COGNITIVE ABILITY AND ACQUIESCENCE

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ABSTRACT

Past studies have shown that poor education and being black increase survey respondent's tendency to acquiesce. But is it simply because of low education and being black, or of low socioeconomic status or poor cognitive ability? No research has answered this question. With the help of a refined modeling technique developed from Mirowsky and Ross' pioneer study, this paper detects and proves the existence of acquiescence in a national representative sample, and investigates cognitive ability's role in determining acquiescence. It is found that respondents with higher cognitive ability are less likely to acquiesce, and that when cognitive ability is controlled education and race do not have significant impact on acquiescence. It is also found that other variables such as family income, age, and religiosity are significantly related to acquiescence.

INTRODUCTION

Acquiescence, which refers to survey respondents' tendency to agree to attitude statements without considering the contents, has been one of the major objects among studies on response effects. The existence of acquiescence usually is attributed to the characteristics of respondents or the characteristics of survey questions (Schuman and Presser 1981). Researchers generally agree that factors such as personality, educational attainment, cognitive ability, age, and social status have direct effects on acquiescence (e.g. Campbell et al. 1960; Schuman and Presser 1981; McClendon 1991a, b). Other researchers suggested that characteristics of survey questions such as ambiguous and unfamiliar question contents are the real cause of acquiescence (e.g., Christie et al. 1958; Ray 1983; Toner 1987; McClendon 1991b).

A negative correlation between education and acquiescence has been found across different studies (e.g. Campbell et al. 1960; Jackman 1973). Despite the fact that many studies on acquiescence were based on samples drawn from college students and acquiescence was still found, it is almost a common notion that education reduces one's tendency to acquiesce. In his study on cognitive limitation and question ambiguity's effects on acquiescence, McClendon (1991a) pointed out that even in "the most valid evidence to date for the existence of acquiescence in general population

surveys" that was provided by Schuman and Presser (1981), the "findings on the relationship between education and acquiescence ... are somewhat inconsistent and unreliable (p.153-4)." He went a step further arguing that low education could be only a partial explanation of acquiescence. However, there have been no studies so far that explore the direct relationship between education and acquiescence while controlling other relevant variables such as cognitive ability and social status.

Race was also found to be a factor affecting acquiescence. Carr (1971) reported that black respondents were more likely to show deference toward white interviewers. He suggested that acquiescence was "a behavioral fact located in the class and racial structure of this society (p. 291)". His explanation is consistent to that of Lenski and Leggett (1960). Acquiescence is considered as the result of low-status respondents' compliance to higher-status interviewers. It is a surprise to find out that there is no study on the relationship between race and acquiescence that has the effects of social status or other variables under control.

It seems that both education and race have some sort of influence on acquiescence, but conflicting studies have indicated that they might be no more than a partial explanation of acquiescence. There could be other factors that affect the relationships between acquiescence and education and race. Social status and cognitive ability have been offered to explain why low education and being black are associated with acquiescence. But there is no conclusive study that examines their effects on acquiescence, race, and education. It is the main purpose of this paper to carefully study cognitive ability's role in determining acquiescence. Besides this, we will also study some other variables' impacts on acquiescence.

A refined modeling method developed from Mirowsky and Ross' (1991) pioneering works will be used to detect the existence of acquiescence in a set of balanced items. Once it is confirmed that acquiescence does exist, we will examine the relationships among education, race, cognitive ability, and other sociodemographic variables and acquiescence.

Data used in this study are from General Social Survey (GSS) 1988. Substantive factors will be extracted from nine items measuring attitudes toward female participation in the labor force. Other sociodemographic variables will be used to complete the models and provide construct validity test.

THEORIES

Acquiescence: Underlying Factors and Solutions

Acquiescence, sometimes called agreement bias or yes-saying bias, refers to survey respondents' tendency to agree to attitudinal questions even if they actually hold opposite attitudes. As one type of response effects, acquiescence is independent of the contents of survey questions, which unavoidably brings meaningless and irrelevant components of responses to measurement items (Marsh, 1996).

Factors affecting or causing acquiescence have received considerable attentions. There are generally two approaches: person centered theories, which focus on the characteristics of respondents, and question centered theories that emphasize the characteristics of questions (McClendon, 1991a; Schuman and Presser, 1981). In this study we will mainly focus on the characteristics of respondents such as education, race, cognitive ability, and religiosity.

Researchers who take person centered approaches to acquiescence usually direct their attentions to three types of personal characteristics: personality traits, individual's cognitive ability, and sociodemographic background.

Personality is considered as a major factor affecting acquiescence mostly by psychologists. Couch and Keniston suggested that acquiescence reflects 'a central personality syndrome' and thus it can be studied like any other personality traits. However this theory has been effectively challenged and receives much less attentions from psychology today (Schuman and Presser 1981).

A negative correlation between education and acquiescence is found across different studies (Campbell et al. 1960; Jackman 1973). However, even though some of the studies were based on samples with greater diversity in educational level, many of them used college student as respondents and still found the existence of acquiescence. It seems that low education could be only a partial explanation (McClendon, 1991a).

In addition to being used as an independent concept, education was also used as an indicator of cognitive sophistication in studying acquiescence (e.g. McClendon, 1991a).

