Part IV MULTIVARIATE ANALYSIS
Supplemental Material

Making Powerful Predictions About Attitudes

In previous analyses, we've seen how complex attitudes about abortion are. Abortion raises the most difficult questions of justice and politics. As we return to our analysis of this controversial topic, you have additional tools for digging deeper. Let's begin with the religious factor. Then we'll turn to politics and other variables.

IV.1 Attitudes About Abortion

In previous exercises on this study site, we found that both religious affiliation and measures of religiosity were related to abortion attitudes. The clearest relationships were observed in terms of the unconditional right to abortion, as only a small minority are opposed to abortion in all circumstances.

Protestants and Catholics are generally less supportive of abortion than Jews and persons professing no religious affiliation ("nones"). And on measures of religiosity, opposition to abortion increases with increasing religiosity. The most religious are the most opposed to a woman's right to have an abortion. With your multivariate skills, you can examine this more deeply. Consider the possibility, for example, that one of these relationships is an artifact of the other. To explore this possibility, we must first examine the relationship between religious affiliation and church attendance.

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
recoded attendance to rel srv * recoded religion	1190	99.2%	10	.8%	1200	100.0%

recoded attendance to rel srv * recoded religion Crosstabulation

			recoded religion					
			Protestant	Catholic	Jewish	None	Other	Total
recoded attendance to rel srv	never	Count	48	24	3	107	19	201
		% within recoded religion	9.6%	6.5%	7.0%	59.1%	20.2%	16.9%
	about yearly	Count	188	143	29	58	32	450
		% within recoded religion	37.5%	38.6%	67.4%	32.0%	34.0%	37.8%
	about monthly	Count	86	69	7	11	18	191
		% within recoded religion	17.1%	18.6%	16.3%	6.1%	19.1%	16.1%
	about weekly	Count	180	134	4	5	25	348
		% within recoded religion	35.9%	36.2%	9.3%	2.8%	26.6%	29.2%
Total		Count	502	370	43	181	94	1190
		% within recoded religion	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

As you can see, there is a pretty clear relationship between these two variables. Protestants and Catholics are the most likely to attend worship services weekly or one to three times a month. Persons with no professed religion, of course, attend church seldom or never. If we combine the two categories that represent attending religious services most frequently, we see that 45% (16.1% + 29.2%) of the whole sample attend church at least once a month. There are big differences among the five religious groups, however.

Religious Affiliation	***Percentage of Respondents Who Attend Church at Least Once a Month.***
Protestants	53
Catholics	55
Jews	26
None	9
Other	46

Because religious affiliation and church attendance are related to each other and each is related to abortion attitudes, there are two possibilities for us to explore. For example, perhaps church attendance seems to affect abortion attitudes only because Protestants and Catholics (relatively opposed to abortion) attend more often. Or, conversely, perhaps Protestants and Catholics seem more opposed to abortion simply because they attend church more often.

We can test for these possibilities by running a multivariate table, taking account of all three variables. To simplify our analysis, let's recode RELIGCAT into two categories-"Christians" and "others" renaming it CHRISTN-and recode CHATT into two categories as well, renaming it CHATT2. Since we're going to be doing several recodes in this session, be aware of the version of SPSS you're using. If you are using the student version, we are likely approaching, or have already reached, the 50 variable maximum. This means you can change into the same variable (so you are not creating an additional variable). But that means you should save your data set after this exercise using "Save As" and give it a new name so that you'll still be able to get back to your original, unrecoded data. If you are using a non-student version of SPSS, as I am, you can simply create yet a third religion variable (CHRISTN) and a third religious service attendance variable (RSATTND) So let's use: Transform -
Recode - Into Different Variables.

Make the recodes listed here, and then go to Variable View to put labels on the recoded values.

Recode RELIGCAT into CHRISTN
I THRU 2 → 1
3 THRU 5 → 2
Label CHRISTN
1 "CHRISTIAN"
2 "OTHER"
Recode CHATT into RSATTND
1 THRU 2 → 1
3THRU4 → 2
Label RSATTND
1 "SELDOM"
2 "OFTEN"

Now run Crosstabs with RSATTND as the row variable and CHRISTN as the column variable.

As you can see, the relationship between religious affiliation and church attendance is still obvious after categories are collapsed on both.

