u>CODE ALL THAT APPLY</u>	Maternity benefit or allowance	2	(1740)
	One parent benefit	3	(1741)
	Family Income Supplement	4	(1742)
	State retirement or widow's pension	5	(1743)
	Supplementary pension	6	(1744)
	Invalidity or disabled pension or benefit	1	(1745) ←
	Attendance/Invalid care/Mobility allowance	2	(1746) ←
	Sickness or injury benefit	3	(1747) ←
	Unemployment benefit	4	(1748) ←
	Supplementary benefit	5	(1749) ←
	Rate or rent rebate or allowance	6	(1750) ←
	Other benefit(s) volunteered (SPECIFY) _____	7	(1751)

	NO, NONE	0	(1752)

Codes 1 – 6 are repeated in columns 17/45 to 17/50 for the 7th to 12th categories (See red arrows above): code 7 is used for “Other” in column 17/51 and codes 0 for “None” 8 for “Don’t know” and 9 for “Not applicable” in column 17/52.

The Technical Manual has hand-written notes showing that codes 8 for "D/K" (Don't know) and 9 "N/A" (Not applicable) were used in column 17/52, plus an additional code 1 "Graduated superannuation" in column 17/52.

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ASK ALL ✓
CARD GG

Have you or anyone in this household been in receipt of any of the benefits on this card during the last five years?

IF YES: Which ones? Any others? Child benefit (family allowance) 1 (1739)
CODE ALL THAT APPLY Maternity benefit or allowance 2 (1740)
One parent benefit 3 (1741)
Family Income Supplement 4 (1742)
State retirement or widow's pension 5 (1743)
Supplementary pension 6 (1744)
Invalidity or disabled pension or benefit 1 (1745)
Attendance/Invalid care/Mobility allowance 2 (1746)
Sickness or injury benefit 3 (1747)
Unemployment benefit 4 (1748)
Supplementary benefit 5 (1749)
Housing benefit/Rate or rent rebate or allowance 6 (1750)
Other benefit(s) volunteered (SPECIFY) RECODE IF POSSIBLE OTHERWISE 7 (1751)

8 = D/K ON COL 1752
9 = N/A ON COL 1752
N.B. IF BENEFIT IS PRIVATE
E.G. PRIVATE PENSION, ALIMONY,
OR LOCAL EDUCATION AUTHORITY
BENEFIT E.G. MILK TOKENS DELETE
CODES - IF NECESSARY RECODE
TO 1752/0

FINAL LIST WITH S.No.

* NEW CODE 1752/1 = GRADUATED, SUPERANNUATION WHERE NOT NO, NONE
CLEAR IF PRIVATE OR STATE 0 (1752)

This is quite a complex problem to resolve for multiple response. Without recoding, MULT RESP will combine the pairs of codes 1 – 6 so that, for example Child Benefit and Disability Benefit will be added together and tabulated under value 1. Codes 1 – 6 in columns 17/45 to 17/50 therefore **need to be changed**. However if we change them to 7 – 12, we have a problem. Code 7 is already allocated to "Other" and codes 8 (DK) and 9 (NA) are declared as missing.

As a check on the data you can run descriptives or frequencies for each of the variables v1739 to v1752 or use **Data >> Define Variable Properties**. In fact v1739 to v1751 each contain only a single value and v1752 contains only four: 472 cases have value 0 (Not applicable) but the counts for values 1, 8 and 9 are negligible.

Define Variable Properties

Scanned Variable List

Unl...	Me...	Role	Variable
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1739
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1740
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1741
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1742
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1743
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1744
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1745
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1746
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1747
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1748
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1749
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1750
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1751
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V1752

Current Variable: V1752 Label:

Measurement Level: Type:

Role: Width: Decimals:

Unlabeled values:

Value Label grid: Enter or edit labels in the grid. You can enter additional values at the bottom.