Campbell et al. (1960) attributed acquiescence to limited cognitive ability or sophistication. Respondents with limited cognitive ability may have difficulty in retrieving and integrating necessary information for answering certain questions, which means they are less likely to be critical or to give considered responses (McClendon, 1991a).

Although their theory is based on cognitive psychology, Krosnick and Alwin (1987) approached response effects in a different way. They applied a satisficing principle to response effects and suggested that to provide a critical or carefully considered response, respondents have to make substantial cognitive effort and that the costs for those with limited cognitive ability are especially high. Some respondents tend to minimize the costs by simply providing satisfactory answers. So-called satisfactory answers usually fall into various forms such as choosing the first or last alternatives (Primacy and recency effects) or simply saying "don't know". Acquiescence is one of the satisficing strategies employed by respondents (Krosnick and Alwin 1987; Krosnick 1991). By simply agreeing to a question, respondents greatly reduce the costs of answering questions.

Another indicator of cognitive sophistication is vocabulary knowledge. In one of their studies on cognitive theory and response order effects, Krosnick and Alwin (1987) used vocabulary knowledge as well as education as indirect measurements of cognitive sophistication. Unfortunately, instead of using them as two separate independent variables, Krosnick and Alwin used education and vocabulary knowledge together to split their sample into two sub-samples: high cognitive sophistication respondents and low cognitive sophistication respondents. Their finding provides further evidence for cognitive sophistication's negative effect on response order effects, but they missed the chance to explore the direct relationships among education, cognitive ability and response effects.

A negative relationship is also found between social status and acquiescence. Lenski and Leggett (1960) and Carr (1971) considered acquiescence as the result of low-status respondents' compliance to higher-status interviewers. In Carr's study (1971), race was found as a factor affecting acquiescence. He argued that black respondents were more likely to show deference toward white interviewers who held higher socioeconomic status. Again, in studying race's role in determining acquiescence no one has examined the pure relationship between the two by controlling other relevant variables such as social status and cognitive ability.

It is not surprising to find out that the effects of limited cognitive ability, education, social status, and race are overlapped. When a low-status respondent shows acquiescence, we may conclude that it is due to his/her low social status. We may also explain that his education or limited cognitive ability is the real cause (McClendon, 1991b). Perhaps all the factors discussed above are no more than partial explanations. It is the task of this study to explore their direct effects on acquiescence. More specifically, we will carefully

study how education and race affect acquiescence, if they do, when we have cognitive ability under control.

Various attempts have been made to eliminate acquiescence (e.g. Toner 1987; Ray 1983; McClendon 1991 b). But none of them can reduce acquiescence significantly without causing other problems (Ray 1989; Mirowsky and Ross 1996).

Ray (1983) wrote, " if meaningless acquiescence could not be controlled for, then, it had to be measured"(p. 82). Perhaps the most powerful method of measuring acquiescence is structural equation modeling. Mirowsky and Ross (1991) started this creative application of modeling technique on measuring acquiescence. In their pioneer study which used a set of balanced items designed to measure sense of control, they defined acquiescence as a latent variable and restrained all items' loadings on it as unity (+1). This is because acquiescence increases agreeing responses to all statements. All the loadings on the substantive factor – bipolar sense of control – are either positive unity (+1) or negative unity (-1) depending on the contents of the statements.

Although Mirowsky and Ross (1991) created a new approach to study acquiescence, it is not difficult to find several questionable assumptions in their study (McClendon, 1991c). Mirowsky and Ross specified the loadings on acquiescence as unity (+1) and the loadings on sense of control as unity (+1) or negative unity (-1). By doing this, they actually assumed that all indicators are equally affected by acquiescence, and that all indicators are equally good indicators of sense of control. However, McClendon (1991c) found these assumptions incorrect. McClendon et al. (1995) proposed a refined procedure to correct these problems. In the new procedure, factor loadings and/or the covariance between factors will be freed one by one according to the maximum modification index.

In this study, items measuring attitudes toward female participation in the labor force will be used as the substantive factor. For this reason, the measurement of attitudes toward female labor force participation and their determinants is discussed.

Determinants of Attitudes toward Female Participation in the Labor Force

Since World War II, more women have participated in the labor force than ever before. This change has attracted the attention of academic researchers who study the employment of women (especially wives) and its effects on society and family. However, attitudes toward female participation in the labor force did not become a regular topic of study until the 1970s (Molm, 1978). Typically attitudes toward female participation in the labor force are measured through the rating of various statements. In Smith-Lovin and Tickamyer' study (1978), fifteen statements with Likert response scale were used. These statements covered contents such as " Career women tend to be masculine and domineering" and "Women who don't want at least one child are selfish" (P. 551).

Molm (1978) studied factors affecting attitudes toward female roles including roles in the labor force. He reported that educational attainment had a negative effect on attitudes favoring the restriction of women's roles. In other words, education 'liberalizes' attitudes toward working women. Smith-Lovin and Tickamyer (1978) also found a negative correlation (Beta = -. 317) between respondent's education and sex role attitudes. Considering that a high score in their scale indicated a traditional sex role orientation, a negative correlation means that respondents with more education tend to hold less traditional sex role attitudes. Generally speaking, "better-educated respondents are more likely to accept the combining of worker and mother roles" (Rindfuss, Brewster, and Kavee, 1996: p471).