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Religious Service Attendance * Christians and Others	1190	99.2%	10	.8%	1200	100.0%

Religious Service Attendance * Christians and Others Crosstabulation

			Christians and Others		
			Christians	Others	Total
Religious Service Attendance	Seldom	Count	403	248	651
		% within Christians and Others	46.2%	78.0%	54.7%
	Often	Count	469	70	539
		% within Christians and Others	53.8%	22.0%	45.3%
Total		Count	872	318	1190
		% within Christians and Others	100.0%	100.0%	100.0%

Now run the crosstabulations for your new CHRISTN variable with the ABORT index variable and your new RSATTND variable with the ABORT variable.

abortion index variable * Christians and Others Crosstabulation

			Christians and Others		
			Christians	Others	Total
abortion index variable	0 - pro-life	Count	61	11	72
		% within Christians and Others	24.3%	12.5%	21.2%
	1 - moderate	Count	85	16	101
		% within Christians and Others	33.9%	18.2%	29.8%
	2 - pro-choice	Count	105	61	166
		% within Christians and Others	41.8%	69.3%	49.0%
Total		Count	251	88	339
		% within Christians and Others	100.0%	100.0%	100.0%

abortion index variable * Religious Service Attendance Crosstabulation

			Religious Service Attendance		
			Seldom	Often	Total
abortion index variable	0 - pro-life	Count	16	56	72
		% within Religious Service Attendance	8.4%	37.8%	21.2%
	1 - moderate	Count	53	48	101
		% within Religious Service Attendance	27.7%	32.4%	29.8%
	2 - pro-choice	Count	122	44	166
		% within Religious Service Attendance	63.9%	29.7%	49.0%
Total		Count	191	148	339
		% within Religious Service Attendance	100.0%	100.0%	100.0%

Notice that the relationship between affiliation and abortion is now represented by an epsilon of 27.5 percentage points. The relationship between church attendance and abortion has an epsilon of 34 percentage points.

Now let's look at the three-variable relationship. To do this, put CHRISTN as your column variable, ABORT as your row variable, and RSATTND as your layer variable.

abortion index variable * Christians and Others * Religious Service Attendance Crosstabulation

Religious Service Attendance				Christians and Others		
				Christians	Others	Total
Seldom	abortion index variable	0 - pro-life	Count	13	3	16
			% within Christians and Others	10.8%	4.2%	8.4%
		1 - moderate	Count	40	13	53
			% within Christians and Others	33.3%	18.3%	27.7%
		2 - pro-choice	Count	67	55	122
			% within Christians and Others	55.8%	77.5%	63.9%
	Total		Count	120	71	191
			% within Christians and Others	100.0%	100.0%	100.0%
Often	abortion index variable	0 - pro-life	Count	48	8	56
			% within Christians and Others	36.6%	47.1%	37.8%
		1 - moderate	Count	45	3	48
			% within Christians and Others	34.4%	17.6%	32.4%
		2 - pro-choice	Count	38	6	44
			% within Christians and Others	29.0%	35.3%	29.7%
	Total		Count	131	17	148
			% within Christians and Others	100.0%	100.0%	100.0%

To examine the results of this analysis, let's summarize the findings as follows:

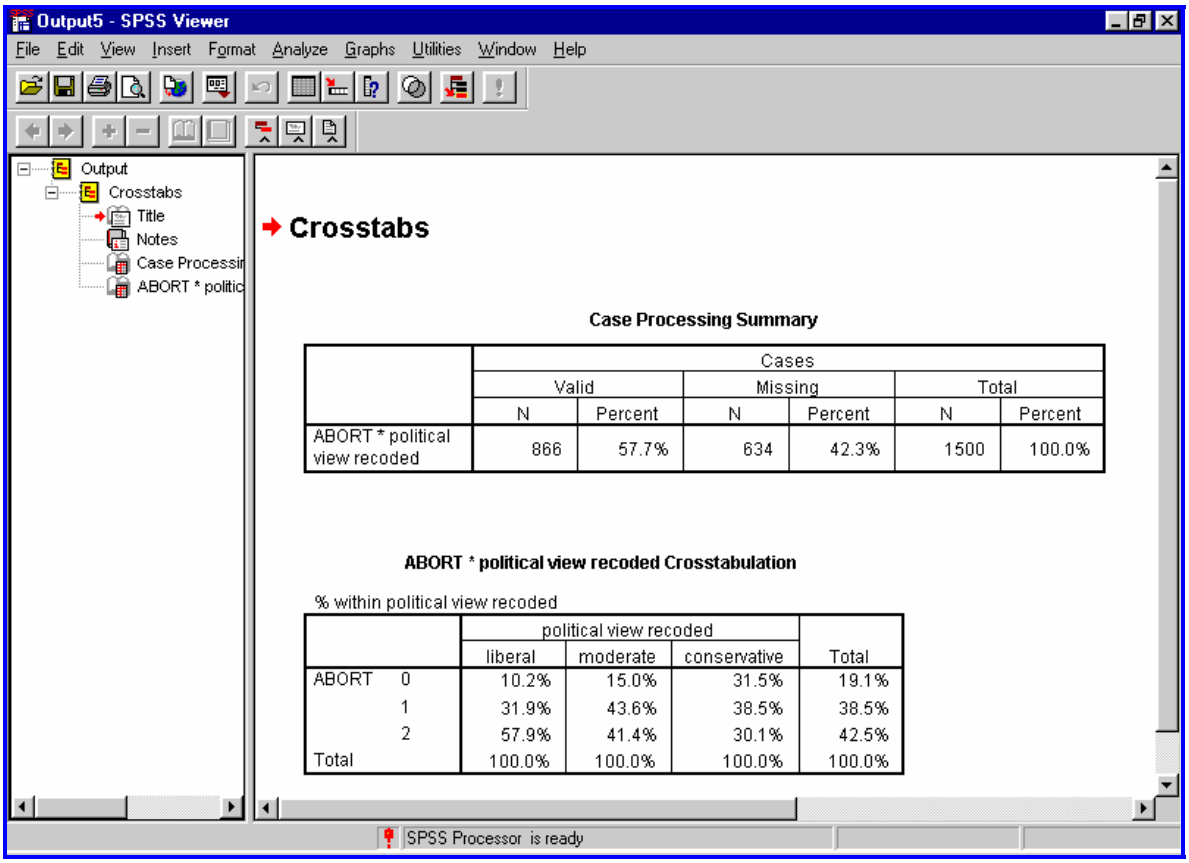
Percentage of respondents who support abortion unconditionally:	*Christians*	*Others*	*Epsilon*
Attend Often	29	35	6
Attend Seldom	56	78	22
Epsilon	27	43	

This multivariate analysis suggests a number of conclusions. First, neither of the possibilities we were exploring is fully confirmed. The opposition to abortion by Protestants and Catholics is not merely a function of their greater church attendance, nor is the effect of church attendance due merely to differences of affiliation. Each variable has an independent impact on attitudes regarding abortion.

At the same time, we can see that the impact of church attendance is actually greater among the non-Christians and that the impact of affiliation is much less among those who attend religious services more often. Putting the two religious variables together, we can see that the Christians who attend church often stand some distance from the other groups in their opposition to abortion. You might like to experiment some more with the religious factor, using some of the other variables included in the GSS data set. In the next section, we are going to examine the impact of political factors, as a point of comparison with the religious factor.

IV.2 Politics and Abortion

As we saw in the supplemental materials from Part III, political philosophies have a strong impact on attitudes toward abortion. You might want to refresh your memory by rerunning this table. (We know you know how.)



The impact of political philosophy on unconditional support for a woman's right to choose abortion equals 31 percentage points, compared with 27.5 for religious denomination. Using the recoded political party identification variable from earlier in the book, we can see that there is only a 16 percentage point difference between Democrats and Republicans on their unconditional support for abortion.

In a multivariate analysis, we might next want to explore the possible interaction of religion and politics on abortion attitudes. For example, in a previous exercise, we found that Protestants and Catholics were somewhat more conservative than Jews and those respondents with no religious affiliation. Perhaps political orientation accounts for the differences among religious groups with respect to the issue of abortion.

With your multivariate skills, testing this new possibility is a simple matter. Take a minute to figure out the SPSS command that would provide for such a test. Then enter it and review the results.

Here's a summary table of the results you should have found if you are working with the latest religion recode (CHRISTN). Be sure you can replicate this on your own.

Percentage of respondents who unconditionally support a right to abortion:	***Political Identification***		
Religion	*Liberal*	*Moderate*	*Conservative*
Christian	56	47	26
Other	76	63	67

This table demonstrates the independent impact of religion and politics on abortion attitudes, although the results also describe something of a specification. The religious effect observed earlier occurs among liberals and moderates, but is especially evident among conservatives. You can see this by calculating the epsilon for each political group: 20, 16, and 41. According to this table, political conservatives are generally opposed to the unconditional right to an abortion when their religious affiliation is Christian.

