# CHAPTER 2:
# THE PROBLEM OF MEASURING CULTURAL BIAS

Cultural theory is still in its early stages of development. My aim here is two-fold; to develop both the theory and the scales of measurement. These tasks must be performed simultaneously. The development of adequate scales of measurement is a task which involves years of trial and error. My contribution will be minimal since I must use pre-existing data and questions, but I hope that I shall be able to show how these questions relate to the theoretical constructs. Proper testing of the theory is dependent on the existence of both valid and reliable measures, and the operationalizations of these measures will be dependent on the current formulation of the theory. Cultural theory's claims about the relationship between the individual and the cultural biases are unclear, and can be best understood with the help of three different models or versions of the theory: The Coherent Individual, The Sequential Individual, and The Synthesized Individual. First an apparatus of measurement must be established - which I shall do in this chapter. Afterwards, as a part of the three the

approaches, I shall adapt these cultural bias measurements to the current assumptions of the nature of cultural bias.

### 2.0.1 Empirical Work

I believe that the best way to study the relationship between the individual and the cultures is to look upon the individual, i.e. use the individual as the unit of analysis. No matter how the relation between the individual and the cultures is formed, the effects should be clearly visible on the individual level as different configurations of values and attitudes. Alternatively one could study change of cultures in relation to changes in the social relations, but this would require more resources than I have available. There is very little empirical work done based on the cultural theory, which uses the individual as the unit of analysis, therefore I have very few previous operationalizations to use as models.

Cultural Theory does not yet have an established nor a well-tested apparatus for measurement. The theory itself focuses on the interplay between social structures and cultural biases, but gives very few clues for building scales of measurement for either the grid and group dimensions or the cultural biases. A promising attempt has been made by Gross and Rayner (1985) who created "a paradigm for the analysis of social organization" based on cultural theory. Mary Douglas comments on their project in the following manner:

> So this method of grid/group analysis is a tool for testing. It does not help the researcher to know what are the values and ideas that constitute the local culture, but it does help to be able to locate them in the appropriate part of the population. [...] The method of Gross and Rayner shows how the social locations of differing opinions can be mapped, and that is quite a start (Douglas in Gross and Rayner 1985:xxiii).

Gross and Rayner's approach is focusing on the close connection between cultural biases and the different forms of social organization in the local community. They are attempting to determine the location of different social groups in the grid-group space. Their method is based on interviews and observations concerning one issue creating conflict in the community. They take the standpoint that cultural theory should be used first and foremost on the organizatorial level. This viewpoint harmonizes with the theory and its intentions, but does not shed light on my interest - the relation between individuals and cultural biases. Further, their research project is only a hypothetical project on a hypothetical village.

Dake, Thompson, & Neff have performed research on household cultures, where the household is the unit of analysis, providing both social relations and cultural biases, and thus forming a way of life within the four walls of a home. They have used a combination of interviews and survey, thus obtaining several types of data on the same households. They regularly refer to hierarchists, individualists, egalitarians and fatalists, and show more awarenes of the individuals' role than is common in cultural theory (as I am also trying to do), even though individuals are not their unit of analysis. I think this is one of the most successful research projects based on cultural theory,

since it has managed to combine information of context and cultural bias in a common small scale organization, the family (Dake, Thompson, & Neff, forthcoming).

Another research project which has utilized a more individually-oriented approach to cultural theory was undertaken by Carl Dake, a psychologist. He developed a series of questions about values and attitudes that are connected with cultural theory's categories. This project was based on a combination of surveys and interviews with three hundred California Bay Area residents comparing cultural theory with personality scales, contemporary worldviews, and some political scales (Dake 1991). Gunnar Grendstad and Per Selle have selected and adapted ten questions for the Norwegian context. These questions were included in the Norwegian version of the 1993 ISSP survey on *Attitudes towards the Environment.* They have also published a body of work based on this survey, which I shall refer to later.

### 2.0.2 The Data: a Survey

I have chosen to use The 1993 ISSP survey on *Attitudes towards the Environment*[1] as data for my thesis, because in autumn 1994, when my project started it was the only Norwegian dataset available containing tailored questions measuring

[1] Norwegian Social Science Data Services (NSD) collected the data in the spring 1993 and have kindly provided me permission to use it. All presentations, interpretations, and conclusions based on the data are on my own, NSD has no responsibility for them. See Appendix page 206 for more details about the survey and an evaluation of its representativity.

Cultural Biases. For the sake of simplicity, from now on I will be referring to this survey only as the survey.

### 2.0.3 The Three Versions of Cultural Bias

I need to develop three different operationalizations of cultural theory, one for each version of the theory: Coherent, Sequential, and Synthetic Individual Approach. Each of the three versions of the theory do give the individual different characteristics, which leads to three different variables describing the cultural bias.

First, the Coherent Individual, has only one cultural bias, and the variable used to describe individuals cultural bias has with four different cultures as values. Examples of values for four respondents would be 'Hierarchical', 'Individualistic', 'Egalitarian' and 'Fatalistic'. The cultural bias variable is thus on nominal level of measurement.

Second, the Sequential Individual, changes her cultural bias membership, so the coding of the variable will be based on comparisons of the relative levels of the cultural biases for each individual and comparisons of the number of cultural biases the individual seems to support. This cultural bias variable, will also be on the nominal level, but with many more categories. Some examples of the values for this variable could be 'hierarchical', 'either hierarchical or individualistic', 'either hierarchical or egalitarian', 'either hierarchical, egalitarian or individualistic'.

Third, the Synthetic Individual, shows different levels of support and rejection for all four cultural biases, which are thus treated as four continuous variables having values simultaneously. Hierarchy, Individualism, Egalitarianism, and Fatalism are thus variables, and the values are referring to the strength of support or rejection of the cultural bias in question.