Age is also considered as a substantial factor affecting attitudes. Since individuals in their early life course tend to be more liberal, younger respondents have more willingness in accepting working mother (Rindfuss et al. 1996). However, we should note that cohort, not age, may be the real cause of attitude change. The concept of cohort has been used to study social change (e.g. Ryder 1965). The center idea in cohort analysis is that different cohorts grow up in different historical backgrounds and share different "slices of history", thus successive cohorts tend to hold different values and attitudes (Ryder 1965).

Substantial gender and racial differences were reported in various researches on attitudes (e.g. Pagnini and Rindfuss 1993; Rindfuss et al. 1996). Compared with men, women are more likely to accept female participation in the labor force. Findings indicated that blacks hold more liberal attitude toward women's family roles. This finding is consistent with black women's traditionally higher rates of labor force participation (Rindfuss et al. 1996).

Religion's effects on attitudes are more complex. In past studies, three dimensions of religion, religious affiliation, religion involvement, and religiosity, were usually studied separately. For religious affiliation, it is generally believed that a religious person holds restrictive attitude toward gender roles; thus, people with religious affiliation should have more traditional views on female participation in the labor force than people without. Among those with religious affiliation, the strength of belief against liberal attitude varies. Rindfuss et al. (1996) argued that Catholics might be more traditional in attitudes toward working women than adherents of other denominations. Religious involvement usually refers to the intensity of church

attendance. Since frequent church attendance indicates strong affiliation with religion, a negative relationship between it and attitudes toward women's labor force participation is expected (Rindfuss, et al. 1996).

Molm (1978) suggested that religiosity or religious orthodoxy, "which pertains to a fundamentalist religious orientation (p. 526)," affects attitudes toward working women because religious orientation includes "beliefs restricting women's roles to traditional ones (p. 626)." This lends support to the argument that religiosity has negative impact on the attitudes toward female's labor force participation.

METHODS

Sample and Variables

The data used in this study is from the General Social Survey (GSS) 1988. Since 1972, GSS has been conducted almost annually by the National Opinion Research Center. Probability sampling methods have been used to select English speaking person aged 18 or older from U. S. households. Face-to-face personal interview has been the standard interviewing method. In 1988, 1481 valid interviews were conducted in which about two thirds of respondents were randomly selected to participate in vocabulary tests. Listwise deletion is used to obtain a 'clean' data set without missing values in any variables involved in the study. After listwise, there are 715 cases left for factor analysis and modeling (split ballot vocabulary test is the reason why more than half respondents are dropped). Besides some general questions that usually appeared in each year, a new module called Family/Sex Roles-1 was added that year. Nine questions in that module were designed to measure attitudes toward female participation in the labor force. These nine questions are:

MAWRKWRM: A working mother can establish just as warm and secure a relationship with her children as a mother who doesn't work.

KIDSUFFR: A pre-school child is likely to suffer if his or her mother works.

FAMSUFFR: All in all, family life suffers when the woman has a full-time job.

HAPIFWRK: A woman and her family will all be happier if she goes out to work.

HOMEKID: A job is all right, but what women really want is a home and children.

HOUSEWRK: Being a housewife is just as fulfilling as working for pay.

FEJOBIND: Having a job is the best way for a woman to be an independent person.

TWOINCS: Both the husband and the wife should contribute to the household income.

HUBBYWRK: A husband's job is to earn money; a wife's job is to look after the home and family.

Among these nine items, MAWRKWRM, HAPIFWRK, FEJOBIND, and TWOINCS are positive statements. Agreement to these four items indicates a favorable attitude toward female labor force participation. The other five items, KIDSUFFR, FAMSUFFR, HOMEKID, HOUSEWRK, and HUBBYWRK indicate negative attitudes. All nine items use five-point Likert response scales in which "1" stands for " Strongly Agree", "2" for " Agree", "3" for " Neither agree nor disagree", "4" for "Disagree", "5" for "Strongly Disagree", and "8" for "Can't choose". In this study, these variables are recoded in different ways for the needs of different statistical analysis.

Several variables will be used as sociodemographic variables. Respondent's age should have a positive effect on acquiescence and a negative effect on attitudes toward female participation (attitude thereafter). In GSS 88, respondent's actual age was reported.

Race will also be used in this study. According to past studies, Blacks are more likely to acquiesce than Whites but hold more favorable attitudes toward female's labor participation. However, no report on the effects of other races has been found. In GSS 88, "1" represents " White", "2" " Black", and "3" "Others". Since there is only 4.2% of "others" in the sample, "3" is deleted from the sample. Race then is dummy coded into a new variable named "Black" in which blacks are assigned "1" and whites "0". In the variable Sex, "1" is "Male" and "2" is "Female". This variable is also dummy coded into new variable "Female" with males as "0" and females as "1". Generally females hold liberal attitudes. In this case, Female should have positive effects on attitude factor. It seems there is no significant difference in acquiescence for male and female (Schuman and Presser 1981). Education was measured as the years of schooling completed. Response ranges from "00," which stands for " No formal schooling," to "20," which means 20 years or more of schooling.

Family income was also measured by an ordinal variable with values ranging from 1 to 12 with 12 representing the highest income category.