Overall, the joint impact of politics and religion is represented by an epsilon of 50 percentage points (76 percent of liberal non-Christians who report unconditional approval of abortion – 26 percent of Christian conservatives who report unconditional approval for abortion), a powerful degree of prediction for these controversial opinions. To support our continued analysis, let's create a simple index to combine the religious and political factors. For the time being, let's just call it our "prediction index," as we don't really know what it represents except a tool for predicting attitudes toward abortion. (Some researchers might hesitate to put together such an index without firm conceptual or theoretical reasons.)

Here's how we might put the index together. Begin with Transform → Compute. Next, let's create a new target variable called IND (for "index"). As before, we'll start by giving everyone a 0.

Run this instruction to establish the new index among your variables.

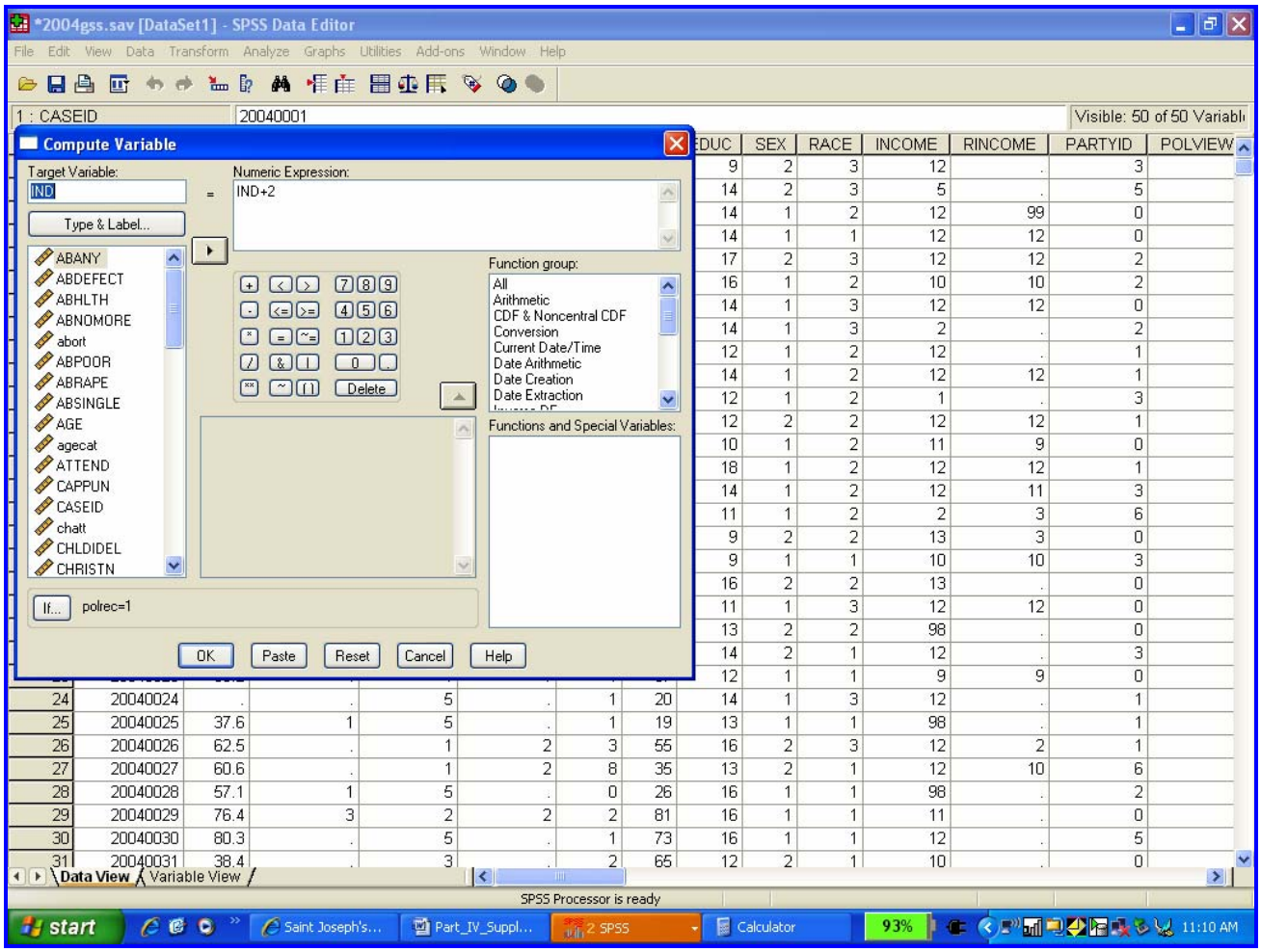
Now we are ready to begin assigning points on our index. Let's start by giving people 2 points if they have a 1 on POLREC ("Liberal"). Return to the "Compute Variable" window and make these changes:

- Change the "Numeric Expression" to IND + 2
- Set the "If" statement to POLREC = 1

Run this instruction. At this point, the liberals have two points and everyone else (including those with missing data) have zeros.