I will first identify set of questions measuring all four cultural biases as continuous variables, and then later use these same continuous variables to as a basis of operationalization of cultural bias in each of the apporaches. This gives me an opportunity to evaluate the content and construct validity[2] of the cultural bias indexes. For me it is very important to be able to consider the cultural bias measurments as scales with mathematical properties, and not just as simple indicators, in order to perform certain statistical tests. The main purpose of the evaluation of validity and reliability is to aquire a reasonable level of confidence in the characteristics and behavior of the cultural bias measurements.

### 2.0.4 The Dependent Variable: Party Preference

It is very difficult to create a reliable indicator for the cultural membership based on the cultural bias questions. There is no reliable way to determine the real strengths of the cultural biases. But this is not a problem; I am not trying to determine the "true"

[2] See dicussion of validity and reliability on page 38 for definitions of these concepts.

values of anything. This thesis is describing the data and comparing these descriptions with the theory.

The best available check for the theory is to compare the performance of Coherent, Sequential and Synthetic Individual Approaches against some variable of which we have strong reason to expect a certain pattern. One has to be careful though not to use a variable, that only restates one of the questions used in the cultural bias indexes. I will use **party preference** as variable with which I will test the different versions of cultural theory. Party preference reflects several dimensions and is therefore complex enough, it has well known categories (parties), and I have strong expectations for the parties placement in relation to the cultural biases. The complexity is necessary for separating the effects of different cultural bias combinations from each other. The cultural biases are in many ways like a four dimensional system, and to differentiate between them one needs something with corresponding complexity. The necessary complexity also has an inherent drawback; one can easily identify several plausible explanations for the respondents preference for a certain party.

I will now look upon some methodological issues before I go over to evaluate validity of the questions intended for the measurement of cultural biases and to form indicators measuring cultural bias out of these, whose reliability I shall also try to evaluate.

# 2.1 Methodological considerations:

I am planning to run three parallel analyses based on the three different approaches. First one assuming that cultures are single and that they exclude each others. In the second analysis I will assume that, there is a sequential relation between the cultures within an individual . And in the third test I will assume that there are synthetical combinations of cultures, where rejection of an other way of life is just as important than the acceptance of ones own.

In this thesis I will rely much on the analysis of biases. The survey does not give a possibility to make an analysis off several of aspects of cultural theory. The survey does not include information on respondents grid-group placement, nor information on what kind of groups they are members off.

## 2.1.1 Statistical Models and Description

There are at least three different positions regarding the use of models. First, one can claim that there are true models that describe the relations between the different variables perfectly, but they are just unknown for the researcher. Second, one can claim that there are always a several different models because models can be made on different levels of conceptualization and causal distance (Luskin 1991: p.1038). Third, one can claim as Barry, that there are no true models for most of the social science phenomena, only theories:

> Instead of worrying about whether our regression models do conform to some hypothetical "true" model — which we will never know — we ought to judge our regression models by weather they conform to our theories. (Barry 1993: p.342)

Barry's version has some practical consequences. Statistical testing does not tell us whether the model used is correct, merely if some mathematical requirements, that can be put on the relationship between a set of variables by a model, are likely to hold also for the population. And since there is no true model, one can usually specify several models that are statistically satisfactory. The researchers main task is not to choose the right model[3], but to draw the right conclusions from the data. The main focus should thus be the relationship between data and the theory. I base my self on Barry's view in this thesis.

A good theory does not give specific functional forms, it merely states that there is a relation between A and B. It is left for the researcher in each concrete situation to decide how mathematically describe A's influence on B in this case, and whether this does or does not fit with the theory. Achen has given a good depiction of the researchers role:

> [...] regression equations and their estimated coefficients remain purely descriptive. The theory that describes their pattern is what generalizes to other cases (Achen 1982 p.29).

> Basically, several different data sets were described in a variety of ways until every other reasonable interpretation become improbable. There was no attempt at -specifying the "true" functional form; it remained unknown and unwanted. [...] Instead, the goal was to

[3] Obviously, one must still find a relevant and "correctly" specified model, but there is a set of proper models of which some have a closer structural resemblance to the theory. I prefer, to choose a model that shows how the data could be created if the theory holds, i.e. use of structural models, when ever possible.

> construct a statistical description faithful to the data set and to draw causal inferences from the overall pattern, not just from the particular pattern. (Achen 1982, p.29)

It is worthwhile also to notice that the functional forms does not generalize, whereas the theory does. I will attempt to build statistical models faitfull to data in order to be able to evaluate how well the different approaches describe the data.

The Cultural theory has not been subject for many quantitatively oriented research projects, and therefore I have very few previous models to rely on. I will thus be using the same sample to developing models for Cultural theory and to test these, which of course does pose a problem for both testing and overdetermination (Fox 1993:318). But as long as I do not expect my models being the true models, the problem is not overwhelming. I will be **describing** the relation between three versions of cultural theory and one survey dataset, and not attempting to find a final solution. Even if I shall use regular statistical vocabulary and tests, all my statements should be interpreted with this in mind.

### 2.1.2 Mathematical and Theoretical Structures

Unfortunately in Social Sciences one often uses mathematical methods without giving enough care in considering its effects for the theory, or considering whether between the assumptions in the theory and the statistical procedures do fit to each other.

> We should take specific problems and look at them with the end in mind of understanding better how the structure of behavioral science thinking and the structure of various mathematical methods fit each other. (Lazarsfeld 1969:5)

The congruence between mathematical models and cultural theory is essential to ensure that the data could have been created though processes described in the theory. If there is not congruence, the results are practically worthless. One common mistake is to use additive model in statistical analysis, where the theory claims that the cultures exclude each other, as the cultures in the coherent and sequential individual.