As we discussed, vocabulary knowledge has been used by some researchers (e.g. Krosnick and Alwin 1987) as an indicator of cognitive ability. It should have the same effects on attitudes and acquiescence as education. Vocabulary tests were conducted in GSS 88 on two thirds of randomly selected respondents. The results were summarized in Wordsum whose value ranges from "0" to "10" with each number representing the actual number of correctly answered words.

There is no appropriate indicator of religious affiliation and church attendance in GSS98. One of the religious oriented questions used in GSS 88 could be used as an indicator of respondent's religious orthodoxy. As we discussed, religious orthodoxy includes the belief to restrict women's roles to traditional ones. Thus it should affect favorable attitudes toward female participation in a negative way. In the question called Believe, respondents were asked to rate the importance of the statement "To believe in God without question or doubt". A five-point scale was used in which "1" stands for "Very important" and "5" for "Not very important". No labels were given for the intermediary numbers (2, 3, and 4). Believe is recoded in this study so that "5" represents "Very important" and "1" "Not very important". In this way, Believe is supposed to have negative effects on positive attitudes and positive effects on negative attitudes.

Statistical Modeling

Before constructing models, exploratory factor analysis will be used to screen valid indicators for substantive factors.

Amos 3.6 software will be used to construct and analyze latent variable models. Maximum Likelihood (ML) estimation method will be used because of its relatively better reliability over other methods available in Amos (Hu and Bentler 1995).

In constructing models, we will start with all regression slopes and covariance fixed except for those slopes between sociodemographic variables and latent variables and covariance between sociodemographic variables. Then the parameter that bears the largest significant modification index will be freed. After freeing a parameter, modification indices generated by Amos would be different, and the next parameter with the largest index will be freed. Parameters will be freed one by one in this way until there is no significant gain in chi-square by freeing another parameter. For example, if after we construct a certain model we found parameter A bears the largest modification index, say 87, then by freeing this parameter we can reduce the Chi-square by at least 87. After freeing parameter A, we estimate the model again and almost certainly will get a set of different modification indices. Now we have another parameter bearing the largest index which is not necessarily the one bearing the second largest index in the previous step. After freeing this one, we go on running fit estimation again to seek the next one. However, sooner or later we will find that the largest index we have is not significant. That means there will be no significant improvement in model fit even if we free one or more parameters. That is point where we stop freeing parameters.

Not all parameters with significant modification indices will be freed. Although the modification index is used as a guide to improve model fit, we also have to keep our theoretical construct in mind and do not make any change that is in conflict with it. Generally, unless supported by theoretical construct, the covariance between error terms for attitude indicators will not be freed even when one of them bears the largest modification index. This is because by freeing any one of them we actually accept the existence of a new latent variable (underlying those two error terms) that cannot be explained by our theory.

It is important to note that we do not necessarily accept a model after freeing all appropriate parameters as the final model even if it bears the smallest chi-square. This is because even though chi-square is a common index of fit (Hoyle, 1995), two of its characteristics make it practically unacceptable (Hu and Bentler, 1995): First, when the sample size is large enough, chi-square test tends to reject almost any model for even a slight discrepancy between the observed matrix and the estimated matrix; Second, instead of a continuum which indicates the degree of fit, chi-square only offers a yes-or-no solution. Comparison between two models that both pass chi-square test or both fail is impossible. Thus in this study, chi-square will be used primarily as a guide for fit improving. We will use other fit indices, which will be discussed in the following paragraphs, when making decisions on weather to accept or to reject a model.
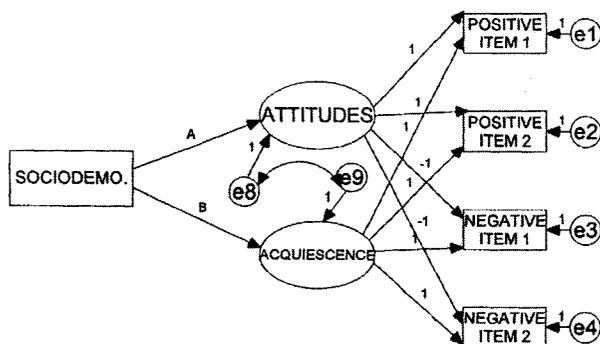
Another reason we do not necessarily accept the model with the smallest chi-square is that we can always improve the fit by freeing more parameters (up to n (n + 1)/2, n = number of observed variables). However, there is always a point where if we free one more parameter the parsimony of the model (which is indicated by RMSEA and many other indexes (Arbuckle 1997)) will be penalized. The drop in parsimony means that we achieve a better fit in an inefficient way. To maintain the balance between model fit and parsimony, after freeing all appropriate parameters we will look back and find the point with the best parsimony, and if several are tied, find the one with the best fit. For example, if after freeing the fifteenth parameter we find there is no significant gain in model fit by freeing any other parameters, we stop and look back at the previous steps. If we find the best parsimony in step 10 and 9, and if we find step 9 has a better model fit, then we decide to accept the model yielded from step 10 as the final model because it bears both the best fit and the best parsimony.