Now let's give the "Moderates" one point on the index. Return to the "Compute Variable" window and make two changes.

- Change the "Numeric Expression" to IND + 1
- Change the "If" statement to POLREC



Run this instruction. We have established an index as follows:

Liberals have 2 points. Moderates have 1 point.
Conservatives have 0 points.
Those who are none of the above, have 0 points.

You may want to look at IND in the data window or run Frequencies at any time in this process, to see how the index is shaping up.

Now we are ready to add to the index. Go back to the "Compute Variable" window and make the following specifications.

Leave "Numeric Expression" as IND + 1

Change the "If" statement to CHRISTN = 2

Run this instruction, and we've added one point for each non Christian.

Finally, return to the "Compute Variable" window and make these specifications:

Leave "Numeric Expression" as IND + I

Change the "If" statement to RSATTND = 1

Run this expression, and review the logic for what we have done.

We've now created an index that presumably captures religious and political view points. Scores on the index run from 0 (conservative and Christian and attends services often) to 4 (liberal and non-Christian and seldom attends services). There is one glitch in this index that we need to correct before moving on: missing data.

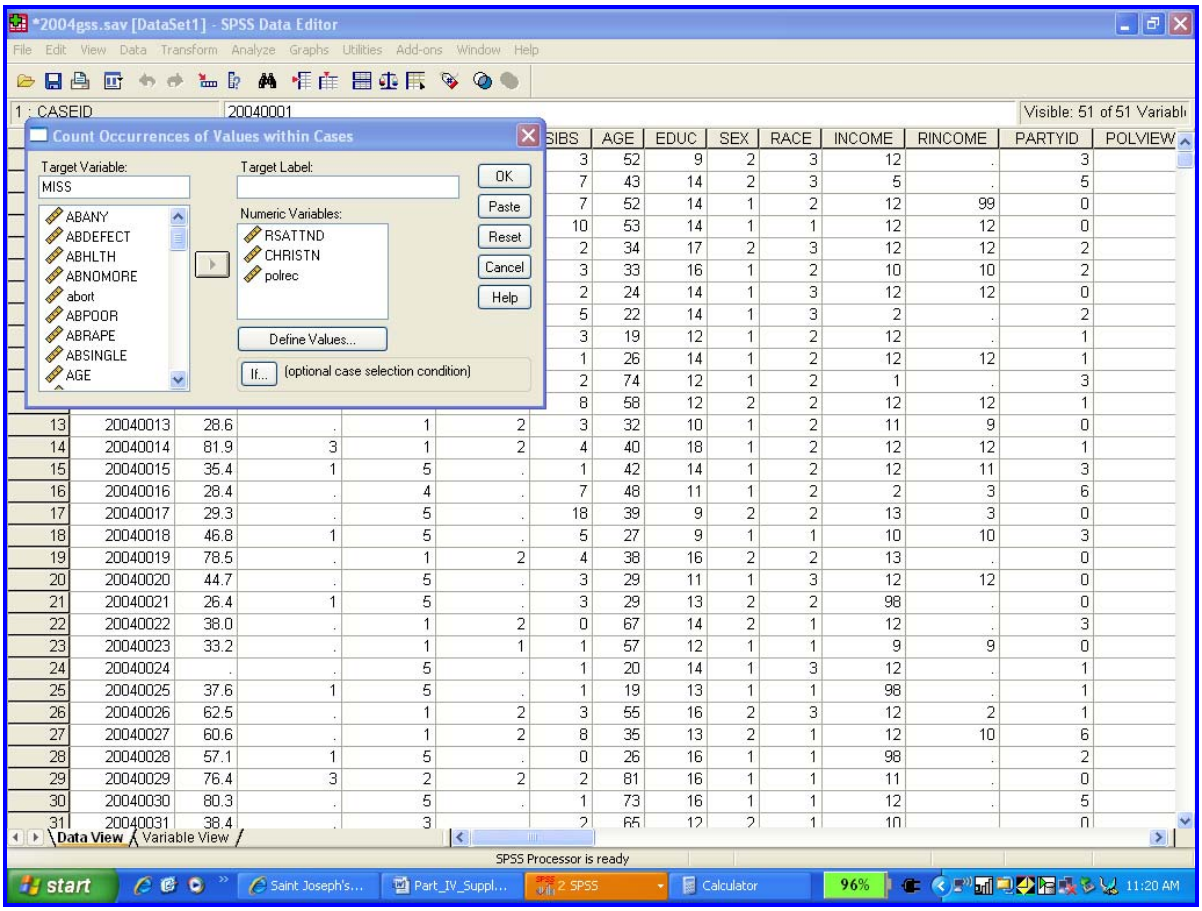
Let's use Count to handle this. Go to the "Count" window and do the following:

Enter MISS in the "Target Variable" field

Enter RSATTND, POLREC, and CHRISTN as "Numeric Variables"

Define values as "System- or user-missing" (and "Add")

Click on "Continue" to return to the "Count" screen and then click on "OK" to run the Count command.



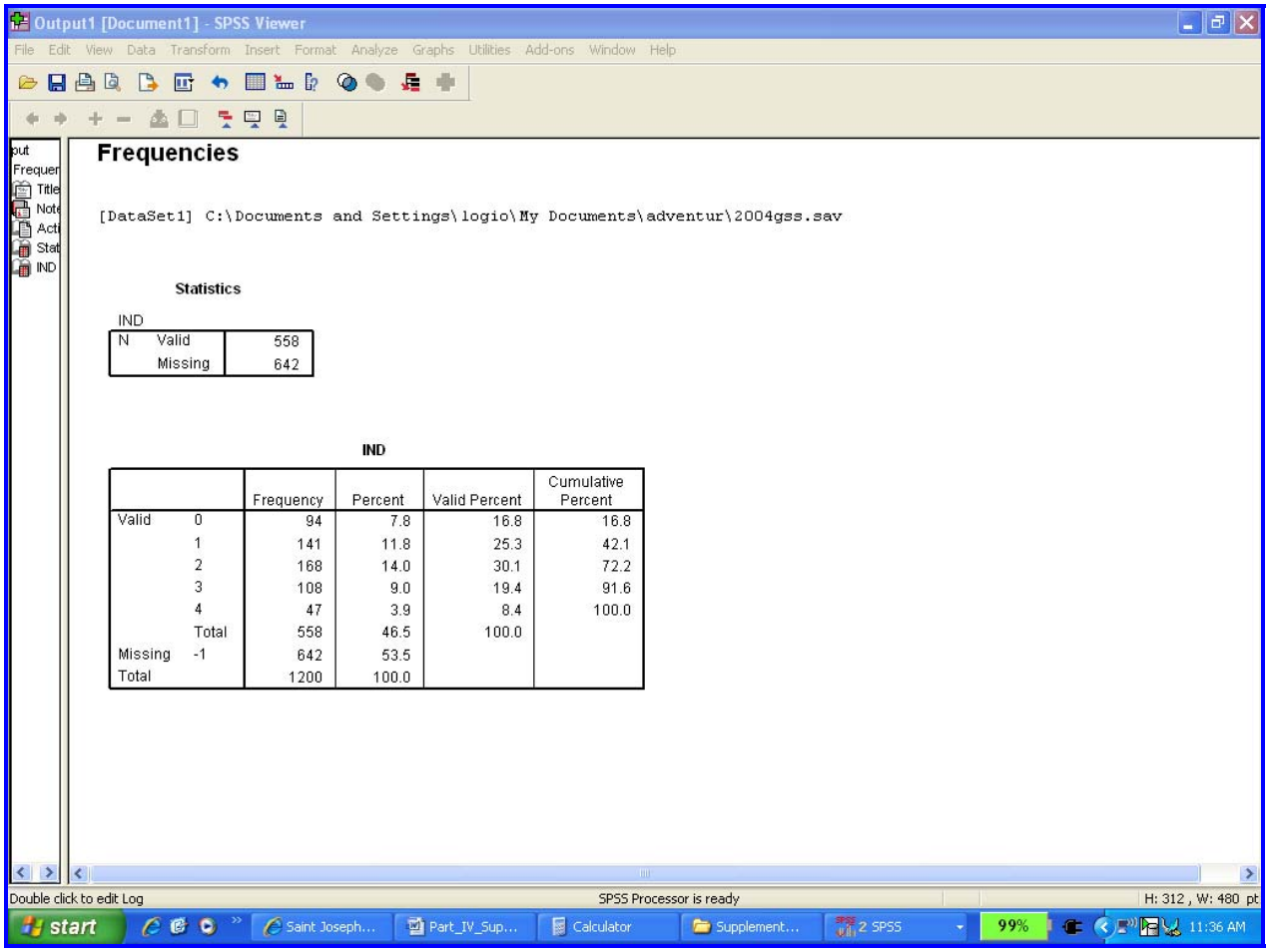
Now return to the "Compute Variable" window and make this modification to the index.