In survey analysis there is often much weight put on the significance tests. The true advantages of the statistical approach become visible first when one abandons the testing of empty null-hypothesis and focuses instead on the substantial significance. Achen depict the move from statistical significance testing to evaluating the substantive significance in following manner:

> [...] there are no real benefits in clinging to routinized answers to irrelevant questions just to avoid giving less mechanical replies to queries that matter. Working with substantive significance forces the researcher to be precise about what his or hers research is for. (Achen 1982, p.45)

There are two main approaches to the evaluation of the substantive significance. The first one tries to compare the theories, or more precisely, the magnitudes of alternative explanatory variables effect, to give picture of the theories' strength[4]. This has often the weakness that the researcher is heavily relying on the present operationalization of

[4] This could be used as the variable oriented research's answer to the comparatively oriented research had it not been that the alternative theories, which are the equivalent of case oriented research's cases, are seldom compared in depth (See Ragin 1987), I think that I actually disagree with Ragin here, but the concepts used are from him). The statistical material usually limits the comparison to only one operationalization of the theory.

each theory, and often the quality of a theory is confused with the quality of the operationalization. In addition the different causal distances do often not warrant direct comparisons of otherwise comparable statistics. The second approach, focuses more on only one theory and tries to show that the data could be created from models made on the basis of the theory. I am trying to combine both these approaches by comparing the three different versions and operationalizations[5] of the theory by their ability to create the phenomena found in the data. This way I am also ensuring that each version of the theory is analyzed with mathematical models that do fit the assumptions behind the theory.

### 2.1.3 Classical Measurement Theory

In addition to the discussion of models one also has to take measurement into account. These cultural bias questions are, of course, not directly measuring the true support for a cultural bias, they are also effected by other opinions. And it is a common notion in Survey research that individuals do give non-consistent answers.[6] To build a

[5] Some might argue that there are not three different operationalizations because the differences between the operationalizations are so small. The three operationalizations are all based on different versions of the theory but on the same source of data. Thus I am able to compare the theory's internal structure better than by triangulation of the method, which would have given better answers about the method.

[6] Converse (1964) presented a study based on a survey showing that only very few people had a consistent ideology. This created a debate, where Sullivan, Pierson & Marcus 1978, Converse & Marcus (1979), among others, have given valuable contributions. A good overview of this debate is in Niemi & Weisberg (1993).

reliable scale based on a traditional approach, I would need here to assume that the questions measure only cultural bias.

Even though I shall devote more attention to assumptions, descriptions, and interpretations than is usual in survey analysis, I will base my work on the principles of classical measurement theory: There is a true score, that is measured. The difference between the true score and the measurement is the measurement error. These are necessary assumptions in order to have a concept of measurement error, which will later have much practical value.

The concept of a true score is problematic, as it is difficult to perciece a persons as having a *true* cultural bias. It should be understood as an accurate measurement of a still somewhat unclear concept. The question of whether or not there actually exists a *true* cultural bias, is not discussed in this paper. At the same time, I believe it is important that I distance myselfe from the position often found among psychologists - that the measurement itself is the true score, as in the case of intelligence tests; Intelligence *is* what is measured with intelligence tests. I will therefore discuss the content of my measurements in detail.

## 2.2 Validity and Reliability

I will in this discussion base myself on Bohrnsteadt (1983) and his way of using the concepts of content validity, empirical validity, construct validity and reliability.

**Content validity** is referring to the theoretical domain in question, i.e. to which degree are the questions addressing hierarchical cultural bias actually able to cover the different domains of the hierarchical cultural bias. This must be shown through a theoretical discussion of the questions posed for the respondents and how these different domains do relate to the domains of the theoretical concepts of cultural biases. **Empirical validity** refers to the pattern of other known concept's correlation with the measure used, i.e. if one knows that hierarchical cultural bias goes together with preference for formal procedures, to strengthen the empirical validity one should find more hierarchically biased people in professions like military or catholic church. **Construct validity** is referring to how the different theoretical constructs do correlate with each other, i.e. all questions indicating hierarchical bias, should have high positive correlations with each other, and low or negatively with questions measuring other cultural biases.

Even though I have chosen to take my concepts from Bohrnsteadt, his view on the importance of content validity seems to be misplaced. He writes:

> All though I enthusiastically endorse these procedures [of checking the content validity], I reject the concept of content validity on the grounds that there is no rigorous way to assess it by except by using the methods of construct validitation. (Bohrnsteadt 1983:100)

Bohrnsteadt seems to be here trapped into the belief of the supremacy of numerical representation. I agree with him that there are no statistical methods that can be used to prove how good is the relation between the theoretical concept and the measurement of it, i.e. the theoretical validity or content validity. Bohrnsteadt uses rules of

correspondence to describe the connection between what is measured and numerical presentation of this. One of Hempel's (1966) main points is that these rules of correspondence have the status of assumptions when a theory is empirically tested. An empirical test cannot test its own prerequisites[7]. Fortunately there are researchers who do not share Bohrnsteadt's view and accept that

> [...] there is no way to conclusively demonstrate that an indicator measures only what it was constructed to measure. [...] While it is possible to express reliability in terms of the percentage of random error in the indicator, there is no corresponding way to quantify validity in practice. (Sullivan et al. 1979: 14)

It is a difficult, but necessary task to show that the measures are valid.

I hope that the following discussion of the questions used will demonstrate how the questions in the Survey relate to the cultural biases. I shall continue in the following manner. First, I shall discuss each questions relation to the cultural biases. This is exploration of the content validity. Second, I will skip testing for of empirical validity, since I believe that my presentation of the sociodemographics and the analysis of party preferences for each version of cultural theory, will serve as a check of the empirical validity. I shall also try to compare the different questions in relation to the different factors, as a measure of construct validity.

> In many respects, the problem of validity is the most critical problem in empirical research. (It is similar to the problem of "naming" or "labeling" factors in factor analysis.) Do the indicators measure the abstract concept of our theory? We *never* know for certain. It must remain somewhat problematic. (Sullivan et al. 1979: 19)

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[7] Examples of this kind of rules of correspondence in survey research could be our belief in computers ability to store data over time without error, or the Gaus-Markov Theorem, both of these being necessities for, the practice of research to day.