Model fit index used in this study is comparative fit index (CFI) proposed by Bentler. CFI is among the few fit indexes that generally perform better than other indexes. Usually a value equal to or higher than .9 is

considered to be a good fit (Hu and Bentler 1995). The parsimony index used is RMSEA which is an index designed to compensate the complexity of model. According to the rule of thumb, when RMSEA is lower than .05 the model is considered to have a good parsimonious fit (Arbuckle 1997). Browne and Cudeck (1993) suggested that a value of .08 or smaller indicates an acceptable fit.

All nine attitude items will be recoded so that "5" represents "Strongly Agree" and "1" represents "Strongly Disagree". After this change, acquiescence will have positive effects on both positive and negative items, and higher scores in positive items and lower scores in negative items stand for favoring attitudes toward female participation.

Model 1 provides a simplified example on how the model will be constructed. A single bipolar substantive factor and acquiescence are specified in the model. All items are positively loaded on acquiescence and positive items are positively loaded on the bipolar factor while negative items are negatively loaded. We should note that Model 1 is just a simple conceptual model. The measurement model will be much more complex as more attitude items and sociodemographic variables will be added.

Model 1: Conceptual Model

Hypothesis

Before studying acquiescence's relationships with other variables, we at first need to prove its existence. This is the sole purpose of the hypothesis proposed below.

According to relevant theories, we can expect that education, income, and cognitive ability are negatively related to acquiescence and positively related to attitude factor. Some other sociodemographic variables have different relations with substantive factor and acquiescence: age is negatively related to the attitude factor and positively related to acquiescence, and race (being black) is positively related to both acquiescence and attitudes. Since religiosity and gender do not have effects on acquiescence, the hypothesis does not cover them.

Hypothesis: In Model1, for education, cognitive ability, and family income, A>0 and B<0. For Age, A<0 and B>0. For Race, A>0 and B>0.

If this hypothesis holds true in this study, it will give Model 1, thus the existence of acquiescence, construct validity.

RESULTS
Factor Analysis

As discussed, before we start constructing models, exploratory factor analysis will be used to screen valid indicators for substantive attitude factor(s). In the subsequent factor analyses, Principle Component (PC) extraction method (extraction criterion: eigenvalue ≥ 1) and Varimax rotation method will be used.

1) Exploratory analysis

After the initial factor analysis on the nine attitude items, we got the following unrotated and rotated factor matrices (Table 1):

According to the unrotated solution, five items heavily load on factor 1: Mawrkwrm, Kidsuffr, Famsuffr, Homekid, and Hubbywrk. All five items except Mawrkwrm have a statement indicating negative attitudes toward female participation in the labor force. Three items, Hapifwrk, Fejobind, Twoincs, load on the second factor, and all of them have a statement indicating positive attitudes. Surprisingly Housewrk, which is a negative item, strongly loads on a third factor.

The rotated solution yields almost the same results except that Homekid loads virtually even on both factor 1 (.55998) and factor 3 (.58169) with slightly more loading on factor 3. Housewrk still strongly loads on

Table 1 Initial Solutions

VARIABLES	UNROTATED FACTOR MATRIX				ROTATED FACTOR MATRIX		
	FACTOR 1	FACTOR 2	FACTOR 3	COMMUNALITY	FACTOR 1	FACTOR 2	FACTOR 3
MAWRKWRM	-0.72958	0.09462	-0.34465	0.66003	-0.71763	0.36285	0.11563
KIDSUFFR	0.77064	0.24547	0.22660	0.70549	0.83739	-0.05550	0.03428
FAMSUFFR	0.80155	0.22505	0.14424	0.71393	0.83226	-0.08232	0.12037
HAPIFWRK	-0.44695	0.54982	-0.09862	0.51179	-0.23200	0.67673	0.00047
HOMEKID	0.62773	0.35047	-0.38598	0.66586	0.55998	0.11797	0.58169
HOUSEWRK	-0.36973	0.08335	0.82836	0.82983	-0.04341	0.17693	-0.89255
FEJOBIND	-0.19887	0.77844	0.13949	0.66498	0.14090	0.79188	-0.13441
TWOINCS	-0.42437	0.63173	-0.05394	0.58208	-0.16950	0.74330	-0.02913
HUBBYWRK	0.77944	0.22956	-0.04150	0.66195	0.75730	-0.06280	0.29068
EIGENVALUE	3.32633	1.60968	1.05991	N/A			

factor 3 which suggests that Housewrk may measure a different concept other than what factor 1 and 2 measured, or that it may represent the effects of some measurement errors. It is not the objective of this study to tell what causes Housewrk's loading on a third factor. For the purpose of screening valid measurements of attitudes, Housewrk is dropped from this study.

After dropping Housewrk, we conduct factor analysis again to study the loadings.