	Changed	Missing	Count	Value	Label
1	<input type="checkbox"/>	<input type="checkbox"/>	472	0	
2	<input type="checkbox"/>	<input type="checkbox"/>	1	1	
3	<input type="checkbox"/>	<input type="checkbox"/>	2	8	
4	<input type="checkbox"/>	<input type="checkbox"/>	4	9	
5	<input type="checkbox"/>	<input type="checkbox"/>			

Cases scanned: 3100
Value list limit: 200

Copy Properties

[Extract of 5 cases from raw data: record 17]

1019217003010501213601	00051025198981	3	98	2111310551870030586131
1020317	03031	5	03	1111290601870300486231
1020517136010808323408	01981015102021	4	03	1111310501870300486111
1074117048020805312502	00041014102021	12	3	070621 11310652336240486111
1067617	98012	3456	01	223 1310532339140586111

Without recoding, code 5 in v1743 (*State Retirement Pension*) will be combined with code 5 in v1749 (*Supplementary Benefit*) into the same group variable. Thus SPSS commands:

```
mult resp groups BQ125 'Welfare benefits received '
(v1739 to v1752 (0,9))
/freq bq125.
```

.. produces the following table:

BQ125 Frequencies

		Responses		Percent of Cases
		N	Percent	
BQ125 Welfare benefits received ^a	0	472	8.4%	15.3%
	1	1635	29.2%	52.8%
	2	420	7.5%	13.6%
	3	527	9.4%	17.0%
	4	686	12.2%	22.2%
	5	1177	21.0%	38.0%
	6	680	12.1%	22.0%
	7	11	0.2%	0.4%
Total		5608	100.0%	181.3%

a. Group

To resolve the problem:

Step 1: Recode v1752 values 8 and 9 to 88 and 89 and declare 88 and 89 as missing. Code 1 has only one case and should be recoded as 6 (*Supplementary pension*). Recode v1745 to v1750 values 1 – 7 to 7 – 13.

```
recode v1752 (8=88) (9=99)(1 = 6)
/ v1745 to v1751 (1=7)(2=8)(3=9)(4=10)(5=11)(6=12)(7=13).
```

```
missing values v1752 (88, 99)
```

```
mult resp groups BQ125 'Welfare benefits received '
(v1739 to v1752 (0,13))
/freq bq125.
```

[NB: These variables have no value labels in the original data set]

BQ125 Frequencies

		Responses		Percent of Cases
		N	Percent	
BQ125 Welfare benefits received ^a	0	472	8.4%	15.3%
	1	1444	25.7%	46.7%
	2	323	5.8%	10.4%
	3	96	1.7%	3.1%
	4	66	1.2%	2.1%
	5	723	12.9%	23.4%
	6	98	1.7%	3.2%
	7	190	3.4%	6.1%
	8	97	1.7%	3.1%
	9	431	7.7%	13.9%
	10	620	11.1%	20.0%
	11	454	8.1%	14.7%
	12	583	10.4%	18.8%
Total	13	5608	100.0%	181.3%

a. Group

Step 2: Write value labels to match (only needed for first variable in set):

value labels

v1739

- 0 'None'
- 1 'Child Benefit'
- 2 'Maternity Benefit'
- 3 'One Parent Benefit'
- 4 'Family Income Supplement'
- 5 "State Retirement or Widow's Pension"
- 6 'Supplementary Pension'
- 7 'Invalidity Benefit'
- 8 'Care Allowance'
- 9 'Sickness Benefit'
- 10 'Unemployment Benefit'
- 11 'Supplementary Benefit'
- 12 'Rate or rent rebate'
- 13 'Other'.

Step 3: Obtain table by:

mult resp groups BQ125 'Welfare benefits received '
(v1739 to v1752 (0,13))
/freq bq125.

Case Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
BQ125 ^a	2622	84.6%	478	15.4%	3100	100.0%

a. Group

Table as required:

BQ125 Frequencies

		Responses		Percent of Cases
		N	Percent	
BQ125 Welfare benefits received ^a	None	472	8.4%	15.3%
	Child Benefit	1444	25.7%	46.7%
	Maternity Benefit	323	5.8%	10.4%
	One Parent Benefit	96	1.7%	3.1%
	Family Income Supplement	66	1.2%	2.1%
	State Retirement or Widow's Pension	723	12.9%	23.4%
	Supplementary Pension	98	1.7%	3.2%
	Invalidity Benefit	190	3.4%	6.1%
	Care Allowance	97	1.7%	3.1%
	Sickness Benefit	431	7.7%	13.9%
	Unemployment Benefit	620	11.1%	20.0%
	Supplementary Benefit	454	8.1%	14.7%
	Rate or rent rebate	583	10.4%	18.8%
	Other	11	0.2%	0.4%
Total	5608	100.0%	181.3%	

a. Group

3b: Two multiple response questions using same coding scheme, but codes are repeated

Using a question about actions contemplated or actually done to protest against unjust laws, this exercise demonstrates how to handle a question in which there are nine response categories, but only codes 1-7 are used.