### 2.2.1 The Content Validity of Cultural Bias Indicators

In the survey there are 10 questions about the cultural biases. I will here evaluate their content validity, i.e., to which degree the content of these questions correspond with the content of the theoretical concepts. Content validity can thus be understood more as a desirable goal than as measurement (Carmines & Zeller 1979). There are 3 questions each indicating Individualism and Egalitarianism and two questions each for Hierarchy and Fatalism. All these questions are by Grendstad and Selle. I shall evaluate the content validity of these questions and present the frequency distributions for each of these questions. I shall look upon the construct validity by using factor analyses of these questions to identify the emerging dimensions and to check the questions relation to each other. After this I will use Cronbach's toevaluate the reliability of the scales.[8]

[8] Cronbach's alpha is equal to the average of the possible split-half correlations, which is a good measure of reliability. Thus Cronbach's alpha is the lower bound for reliability (Rossi et al. 1983:86).

| Questions measuring Cultural Bias. Valid % | 0 | 0,25 | 0,5 | 0,75 | 1 | N |
|---|---|---|---|---|---|---|
| 'One of the problems with people today is that they challenge authority too often' CH1 | 23,5 | 20,1 | **30,3** | 19,0 | 7,0 | 1236 |
| 'The best way to provide for future generations is to preserve our customs and heritage' CH2 | 11,7 | 14,2 | **32,4** | 23,4 | 18,3 | 1344 |
| 'Everyone should have an equal chance to succeed and fail WITHOUT government interference' CI1 | 9,2 | 11,9 | **29,5** | 25,2 | 24,1 | 1319 |
| 'If people have the vision and ability to acquire property, they ought to be allowed to enjoy it' CI2 | 2,5 | 5,0 | 24,6 | **38,8** | 29,0 | 1331 |
| 'In a fair system, people with more ability should earn more' CI3 | 14,7 | 12,4 | 26,6 | **28,8** | 17,5 | 1288 |
| 'What this world needs is a fairness revolution to make the distribution of goods more equal' CE1 | 3,1 | 4,9 | 16,7 | 26,7 | **48,6** | 1359 |
| 'I support a tax shift so that the burden falls more heavily on corporations and persons with large incomes' CE2 | 8,8 | 7,5 | 14,4 | 30,6 | **38,7** | 1324 |
| 'Big corporations are responsible for most of the evil in the world' CE3 | 13,1 | 17,6 | **30,0** | 24,8 | 14,6 | 1065 |
| 'Cooperation with others rarely works' CF1 | **65,9** | 12,7 | 13,6 | 5,0 | 2,8 | 1371 |
| 'It seems that whomever you vote for things go on pretty much the same'. CF2 | 3,0 | 6,6 | 12,3 | 36,3 | **41,8** | 1360 |

I have coded these questions from 0 to 1 so that one confirming the cultural bias in question. 1 is *strongly support*, 0,75 is *support*, Respondents who chose the middle position, *neither for or against,* are coded as 0,5. 0,25 is *reject* and 0 is *strongly reject* the proposition set forth in the survey. Respondents who ansvered *Don't know* are excluded from all further analysis. Median values are emphasized.

Table 2.1 The Questions Measuring Cultural Bias, and Their Frequency Distributions.

How well these questions help to build a connection between a theoretical concept of cultural bias and the respondents actual position? Bohrnsteadt's use of

content validity focuses on the measurements ability to refer to the different domains of the theoretical concept. These questions are not asking about the respondents actual social relations, i.e. grid-group dimensions, but about the respondents attitudes towards organizing these relations. They are thus more or less directly measuring cultural bias, to the degree this is possible. It is difficult to separate and prioritize different domains within the cultural biases. There is a plethora to choose between; Thompson has presented a list with 42 different domains for attitudes for the four cultural biases (Thompson 1992:199). It seems reasonable in a survey to use questions about respondents attitudes to different ways of organizing the social relations, since it is even more difficult to get reliable information about respondents grid-group placement than about their values and attitudes. I shall now try to find out which domains within each cultural bias are covered. I use the appendix to Thompson's article (1992) as the basis for the descriptions of the different domains.

The two questions intended to measure **hierarchical bias** are 'One of the problems with people to day is that they challenge authority too often' and 'The best way to provide for future generations is to preserve our customs and heritage'. To which degree are these questions focusing on central domains of Hierarchy? I would expect the 'Obedience to authority' question to be a good question, since obedience to the people having positions over you is central for Hierarchy, and also rejected by supporters of the

other cultures. The question about 'preserving our customs and heritage' maps to the domain of the the importance of traditions, which also seems to fit well, since the other cultural bias with high grid - Fatalism -, can hardly be expected to put high value on customs and heritage, as the future looks so uncertain to them. Both these questions have a satisfactory distribution, with a median at 0.5, even if they differ on the form of the tails. The first one has a heavy tail on the rejecting side and the second question a heavy tail on the supporting side. The distribution is an issue because many statistical techniques, use either correlation or the covariance matrix as a step in the calculation. Both being dependent on the size of $(X_i - \bar{X})$ . In other words, a very skewed distribution where most of the respondents are at the mean, will get low values even if the 'true' relationship is considerable stronger, specially if the tail is thin. There is simply not enough variation to give high correlations nor covariances. If there are enough respondents in the tail, their increased distance from the mean (compared with a balanced distribution) will help to weigh for the lack of the other side of the tail.

There are three questions measuring **the Individualistic bias**. The first one is, 'Everyone should have an equal chance to succeed and fail WITHOUT government interference'. This question maps into two different domains: equality and government. The individualists'[9] preferred type of equality is equality of chance, and their preferred type of government is laissez-faire, or, the absence of government interference. As

[9] By individualists I mean people having a strong individualist cultural bias. I prefer to use this term for simplicity.

individualists are the only ones who prefer equality of chance, this questions should help us to differentiate the cultural biases.

The second question, 'If people have the vision and ability to acquire property, they ought to be allowed to enjoy it,' is closely connected to the first question; to be able to enjoy one's self-acquired wealth also maps to the domain of government interference, as well as to the strategies for using resources. Individualists prefer to adjust both needs and resources up. Egalitarians can manage only needs, and they prefer to manage them downward. So egalitarians would definitely disagree with the statement. Hierarchs can manage only resources, and they prefer to manage up like individualists, but collectively. Thus hierarchs would oppose this. The fatalists, would probably agree with the statement - it is just a question of luck.