2) Refactoring

The factor analysis on the eight variables left generated the following results (Table 2):

Table 2 Refactoring Results

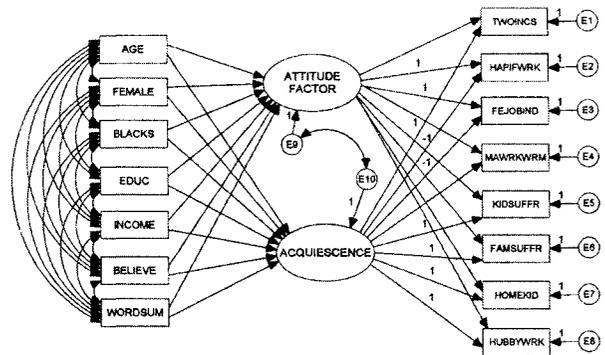| VARIABLES	UNROTATED FACTOR MATRIX			ROTATED FACTOR MATRIX	
	FACTOR 1	FACTOR 2	COMMUNALITY	FACTOR 1	FACTOR 2
MAWRKWRM	-0.75033	0.11584	0.57641	-0.64706	0.39715
KIDSUFFR	0.78475	0.22969	0.66859	0.8125	-0.09185
FAMSUFFR	0.81094	0.21207	0.70361	0.82983	-0.11824
HAPIFWRK	-0.44791	0.55828	0.5123	-0.19699	0.68811
HOMEKID	0.60889	0.35928	0.49984	0.70049	0.09569
FEJOBIND	-0.18202	0.77429	0.63266	0.13176	0.78441
TWOINCS	-0.41928	0.63696	0.58151	-0.14015	0.74958
HUBBYWRK	0.78157	0.22261	0.6604	0.80682	-0.09715
EIGENVALUE	3.22761	1.60671			

Unlike the initial factor analysis, only two factors are extracted in refactoring. Results from both unrotated and rotated solutions consistently indicate that five of the eight items load on factor 1: Mawrkwrm, Kidsuffr, Famsuffr, Homekid, and Hubbywrk. What is unexpected is that Mawrkwrm still loads on the first factor even though it is a positive statement. However the negative loading (-. 64706) Mawrkwrm has on the first rotated factor and the contents of four other items suggest that this factor measures negative attitudes toward female participation in the labor force. On the other side, Hapifwrk, Fejobind, and Twoincs load on factor two. From the contents of these three items we can say factor two measures positive attitudes.

Based on the results of exploratory factor analysis, we can identify the two attitudes factors and their indicators as following:

Factor 1 (Negative): Mawrkwrm, Kidsuffr,
            Famsuffr, Homekid, Hubbywrk.
Factor 2 (Positive): Hapifwrk, Fejobind, Twoincs.

Hypothesis: The Existence of Acquiescence.

The final model (Model 2) is achieved at step 8 after seven parameters are freed (changes in fit indices during model construction process are summarized in Table 3). Model 2 has a very high CFI value (.933) that, according to the rule of thumb, indicates a good fit. Its RMSEA (.064) is above .05 but lower than Browne and Cudeck's (1993) .08 standard.

Model 2: Measurement Model

According to the hypothesis, all sociodemographic variables used in this study except for Female and

Believe are believed to have effects on both the attitude factor and the acquiescence factor. Among these variables, Education, Wordsum, and Income should have positive relationships with the attitudes factor and negative relationships with the acquiescence factor.

Age is supposed to negatively influence attitudes toward female labor force participation and positively influence acquiescence. Black is believed to have positive effects on both attitudes and acquiescence.

Table 3 Changes in Model 2

Step	Chi-square	CFI	RMSEA	Changes (Loading, Modification Index)
1	542.378	.819	.100	None
2	384.386	.879	.082	Acquiescence - Mawrkwrm, 138.825
3	311.497	.906	.073	Attitude – Homekid, 64.969
4	274.654	.920	.068	Acquiescence - Fejobind, 27.479
5	255.963	.927	.065	Attitude - Mawrkwrm, 10.886
6	250.537	.928	.065	Attitude - Hubbywrk, 3.534
7	245.260	.930	.065	Acquiescence - Hapifwrk, 2.714
8	235.430	.933	.064	Attitudes - Twoincs, 3.382

As shown in Table 4, all regression weights are significant except for Income on attitudes (somewhat consistent to Smith-Lovin and Tickamyer's (1978) finding), Wordsum on attitudes, Black on acquiescence, and Education on acquiescence.

Table 4 Single Bipolar Substantive Factor with Acquiescence

Variables	Attitudes Estimate	Attitudes C.R.	Acquiescence Estimate	Acquiescence C.R.
Factor Loadings				
MAWRKWRM	1.389	14.922*	-.164	-1.527
KIDSUFFR	-1.000	n/a	1.000	n/a
FAMSUFFR	-1.000	n/a	1.000	n/a
HAPIFWRK	1.000	n/a	.544	5.824*
HOMEKID	-.387	-5.417	1.000	n/a
FEJOBIND	1.000	n/a	1.136	9.241*
TWOINCS	1.320	12.372*	1.000	n/a
HUBBYWRK	-.842	-13.012*	1.000	n/a
Regression Slopes				
Age	-0.01	-6.580*	.011	7.809*
Female	.287	6.052*	-.170	-3.914*
Black	.354	4.741*	.107	1.575
Education	.022	2.284*	-.011	-1.267
Income	.002	.255	-.021	-2.553*
Believe	-.086	-4.580*	.056	3.244*
Wordsum	.003	.236	-.061	-5.036*
R Square	.232		.317	
Mearsures of Fit	Chi-Square	DF	P	CFI
	235.43	60	0	0.933

* p < .05

No report on cognitive ability's influence on attitudes toward female participation has been found. Our finding here suggests that cognitive ability (Wordsum) may not have direct effects on the attitudes, even though we expected cognitive ability to show similar impact on acquiescence as education.