- Set "Numeric Expression" for IND to -1
- Set the "If" condition as MISS > 0

Run this instruction, and you will have converted respondents with missing data from 0 to -1 in the index. All that remains is to let SPSS know what we meant by the latest modification to the index.

Go to the Variable View to set the discrete missing variable as –1 for your new variable IND. While you're in Variable View, you might as well change the number of decimals to 0 as well.

Having created such an index, it is always a good practice to check the frequencies. Run Frequencies on IND, and you should get this:



So let's see how well our index predicts abortion attitudes. Run this table.

Crosstabs

[DataSet1] C:\Documents and Settings\logio\My Documents\adventur\2004gss.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
abortion index variable * IND	337	28.1%	863	71.9%	1200	100.0%

abortion index variable * IND Crosstabulation

			IND					
			0	1	2	3	4	Total
abortion index variable	0 - pro-life	Count	31	16	14	10	0	71
		% within IND	55.4%	20.3%	13.9%	13.9%	.0%	21.1%
	1 - moderate	Count	17	33	28	19	4	101
		% within IND	30.4%	41.8%	27.7%	26.4%	13.8%	30.0%
	2 - pro-choice	Count	8	30	59	43	25	165
		% within IND	14.3%	38.0%	58.4%	59.7%	86.2%	49.0%
Total		Count	56	79	101	72	29	337
		% within IND	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

As you can see, the index provides a very strong prediction of support for the unconditional right to an abortion: from 14% to 86%, for an epsilon of 72 percentage points. Let's see if we can improve on our ability to predict.

IV.3 Sexual Attitudes and Abortion

Earlier, we discovered that attitudes about various forms of sexual behavior were also related to abortion attitudes. As you'll recall, people were asked whether they felt premarital sex and homosexuality were "always wrong," "almost always wrong," "sometimes wrong," or "not wrong at all." In addition, respondents were asked whether they had attended an X-rated movie during the past year. Each of these items was related to abortion attitudes, with those most permissive in sexual matters also being more permissive about abortion.

As we want to pursue this phenomenon, why don't you recode PREMARSX and HOMOSEX into dichotomies (only two values) of "always or almost always wrong" versus "only sometimes or never wrong"? Notice that the code of “5” stands for other. We suggestion you make this “missing” or purposes of our analysis here. That will make it easier to conduct the following analysis. (Refer back the Chapter 4 in the text if you need help remembering how to do this.) As stated earlier, be aware of how many variables your version of SPSS can handle. We’re using the standard version that does not have the 50 variable maximum, so the Transform → Recode Into Different Variables procedure. Now let's see whether the sexual behavior attitudes are related to our political-religious index that predicts abortion attitudes so powerfully. Why don't you run each of those tables now? Here's a summary of what you should find.

Percentage of respondents with permissive attitudes:	***Political-Religious Index***				
Topic	*0*	*1*	*2*	*3*	*4*
Premarital sex	50	66	79	85	97
Homosexuality	17	36	52	56	87

Even though there is a great difference in the overall level of permissiveness on these issues, we can see that the political-religious index is clearly related to each. Why don't you see if the index predicts whether people have taken in an X-rated movie during the past year?