The third question, 'In a fair system, people with more ability should earn more', is not only related to Individualism, even if individuals consider the close connection between ability and earning an important motivational factor, which ensures that the most able people have the most important positions. Hierarchists can also have a preference for meritocracy; ability should be the criteria used to place people into their right places. It is difficult to claim that this question should, on theoretical grounds, measure only - or even mainly - Individualism.

The two first questions produce fairly similar distributions, where as the third Individualism question has a much flatter distribution. All three questions have a satisfactory spread around the mean, which helps to create strong correlations.

There are three questions intended to measure **egalitarian cultural bias.** The first statement, 'What this world needs is a fairness revolution to make the distribution of goods more equal', is mapping to the domains of equality, fairness, and type of solution. Egalitarians view equality of result as the ultimate criterion for fairness, involving equal distribution of goods. The word 'revolution' is perhaps too strong, though - its high emotional load might distort the main goal of the statement. But the content of the statement is still securely in the core of Egalitarianism. Egalitarians also tend to blame 'the system' when something goes wrong (*CT*, p.59). The ultimate triumph for egalitarians would be an equal and fair human society, and if we combine this goal with their dislike of strong rules, it becomes understandable that the solution is a undefined system change - a revolution, not an institution. All the other cultures would reject this statement.

The second question, 'I support a tax shift so that the burden falls more heavily on corporations and persons with large incomes,' is also tapping to the equality of result, here adding government involvement to redistribute the wealth. It is unfortunate, though, that both these questions are about the equality of result, it would have given a higher content validity if several domains were mapped.

The third question, 'Big corporations are responsible for most of the evil in the world', maps to size, blame and system. It is though less clear than the two previous questions, and there are a high number of missing. There are approximately 300 less responses to this question, which alone makes it of lesser value for my purposes. Egalitarians prefer small scale economy, and the big corporations can easily been seen as a important part of 'the system', which is the preferred object of blame. This seems to support the third questions content validity. Further, one could claim that big corporations do not have flat structure, and that is why they are the source of so much evil. The question also expresses a negative sentiment about market forces which is common to egalitarians, yet I still have difficulty seeing that this question is a successful indicator of Egalitarianism. What is the unspecified 'most evil in the world'? Is it inequality, pollution, environmental degradation, poverty, economical growth or something else? Given what egalitarians believe is the 'most evil in the world' the source of it would differ.

Both the first and the second question recieve very high support (median on *support strongly*). This is unfortunate - assuming that most attitudinal measures follow a normal distribution - because it does not allow us to separate between the people who have moderate and the people who have extremely high positions on Egalitarianism. Both these positions are likely to be included in the *support strongly* category. With the third question the median is on the middle position, which might give us help to

separate the more extreme individualists from the others. But on the other hand it is not as clearly egalitarian as the first two.

There are two questions measuring **fatalistic cultural bias**. The first question, 'Cooperation with others rarely works', seems to be based on the idea that since there is not much one can do anyway, the chances for cooperation to success are not too good. Unfortunately also hierarchists and individualists might support this statement. The hierarchists would like to have a boss, who tells what to do, and the individualists do not cooperate, they prefer competition to cooperation (an ego-centered network). The second question, 'It seems that whomever you vote for things go on pretty much the same,' is mapping on the preferred form of government and one's sense of empowerment. This question seems to discriminate between the cultural biases since the three biases are active in their orientation. One of course must take notice that 78.1% of the respondents agree with the statement, so this question should be considered as easy, especially compared with the first question where only 7,8% of the respondents supported the statement. Using both these questions together makes them much better indicator of fatalism than they would be used alone.

On the whole these questions seem to represent the various cultural biases fairly well, with some exceptions. The third question on individualism is likely to be heavily

influenced by Hierarchy and there were so many respondents who left the third egalitarianism question unanswered that it is a problematic variable.[10]

In the next section I shall use factor analysis to explore these variables' relations to each others. I believe that I might need to revise the combinations of questions included in the analysis if they do not behave the way I expected. The process of trial and error is often necessary within a research project. Measures that do not work should not be used - even if they were in the original plan.

### 2.2.2 Cultural Bias Indicators and Construct Validity

Factor analysis as a technique is designed for the analysis of unmeasurable variables such as the cultural biases. There are two questions I am especially interested in. First, I will try to identify four first emerging factors. Optimally, I am looking for factors that load heavily positive on questions measuring one cultural bias and not at all or heavily negatively on questions measuring other cultural biases. Here I am taking the

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[10] Another problem with these questions is that they all questions and answers have the same direction on the interview scheme. It is customary to alternate the direction in the questions so that it is possible to sort out the people who give inconsistent answers. Now it is difficult to separate the "lazy" respondent from one which is sympathetic with most of the cultural biases.
This is a severe weakness since the question of the of the cultural biases is one of the theoretical aspects of the cultural theory which I wish to challenge. I could, of course, try to use other variables to find identify the "lazy" respondents and then exclude them from the analysis. There are also conserns about the differences between the respondents actual attitudes and their responses to the questions. The response level factor, which is showing the respondents general tendency to answer high or low on the question.

> On the vocational preference scale the unrotated principal components factor analysis has a first factor that seems to be identical with the response level factor, whereas the two following factors correspond to the dimensions found with MDS (Davison 1983: p.215)

consequence of the theory's claims of active opposition and competition between the cultural biases. Second, I shall try to evaluate the questions performance together based on their loading on the different factor models. If questions perform unclearly in relation to the emerging factors, and there are no significant theoretical arguments for their inclusion in the analysis, I shall drop them from the remaining analysis.

### 2.2.3 Identification of the Four Emerging Dimensions

I have theoretical reasons to expect four factors. In order to accept the four factor solution I need to be able to identify the four emerging factors. I will first look upon the utility of the factorization before I present the results from a factor analysis.