It is somewhat difficult to explain why education and race do not have significant effects on acquiescence as suggested by past studies. A negative correlation between education and acquiescence has been found across different studies (e.g. Campbell et al. 1960; Jackman 1973). But researchers such as McClendon (1991a) argued that education could just be a partial explanation of acquiescence, and even though it has been used as an indicator of cognitive sophistication, it is not a perfect one. Based on these discussions, we may argue that education itself has little to do with acquiescence. It may affect acquiescence through other factors such as cognitive ability. Since in this study we are using a more direct indicator of cognitive ability-vocabulary knowledge, education's effects on acquiescence is purified. In fact, if we drop Wordsum from the model, all the parameters remain in the same directions while the effect of Education on acquiescence becomes significant [#].

This experiment also explained why Black doesn't have significant effects on acquiescence. Although black respondents were found to be more likely to acquiesce (Carr 1971), the real causes could be lower socioeconomic status and poorer cognitive sophistication. When we have other socioeconomic variables controlled, Black only has its direct effect left and its direct effect on acquiescence is insignificant. Considering the highly significant covariance between Black and Wordsum (Cov. = -. 147, C.R. = -5.609), we can say that Black more strongly affects acquiescence indirectly through Wordsum than directly by itself. That's why after we dropped Wordsum, Black' effect on acquiescence became significant.

Although some parameters are not significant, their signs unanimously fall into our predications. Table 5 compares all relevant regression weights. As demonstrated in Table 5, all the regression weights are

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[#] For Education on Acquiescence, C.R.= -4.153; For Black on Acquiescence, C.R. = 2.235, after dropping Wordsum.

consistent to our predictions. This assures us that the factor we identified in Model 2 is acquiescence.

Table 5 Regression Slopes Comparison

	Attitudes		Acquiescence	
AGE	-.010	*	.011	*
Education	.022	*	-.011	
Income	.002		-.021	*
Wordsum	.003		-.061	*
Black	.354	*	.107	
Female	.287	*	-.170	*
Believe	-.086	*	.056	*

*p < .05

Female and Believe are not covered in the hypothesis because there is no report on their effects on acquiescence. But our findings indicate that Female has a significant negative effect on acquiescence which suggests that male are more likely to acquiesce than female. This could be attributed to the fact that females tend to have better cognitive ability (Cov.(Female, Wordsum) = .087, C.R. = 2.166). It also could be due to the fact that all attitudinal questions used in this study are highly gender sensitive, especially for women. When females were asked such questions they tended to be more critical and careful.

Believe was also found to have significant positive effects on acquiescence. Since Wordsum, Income and Education are all controlled, we have reason to believe that religiosity has a direct effect on acquiescence, and this could be attributed to religious people's tendency to conform to authorities and to think less critically.

CONCLUSIONS

There are several important findings in this study that urge us to reconsider acquiescence's relationships with sociodemographic variables.

Perhaps the most surprising finding in this study is that we found education does not affect acquiescence directly as reported by past studies. Education does affect acquiescence, but it does so indirectly through cognitive ability and possibly other variables. Since more time spent in formal education system (as implied by the measurement used in GSS) does not necessarily guarantee better cognitive ability, and the lack of formal education does not necessarily come with poor cognitive sophistication, it is not accurate to say people with less or poorer education are more likely to acquiesce, or better-educated people are less likely to acquiesce.

The same finding applies to race too. We found that race itself does not influence acquiescence directly but indirectly through cognitive ability. In fact, when we dropped Wordsum from Model 2, both Black and Education showed significant effects on acquiescence.

These two findings suggest that instead of education and race, cognitive ability is the factor that causes acquiescence. Even though this study does not provide any evidence to support satisficing theory, the findings are consistent to it. Respondents with limited cognitive complexity tend to acquiesce possibly for the purpose of minimizing the high cost associated with critical thinking. These findings also imply that in future study on acquiescence, researcher should focus on variables such as cognitive ability that are directly related to acquiescence. They also suggest that designing questions that do not require complex cognitive efforts from respondents may be an effective way to reduce acquiescence.

While stressing the importance of cognitive ability's impact on acquiescence, we have to admit that it is not the only cause of acquiescence. Four other variables, either supported by theories or not, are also found to have significant relationships with acquiescence. And their effects on acquiescence are independent of cognitive ability.

Even though there is no report on the relationship between religiosity and acquiescence, and gender and acquiescence, we find that religious people tend to acquiesce more, and female tend to acquiesce less. As discussed, gender's effect on acquiescence is suspicious because the highly gender sensitive measurements used in this study. But for religiosity, the evidence is substantial.

Age is also found to have significant effect on acquiescence. Its positive impact is consistent to past findings. Since cognitive ability is controlled in this study, we have to exclude the explanation that diminishing cognitive complexity is the real cause. Since income is also controlled, socioeconomic status is not a valid explanation. Is it possible that senior people's obsolete knowledge and vocabulary make the cost of critical thinking so high that they choose to reduce the efforts by acquiescing?

As discussed family income has significant negative impact on acquiescence. Since income has been used as one of the indicators of socioeconomic status, our finding suggests that socioeconomic status is another cause of acquiescence.