- BQ86a Action would take** }
 } to stop or change an unjust law [precoded with showcard **P**]
BQ86b Action ever taken }

There are nine possible substantive replies, but **only 7 code values allocated!!** Codes 1 and 2 are repeated for the eighth and ninth categories (see arrows ← below)

CARD P		Col./ Code	Skip to
86.a)	Suppose a law was being considered by Parliament which you thought was really unjust and harmful. Which, if any, of the things on this card do you think you would do? Any others? RECORD IN COL a) BELOW, THEN ASK b). MORE THAN ONE CODE MAY BE RINGED		
b)	And have you ever done any of the things on this card about a government action which you thought was unjust or harmful? Which ones? Any others? RECORD IN COL b) BELOW. MORE THAN ONE CODE MAY BE RINGED		CARD 07 706-7
		(a) Would do	(b) Ever done
	Contact my MP	1 (671)	1 (708)
	Speak to influential person	2 (672)	2 (709)
	Contact a government department	3 (673)	3 (710)
	Contact radio, TV or newspaper	4 (674)	4 (711)
	Sign a petition	5 (675)	5 (712)
	Raise the issue in an organisation I already belong to	6 (676)	6 (713)
	Go on a protest or demonstration	7 (677)	7 (714)
	Form a group of like-minded people	1 (678)	1 (715) ←
	(NO - NONE OF THESE)	2 (679)	2 (716) ←

Columns 71 to 79 of record 6 and columns 08 to 16 of record 7 (2 x 9 = 18 columns) are allocated as fixed single column fields with unique values of 1 to 6, 1 and 2 in sequence. Codes **1** and **2** are repeated at cols 6/78-79 and 7/15-16, but refer to completely different replies. V671 can only have value 1, v672 can only have value 2 and so on until v677, which only has value 7: v678 has only value 1 and v679 can have 2, 8 or 9.

[Extract from raw data: records 06 and 07]

1019206	3323122111	1112211801501	007800	1111222	511	21
10192071	34444444123555	2132132212223	52655616541233333330104010211			
102030603	8813112311	1332111100601	003120	3222222	21212	5
1020307	222222888121776	2112112122451	23636666343111131180107030411			
10205060102051113111111	2111113102001	010400	1111122	411	2	5
1020507	5 11111833124225	2211121222222	23668656531112221230801030722			

To illustrate the problem:

mult resp groups
q86a 'Which, if any, would you consider doing?'
(v671 to v679 (1, 9))
q86b 'Which, if any, have you ever done?'
(v708 to v716 (1, 9))
/freq q86a q86b.

. . produces the following tables:

q86a Frequencies

		Responses		Percent of Cases
		N	Percent	
q86a Which, if any, would you consider doing? ^a	1	925	30.5%	60.0%
	2	370	12.2%	24.0%
	3	177	5.8%	11.5%
	4	232	7.6%	15.1%
	5	1014	33.4%	65.8%
	6	162	5.3%	10.5%
	7	156	5.1%	10.1%
Total		3036	100.0%	197.0%

a. Group

q86b Frequencies

		Responses		Percent of Cases
		N	Percent	
q86b Which, if any, have you ever done? ^a	1	195	10.4%	12.8%
	2	905	48.2%	59.4%
	3	42	2.2%	2.8%
	4	44	2.3%	2.9%
	5	529	28.2%	34.7%
	6	79	4.2%	5.2%
	7	83	4.4%	5.4%
Total		1877	100.0%	123.2%

a. Group

. . in which value 1 for v671 and v708 (*Contact MP*) has been combined with value 1 from v678 and v715 (*Form a group of like-minded people*). Value 2 (*None*) for v679 and v716 has been combined with value 2 (*Speak to influential person*) for v672 and v709. Codes 8 and 9 have been omitted because they are declared as missing.

This is a complex problem for multiple response and involves recoding the repeated values of 1 in v678 and 2, 8 and 9 in v679, but needs great care when dealing with missing values. Be careful if you're thinking of changing them to codes 8 and 9 which are used for denoting missing values! (8 = DK, 9 = NA on 6/79 and 7/16) You need to change the missing values 8 and 9 to 88 and 99 inside SPSS first, and also declare them as missing. Note that, although only 1 digit is allowed in a single column in the raw data, there is no such limit on the values of cells inside the SPSS Data Editor.