Using the factor-scores as measurements of the cultural biases would create a false sense of reliability and validity, since I cannot assume that ALL variance in my data is coming from the four cultural biases. There are numerous other influences, of which at least measurement error is a possibility.

One other reason for not trying to extract factor scores for the four cultural biases, is that factorization can be used only if one assumes the Synthesized Individual Approach to be correct; both Coherent and Sequential Individual Approaches assume that people with different cultural biases do have different patterns. It is not just a

question of degree as assumed in factor analysis. The use of factorscores assumes that the cultural biases are additive.

One other reason is that the measurements are still too uncertain, even if there are four identifiable factors emerging, they might be measuring the cultural biases in a very biased and misleading way. The connection between the questions and the factorscores is loose, and abstract. Factorization might very well be the best method to use, at some later point, when we have more confidence in the apparatus of measurement. Principal components extraction is useful because it shows the relationships between the variables, including all the variance. Thus it is better for planning of scales than ML, which is more reliable for identification of dimensions.

| | Fatalism Factor 1 | Individualism Factor 2 | Egalitarian. Factor 3 | Hierarchy Factor 4 |
|---|---|---|---|---|
| CF2 | **,72** | | | |
| CE3 | **,69** | | | |
| CF1 | **,59** | | | ,47 |
| CI2 | | **,75** | | |
| CI1 | | **,73** | | |
| CI3 | | **,51** | | ,47 |
| CE1 | | | **,87** | |
| CE2 | | | **,74** | |
| CH1 | | | | **,86** |
| CH2 | ,36 | | | **,42** |
| Eigenvalues | 2,2 | 1,9 | 1,0 | 0,9 |

Table 2.2 Principal Components, Equamax rotated Factor matrix.

All factors in Table 2.3 are based on a Principal Components extraction and a Equamax rotation (I have cleaned all loadings that were less than 0,3 in absolute value). Principal Components extraction gives uncorrelated factors, which suits my assumptions well, and the equamax rotation balances the identifiability of the factors and the variables against each other. Given that the cultural biases exclude each other - as with Coherent Individual and Sequential Individual - they should be uncorrelated, and if the Synthesized Individual model is used the cultural biases should also be uncorrelated because they are independent of each other.

I shall first try to identify the four emerging dimensions and then try to evaluate each variables performance on these dimensions in order to build the four cultural bias scales.

The pattern is clearly visible; The first factor is fatalism, the second is Individualism, the third is Egalitarianism and the fourth is Hierarchy.

The first factor has its highest loading from a **fatalism** question, but the second variable is loading on Egalitarianism question. The differences in strength between the two strongest loadings are also fairly small. *Is it possible that a question intended to measure Egalitarianism, in this case actually is measuring fatalism?* The third egalitarian question, 'Big corporations are responsible for most of the evil in the world', gives a sense of the powerlessness of the individual. Egalitarians are supposedly negative to the competitive market forces, where the big corporations are the prime

actors. The fatalists tend to blame fate (*CT*, p.59), and I find it difficult to believe that big corporations can be viewed as a surrogate for fate. This factor is difficult to identify with confidence. It is surprising that its eigenvalue is the highest one, since it is not usually considered as the most important one.

The second factor has clear and strong loadings on all the **Individualism** questions. And all other questions have loadings below 0,3 on this factor. This can be identified beyond doubt as the Individualism dimension.

The third factor does load clearly on the two first **Egalitarianism** questions, and can thus be identified as the Egalitarianism factor. There are no other loadings of importance, so I consider this factor also identified beyond doubt.

The fourth factor is more unclear, since it has loadings from **Hierarchy**, Fatalism and Individualism. Both Hierarchy questions have considerable loadings on this factor, so it seams reasonable to identify this as the Hierarchy factor. The intended Fatalism question, 'Cooperation with others rarely works' does load on this Hierarchy factor, as I expected in my discussion of the content validity. The fourth variable which shows a considerable load on this factor is the last Individualism question, 'In a fair system people with more ability should earn more.' It seems reasonable to assume that also people with hierarchical tendencies would score high on this question, given that they believe that the people high in the Hierarchy also are more skilled[11]. Even if there are

[11] Even though in (*CT*, p.184) the authors emphasize that Individualism puts more weight on individuals performance and Hierarchy on "a large measure of following prescribed procedures".

questions not intended to measure Hierarchy that have high loadings on this factor, I do not consider this to be a problem. The orthogonal rotation keeps these dimensions uncorrelated, and both the loadings and the analysis of content validity demonstrate that these questions measure also Hierarchy to a degree.

Now I have identified three of the four factors with confidence, and the first is likely to be the Fatalism factor by implication, although this is a highly unsatisfactory solution. Just because the theory claims that there are four clear cultural biases, an unclear factor does not become more clear by assigning it a new label. Instead I shall examine the individual questions performance and try to eliminate the questions that have an unclear performance and thus distort the performance of the whole model.

A question should preferably load high on only one factor, thus I shall try to eliminate questions that have specially low loadings or that load on several factors. The two first egalitarian questions load only on the egalitarian factor as expected[12]. The third egalitarian question load only on the first and unclear factor. This question is a good candidate for the measurement of the Fatalism factor, if it is possible to give a theoretical account for why it would be indicating Fatalism. If such a theoretical account can be found, the first factor would be a clear Fatalism factor.

[12] This is technically not correct, since a variable has loadings on all factors, but I shall use it for the sake of simplicity. What I actually mean is that this question has a loading one factor that is considerably higher than it's loadings on any of the other factors.

The first Fatalism question 'Cooperation with others rarely works', loads both on Fatalism and the Hierarchy factors. This fits with my expectations from the content validity discussion; the question is not measuring just Fatalism, since also hierarchists could answer positively to this question. The second Fatalism question, 'It seems that whomever you vote for things go on pretty much the same', loads highly only on the first factor.

The first Hierarchy question performs exemplary and loads only on the Hierarchy factor. The second question on Hierarchy, 'The best way to provide for future generations is to preserve our customs and heritage', has its strongest load (0,42) on the Hierarchy factor, but it has almost as strong load on the Fatalism factor (0,36). So the question seems empirically to have an element of Fatalism in it, which weakens the Hierarchy scale.