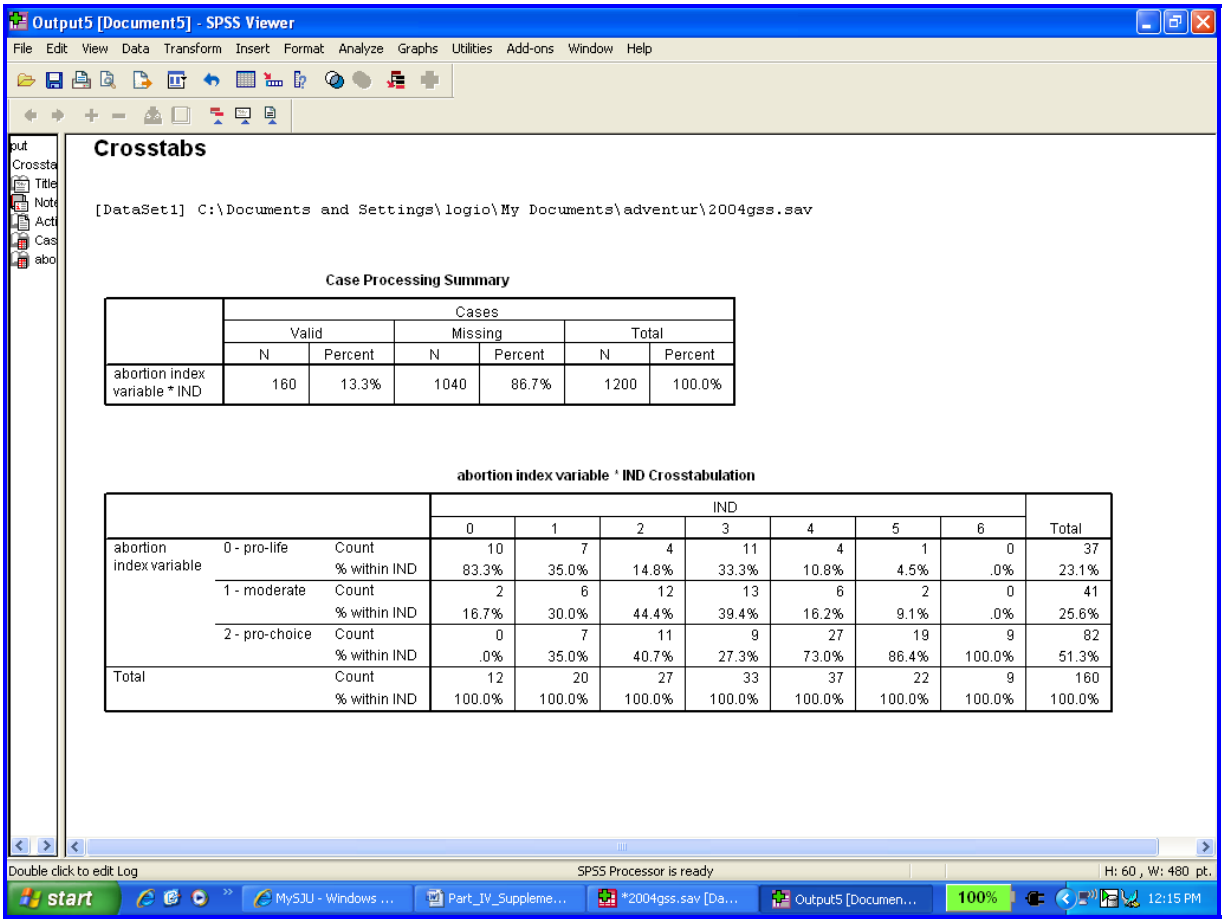
Now let's see if the previously observed relationship between attitudes about sexual behavior and attitudes about abortion is really just a product of religious and political factors. Here's a summary of one of the tables you might look at.

Percentage of respondents who Report unconditional support for abortion:	Political-Religious Index

Attitude	*0*	*1*	*2*	*3*	*4*
Homosexuality is wrong	11	38	46	41	75
Homosexuality *is* acceptable Homosexuality is not wrong	30	37	70	74	88

Obviously, our index-combining religious affiliation, church attendance, and political philosophy-does not explain away the relationship between attitudes on homosexuality and attitudes on abortion. Regardless of their scores on the index, those who find homosexuality somewhat acceptable are generally more supportive of abortion than those who disapprove of homosexuality.

Consider ways you could expand the political-religious index by adding in the measures of attitudes toward premarital sex and homosexuality. This can get complicated, but you could do it step-by-step using the Compute command. See if you can get the following table.



Clearly, we have gone a good distance in accounting for people's opinions on the issue of abortion. At the same time, we've moved quickly in order to give you a broad view. If attitudes toward abortion interest you, there are any number of directions you could follow up on in a more focused and deliberate analysis. You could also do much of this same analysis on other issues that may interest you, such as attitude toward capital punishment.

IV.4 Summary

You've had an opportunity now to see how social scientists might set out to understand people's attitudes toward abortion. We know this is a topic you hear a great deal about in the popular media, and it may be an issue that concerns you and about which you may have strong opinions. Our analyses should have given you some insight into the sources of opinions on this topic.

We hope that this supplement has also expanded your understanding of the possibilities for multivariate analysis. Whereas bivariate analysis allows for some simple explanations of human thoughts and behaviors, multivariate analysis permits more sophisticated investigations and discoveries.