Based on the results presented in this study, future study on cognitive ability and other major factors' roles in determining acquiescence is recommended. Such study will enable us to design survey questions that are less likely to be affected by acquiescence.

References

Arbuckle, James L. 1997. *Amos Users' Guide Version 3.6*, Chicago: SmallWaters Corporation.

Browne, M. W. and R. Cudeck. 1993. "Alternative Ways of Assessing Model Fit." Pp. 136-163 in *Testing Structural Equation Models*, Edited by K. A. Bollen and Long. S., Newbury Park, CA: Sage.

Campbell, Angus, Philip E. Converse, Warren E. Miller, and Donald E. Stokes. 1960. *The American Voter*, New York: Wiley.

Carr, Leslie G. 1971. "The Srole Items and Acquiescence." *American Sociological Review*, V36 (April): 287-293.

Christie, Richard, Joan Havel, and Bernard Seidenberg. 1958. "Is the F Scale Irreversible?" *Journal of Abnormal and Social Psychology* 56:143-159.

Hoyle, Rick H. 1995. "The Structural Equation Modeling Approach: Basic Concepts and Fundamental Issues." Pp. 1-15 in *Structural Equation Modeling: Concepts, Issues, and Applications*, edited by Rick H. Hoyle, Newbury Park, CA: Sage.

Hu, Li-tze and Peter M. Bentler 1995. "Evaluation Model Fit." Pp. 76-99 in *Structural Equation Modeling: Concepts, Issues, and Applications*, edited by Rick H. Hoyle, Newbury Park, CA: Sage.

Jackman, Mary R. 1973. "Education and Prejudice or Education and Response-Set?" *American Sociological Review*, V38 (June): 327-339

Krosnick, Jon A. and Duane F. Alwin. 1987. "An Evaluation of a Cognitive Theory of Response Order Effects in Survey Measurement." *Public Opinion Quarterly, 51 (1987): 201-219*.

Krosnick, Jon A. 1991. "Response Strategies for Coping with the Cognitive Demands of Attitude Measures in Surveys" *Applied Cognitive Psychology*, V5: 213-236.

Lenski, Gerhard E. and John C. Leggett. 1960. "Caste, Class, and Deference in the Research Interview." *American Journal of Sociology 65:463-467*.

Smith-Lovin, Lynn and Ann R. Tickamyer. 1978. "Nonrecursive Models of Labor Force Participation, Fertility Behavior and Sex Role Attitudes." *American Sociological Review*, V43 (August): 541-557.

Marsh, Herbert W. 1996. "Positive and Negative Global Self-Esteem: A Substantively Meaningful Distinction or Artifactors?" *Journal of Personality and Social Psychology*, V70, No. 4: 810-819.

McClendon, McKee J. 1991a. "Acquiescence: Tests of the Cognitive Limitations and Question Ambiguity Hypotheses." *Journal of Official Statistics*, V7, No. 2: 153-166.

------. 1991b. "Acquiescence and Recency Response-Order Effects in Interview Surveys." *Sociological Methods & Research*, V20, No. 1 (August): 60-103.

------. 1991c. "On the Measurement and Control of Acquiescence in Latent Variable Models." A paper presented at the annual meetings of the American Sociological Association, Pittsburgh.

McClendon, McKee J., Jaak Billiet, and Hans Waege. 1995. "Measurement and Control of Acquiescence in Surveys: Combining Split Ballots and Structural Models." *Proceedings of the International Conference on Survey Measurement and Process Quality*, American Statistical Association.

Mirowsky, John and Catherine E. Ross. 1991. "Eliminating Defense and Agreement Bias from Measures of the Sense of Control: A 2X 2 Index." *Social Psychology Quarterly*, V54, No. 2: 127-145.

------. 1996. "Fundamental Analysis in Research on Well-Being: Distress and the Sense of Control." *The Gerontologist*, V36, No. 5: 584-594.

Molm, Linda D. 1978. "Sex Role Attitudes and the Employment of Married Women: the Direction of Causality." *The Sociological Quarterly* 19 (Autumn): 522-533.

Pagnini, Deanna L. and Ronald R. Rindfuss. 1993. " The divorce of marriage and childbearing: Changing attitudes and behavior in the United States." *Population and Development Review*. 19, No. 2:331-347.

Ray, John J. 1983. "Reviving the Problem of Acquiescent Response Bias." *The Journal of Social Psychology*, 121: 81-96.

------. 1989. "Acquiescence and Problems with Forced-Choice Scales." *The Journal of Social Psychology*, 130 (3): 397-399.

Rindfuss, Ronald R., Karin L. Brewster, and Andrew L. Kavee. 1996. "Women, Work, and Children: Behavioral and Attitudinal Change in the Unite States." *Population and Development Review* 22(3): 457-482.

Ryder, Norman B. 1965. "The Cohort as a Concept in the Study of Social Change." *American Sociological Review*, V30: 843-861.

Schuman, Howard and Stanley Presser. 1981. *Questions and Answers in Attitude Surveys: Experiments on Question Form, Wording, and Context*. New York: Academic Press,.

Toner, B. 1987. "The impact of agreement bias on the ranking of questionnaire response. *Journal of Social Psychology*, 127: 221-222.