As with the previous example, code 1 in columns 6/78 and 7/15 needs changing to 6 and code 2 in columns 6/79 and 7/16 needs changing to 7. The SPSS file uses positional variable names which match the original card and column locations of the raw data: the variables of interest are thus: v678 v679 v715 and v716. Variables v671 to v678 and v708 to v715 contain only a single fixed value: v679 and v716 can contain, as well as 2, values 8 (DK) and 9 (NA) which are declared as missing. As before codes 8 and 9 in v679 and v716 need recoding to 88 and 99. The following SPSS commands:

```

recode v678 v679 v715 v716
  (8=88)(9=99)(1=8)(2=9).
missing values v679 v716 (88, 99).
mult resp groups
  q86a 'Which, if any, would you consider doing?'
  (v671 to v679 (1, 9))
  q86b 'Which, if any, have you ever done?'
  ( v708 to v716 (1, 9))
/freq q86a q86b.

```

. . produces different tables:

q86a Frequencies

		Responses		Percent of Cases
		N	Percent	
q86a Which, if any, would you consider doing? ^a	1	795	26.2%	51.6%
	2	224	7.4%	14.5%
	3	177	5.8%	11.5%
	4	232	7.6%	15.1%
	5	1014	33.4%	65.8%
	6	162	5.3%	10.5%
	7	156	5.1%	10.1%
	8	130	4.3%	8.4%
	9	146	4.8%	9.5%
Total	3036	100.0%	197.0%	

a. Group

q86b Frequencies

		Responses		Percent of Cases
		N	Percent	
q86b Which, if any, have you ever done? ^a	1	171	9.1%	11.2%
	2	50	2.7%	3.3%
	3	42	2.2%	2.8%
	4	44	2.3%	2.9%
	5	529	28.2%	34.7%
	6	79	4.2%	5.2%
	7	83	4.4%	5.4%
	8	24	1.3%	1.6%
	9	855	45.6%	56.1%
Total	1877	100.0%	123.2%	

a. Group

The original file has no value labels for these variables, so we need to supply some. SPSS only reads them from the first variable in the group specification.

value labels

v671 v708

- 1 'Contact my MP'
- 2 'Speak to influential person'
- 3 'Contact a government dept.'
- 4 'Contact radio, TV or newspaper'
- 5 'Raise issue in org. to which I belong'
- 6 'Sign a petition'
- 7 'Go on protest or demo.'
- 8 'Form a group of like-minded people'
- 9 'None of these'.

q86a Frequencies

		Responses		Percent of Cases
		N	Percent	
q86a Which, if any, would you consider doing? ^a	Contact my MP	795	26.2%	51.6%
	Speak to influential person	224	7.4%	14.5%
	Contact a government dept.	177	5.8%	11.5%
	Contact radio, TV or newspaper	232	7.6%	15.1%
	Raise issue in org. to which I belong	1014	33.4%	65.8%
	Sign a petition	162	5.3%	10.5%
	Go on protest or demo.	156	5.1%	10.1%
	Form a group of like-minded people	130	4.3%	8.4%
	None of these	146	4.8%	9.5%
Total	3036	100.0%	197.0%	

a. Group

q86b Frequencies

		Responses		Percent of Cases
		N	Percent	
q86b Which, if any, have you ever done? ^a	Contact my MP	171	9.1%	11.2%
	Speak to influential person	50	2.7%	3.3%
	Contact a government dept.	42	2.2%	2.8%
	Contact radio, TV or newspaper	44	2.3%	2.9%
	Raise issue in org. to which I belong	529	28.2%	34.7%
	Sign a petition	79	4.2%	5.2%
	Go on protest or demo.	83	4.4%	5.4%
	Form a group of like-minded people	24	1.3%	1.6%
	None of these	855	45.6%	56.1%
Total	1877	100.0%	123.2%	

a. Group

End of tutorial

Next tutorial: 3.3.3.4 Analysing multiple response 4 - Dichotomous mode [in progress]

Sets of questions with only two response categories (Yes, No) can be analysed as a block by treating them as multiple response questions. Indeed, any variable can be dichotomised and thus treated. The example asks whether the respondent has ever done any of a list actions involving a trade union (each item "Yes" or "No") and the exercise demonstrates how to define a dichotomous group variable and then tabulate it.

Back to [Block 3 menu](#)