The two first Individualism questions load strongly on the Individualism factor. The third question on Individualism loads on both Individualism and Hierarchy, and the difference between the strength of the loads is small. 'In a fair system people with more ability should earn more' certainly indicates individualistic bias, and as I did predict in the discussion of content validity, also respondents with hierarchical cultural bias support this statement to a degree. This question should perhaps be dropped for reasons of clarity.

If we now look upon the new combinations of variables emerging:

Hierarchy is indicated by the variables CH1 and CH2 as before. Individualism is indicated by CI1 and CI2, where CI3 is considered to be excluded. Egalitarianism is indicated by CE1 and CE2. Fatalism is indicated by CF1, CF2 and CE3. Before deciding which variables to include and which to drop I will examine the reliability of different combinations of the variables.

### 2.2.4 Reliability of the Cultural Bias Indicators

A measure's reliability tells us how consistently the scale is performing. When all items in a scale receive simultaneously high values the reliability is high, i.e. close to 1, and if the different items' values are random the reliability is close to zero.

I will examine several different combinations of variables for each cultural bias, in order to find the combinations that have high validity and high reliability. As a measure I am using Cronbach's alpha, which is based on the items correlations with each other.[13] Cronbach's alpha is very sensitive to the number of variables included, so that it is possible to get a high alpha even with low item-item correlations if the number of items is high.

---

[13] Cronbach's alpha is based on the following formula:

$$\alpha = \frac{(k)\overline{cov}/\overline{var}}{1 + (k-1)\overline{cov}/\overline{var}}$$ Cronbach's alpha

where k is the number of items and $\overline{cov}$ is the mean of the covariances and $\overline{var}$ is the mean of variances between the items. Thus we can see that alpha increases quickly as the number of items grows (Norusis 1990: B191).

In the Table 2.4 we can see how the variables loading highly on the four different dimensions in the factor solution on page 51 perform. The factor solution separates the different elements of variation within each variable, whereas Cronbach's alpha includes all the variation from each respective variable in a summary measure. A reliable scale has Cronbach alpha of 0,7 or larger. We can immediately see that none of these scales even come close. While it might be preferable to use the factor scores as the basis for the four cultural bias scales the content validity is not sufficient, as I wrote earlier. It is better to have a less reliable but precise measure than a more reliable measure of something we do not know what it is.[14] I have chose to use a summary measure for my cultural bias scales, because this gives me more control over the content validity.

[14] I am here thinking of the first and strongest factor, which cannot be identified with 100% confidence as it loads on questions indicating several cultures.

**Scale reliabilities on different combinations of variables**, Cronbach's alpha. Scales are on the top and the Questions are on the left. The questions included in a scale are marked with a dot.

| | $H_1$ | $H_2$ | $H_3$ | $H_4$ | $I_1$ | $I_2$ | $F_1$ | $F_2$ | $F_3$ | $F_4$ | $E_1$ | $E_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CH1 | ● | ● | ● | ● | | | | | | | | |
| CH2 | ● | ● | ● | ● | | | | | | | | |
| CI1 | | | | | ● | ● | | | | | | |
| CI2 | | | | | ● | ● | | | | | | |
| CI3 | | | ● | ● | ● | | | | | | | |
| CE1 | | | | | | | | | | | ● | ● |
| CE2 | | | | | | | | | | | ● | ● |
| CE3 | | | | | | | ● | ● | | ● | ● | |
| CF1 | | ● | | ● | | | ● | | ● | ● | | |
| CF2 | | | | | | | ● | ● | ● | | | |
| Alpha | **0,40** | **0,50** | **0,48** | **0,54** | **0,52** | **0,42** | **0,48** | **0,39** | **0,24** | **0,43** | **0,55** | **0,54** |
| N | 1198 | 1142 | 1142 | 1142 | 1201 | 1201 | 1045 | 1051 | 1342 | | 1026 | 1026 |

Table 2.3 **Reliabilities of the different scales**

**Individualism** is the easiest scale to form. All three variables displayed a clear pattern in the factor analysis, and here the three variables together give a reliability of

0,52. Even if the third variable have lower loadings on the Individualism factor, the difference in alpha between $I_1$ and $I_2$ makes it clear that all three should be included - particularly, because the analysis of content validity also conforms with this.

**Egalitarianism** also seems to be fairly clear. In the factor analysis the third Egalitarianism variable had only a minor loading on the Egalitarianism factor. Here $E_2$, which includes this third variable, has only an incrementally higher alpha than $E_1$ even allowing for the fact that alpha is very sensitive to the increase in number of variables. Here I shall put construct validity in front of reliability and drop CE3 from the Egalitarianism scale, which is thus formed from CE1 and CE2.

**Hierarchy** is not quite as clear. In the factor analysis there were four variables that loaded on Hierarchy - two of them unexpectedly. We can see how the alpha varies from 0,40 to 0,54 for the different combinations of these variables that include both Hierarchy variables. It would be clearly beneficial for the reliability to include all these variables, but what kind of effect does it have for the validity? The construct validity of this scale would not change, if we use the factor solution to evaluate it, but if we use the correlation between the new measures the situation is quite different[15]. So the problem is in deciding, which combination of these scales to pick so that content validity, construct validity and reliability are all preserved.

[15] It is more approriate to use the correlations between the scales, as I will be using additive scales, not factorized ones to form the cultural bias scales.

Correlations:

| | $E_2$ | $I_1$ | $F_1$ | $F_2$ | $F_3$ | $F_4$ | alpha |
|---|---|---|---|---|---|---|---|
| $Hierarchy_1$ | 0,04 | 0,31 | 0,30 | 0,19 | 0,30 | 0,29 | 0,40 |
| $Hierarchy_2$ | 0,06 | 0,31 | 0,55 | 0,29 | 0,58 | 0,60 | 0,50 |
| $Hierarchy_3$ | -,03 | 0,56 | 0,30 | 0,18 | 0,31 | 0,28 | 0,48 |
| $Hierarchy_4$ | -,00 | 0,52 | 0,51 | 0,27 | 0,54 | 0,53 | 0,54 |
| alpha | 0,54 | 0,52 | 0,48 | 0,39 | 0,24 | 0,43 | |
| All correlations are significant on the 0,000 level with the exception of correlations with scale $E_2$, of which are none significant on the 0,05 level. | | | | | | | |

Table 2.4 **Correlations between different scales and the Hierarchy variables**

Preferable, the different scales should not correlate too highly with each other. One could expect, there to be no correlation between the scales if the cultural biases are independent of each other, as some versions of the theory propose. On the other hand, some correlation is expected if the cultural biases are not independent, or if there are questions that measure several cultural biases at the same time. So, it is impossible to say whether a high correlation is a problem with the measurement, scale construction or the expectations of the theory.

The high correlations between the scales emerge where there is a common variable in two scales. Technically, it is not a big problem to use the same question to indicate several cultural biases, especially if there is rejection of the question involved. It would lead to a lower degree of freedom in some situations, but the reliability of the scale would increase. I have tried these scales in a multivariate regression and found no

problems with multicollinearity.[16] There will, though, be problems with separating the effects of these variables if their correlation is as high as 0.5. Consequently, I will try to avoid this high of correlations between the scales.

Obviously, the $F_4$ has far too low reliability and should be dropped. The only Hierarchy scale that does have correlations only of 0,3 or below is $H_1$, but unfortunately it has a low reliability (0,40). Together with $H_1$ I could use $F_1$ scale, which has the best reliability of the fatalism scales. It uses one Egalitarianism question in addition to the fatalism questions. The CE3 can be seen as measuring fatalism. Several different factor analyses confirm that it loads strongest on the fatalism factor.[17] The combination of $H_1$ and $F_1$ seems to be the best combination of these scaling combinations, because it best takes into account content validity. It does not help to have high reliability if the validity is low, even if it is impossible to have high validity without having a reliable measure. I have chosen to sacrifice some of the Hierarchy-scale's reliability in order to have a measurement where I can still trace clearly back to some identifiable attitudes.[18]

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[16] None of the scales used can be formed as a linear combination of the others.

[17] I have performed analyses using Maximum Likelihood, Principal Components, and Generalized Least Squares extractions and varimax, equamax and oblimin rotations. The pattern for CE3 was very consistent, and it thus clearly has construct validity in relation to the fatalism scale. The question is some what ambiguous, but because it consistently, under different analyzes, loads with fatalism I believe it does indeed indicate fatalism. The only alternative is that the fatalism questions do not measure fatalism, but something else, which would lead to a false identification of the factor as fatalism-factor, but this does not seem likely (see the discussion about content validity).

[18] Just for clarity; The three other Hierarchy scales correlate highly with either Fatalism, Individualism or both. The only exception is the combination if $H_2$ and $F_2$ with a correlation of 0,29. This would lead to a better Hierarchy indicator and a worse Fatalism indicator. I believe that the Hierarchy questions are better than the Fatalism questions, therefore I have chosen to strengthen the Fatalism indicator instead of the Hierarchy indicator.

From now on, I shall not use the **subscript** in the scale names anymore, because I will consistently use the chosen scales to indicate the individual cultural biases.

To summarize, I have chosen to form the cultural bias scales in the manner shown in Table 2.5.

| | $H_{(1)}$ | $I_{(1)}$ | $F_{(1)}$ | $E_{(2)}$ |
|---|---|---|---|---|
| CH1: 'One of the problems with people today is that they challenge authority too often' | ● | | | |
| CH2: 'The best way to provide for future generations is to preserve our customs and heritage' | ● | | | |
| CI1: 'Everyone should have an equal chance to succeed and fail WITHOUT government interference' | | ● | | |
| CI2: 'If people have the vision and ability to acquire property, they ought to be allowed to enjoy it' | | ● | | |
| CI3: 'In a fair system, people with more ability should earn more' | | ● | | |
| CE1: 'What this world needs is a fairness revolution to make the distribution of goods more equal' | | | | ● |
| CE2: 'I support a tax shift so that the burden falls more heavily on corporations and persons with large incomes' | | | | ● |
| CE3: 'Big corporations are responsible for most of the evil in the world' | | | ● | |
| CF1: 'Cooperation with others rarely works' | | | ● | |
| CF2: 'It seems that whomever you vote for things go on pretty much the same'. | | | ● | |
| Alpha | **0,40** | **0,52** | **0,48** | **0,54** |
| N | 1198 | 1201 | 1045 | 1026 |

Table 2.5 Overview of **the Questions Included in each Cultural Bias Scale**

The reliability of these four scales is only modest; none of the scales has good reliability, and the Hierarchy has actually relatively poor reliability. A strict

interpretation of the reliability would be that I am not actually dealing with scales with mathematical properties, but with indexes without such properties. We must remember, though, that the calculation of reliability is very sensitive to the number of variables, and the reliability could be significantly improved, just by doubling the variables included in the survey. As a strategy to increase the reliability I would suggest that in the next survey one would use two questions to tap each domain.

Based on this examination of reliability and validity, I believe that all of these scales do display content validity. They have from moderate to good empirical validity with respect to their correlations with each other. They all exhibited good construct validity regarding the patter of the different question's loadings on the different factors. The reliability is high enough to justify the overall validity of these scales. I believe that the low reliability will lead to a unsystematic increased variance of the cultural bias scales, which would, for example, in regression lead to non-biasnes and decreased fit. Even if the scales are far from being perfect, they are justifiable. They indicate cultural bias in a way which is reasonably within the requirements usually put on measurement of evasive concepts - like s attitudes and values - in political science. What still remains to be done before the each of the analyses is the operationalization of these scales for each of the versions of cultural theory. Because the operationalization will be different for each of the versions, I have chosen to do them in the beginning of each chapter of analysis.

**FIGURES:**

TABLES:

**LIST OF CONTENT:**