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What do the World Values Surveys Tell Us?

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Jenhei Chen

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POLITICAL

**POLITICAL CULTURE AND THE RELIABILITY OF SURVEY DATA: WHAT
DO THE WORLD VALUES SURVEYS TELL US?**

By

Jenhei Chen

AN ABSTRACT OF A DISSERTATION

**Submitted to
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Professor Brian. D. Silver

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ABSTRACT

POLITICAL CULTURE AND THE RELIABILITY OF SURVEY DATA: WHAT DO THE WORLD VALUES SURVEYS TELL US?

By

Jenhei Chen

Cultural studies seem to revive in the past fifteen years. However, cultural studies still have to deal with the problems of precise measurement and clear causal direction. The World Values Surveys have surveyed over 40 states in three different time periods (1981, 1990 and 1995-97) and these surveys are designed to observe cross-national value changes. Ronald Inglehart employs the World Values Surveys to support the Postmaterialism theory and confirm the effect of Achievement Motivation on subsequent economic growth. According to his studies, the materialist-postmaterialist value dimension is valid and the Achievement Motivation factor does pose positive effects on economic growth. This article assesses the validity of both Postmaterialism theory and Achievement Motivation studies from a theoretic perspective and a methodological perspective.

In the section of Postmaterialism theory, we argue the respondents do not necessarily acknowledge their value preferences when answering the questions of the World Values Surveys. We expect to find that respondents answer the questions inconsistent with their value preferences or inconsistent with their memories. However, two consistency tests in this research do not verify our argument. On the other hand, we employ two questions of the World Values Survey 1995 to make a proxy measurement of the Postmaterialism. These two questions represent two compressed materialist-postmaterialist batteries. We differentiate WVS 95 respondents again according to their selections from these two

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questions. The proxy measurement not only shows a total different value distribution in comparison with that of Inglehart but also echo the randomness critique of Davis and Davenport.

As to the Achievement Motivation studies, Granato, Inglehart and Leblang misinterpret the literature of Achievement Motivation and construct a flawed index. The flaw comes from their selections of the four index components. They fail to legitimize their selections and they also ignored two possible index component candidates since these factors were mentioned in the classic Achievement Motivation studies. Furthermore, their causal direction cannot hold true since their cultural factor is measured after the estimated time period of economic growth.

Three strategies were utilized to decipher the perplexity of the Achievement Motivation argument. First, we follow the classic Achievement Motivation studies to develop an alternative index. Second, we unpack the original index and employ four index components as the independent variables. Third, we define the causal direction based on when the cultural factors are measured. The results show the Achievement Motivation is not as influential as Inglehart assumed. Furthermore, we examine how WVS respondents select from the Achievement Motivation and find the postmaterialists are more likely to select “Thrift” and “Determination” than the materialists are. This implies Inglehart’s analysis may suffer a case selection bias. Furthermore, Achievement Motivation is actually a challenge to the Postmaterialism theory since postmaterialist values actually motivate instead inhibit entrepreneurship.

The effect of “Social Capital” factor is also examined by measuring the level of interpersonal trust from the World Values Surveys. In addition, a Confucian Values Index is also developed to test the effect of Confucianism on economic growth.

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INTRODUCTION

As one of the most controversial concepts in political science, political culture studies have seemed to gain ground recently. Ronald Inglehart (1971,1977,1995 and Abramson, 1997) began to analyze and predict the mass value change of West European states since 1970. **Postmaterialism** theory indicates the possible trajectories of social change of any society that experiences lasting economic and physical security. The result of the social change is a shift from Materialist to Postmaterialist values. Inglehart claims his theory is confirmed by cross-national surveys and argues further that the cultural differences of nations lead to different political and economic performance.

Following this hypothesis and David McClelland's earlier work (1953,1961), an **Achievement Motivation** index is constructed from the World Values Survey (WVS) to correlate with the economic growth of various nations (Granato, Inglehart and Leblang 1996). According to their original hypothesis, achievement motivation correlates positively and postmaterialism correlates negatively with economic growth. In other words, cultural factors do impact nations' economic performance. However, they are off-track immediately since they fail to interpret the achievement motivation argument correctly. The consequence is an ill-constructed Achievement Motivation index. This index is flawed since Granato, Inglehart and Leblang cannot justify their selections of the index components and they omit other possible values as index components.

In the past decades, cultural variables were usually neglected since these variables are difficult to be operationalized. It seems Postmaterialism theory confirms that political culture can impose significant constraints on human behavior and people do act according to their value priorities. However, Inglehart's analysis still cannot avoid the

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pitfalls of measurement problems and ambiguous causal direction shared by other political culturalists. Both the Postmaterialism and the Achievement Motivation arguments are convincing on the surface. However, theoretical and methodological problems weaken both theories.

Most scholars criticize the measurement of the Postmaterialism and question the validity of the value dimension. They either argue the respondents answer the questionnaires randomly (Davis, Davenport 1999; Davis, Dowley, Silver 1999) or the respondents are influenced by the format of the questionnaires and their macroeconomic conditions during the survey (Clarke & Duch 1991; Gibson & Duch 1994; Clarke, Dutt & Rapkin 1997; Clarke, Kornberg, McIntyre, Bauer-Kaase and Kaase 1999). Some other scholars just do not agree that preadult economic security is related to one's value priorities and take Postmaterialism as some transient social and political attitudes (Trump 1991, Duch & Taylor 1993).

On the other hand, some scholars also find evidence to support Postmaterialism theory. They either argue the effect of Postmaterialist values on political participation or how Postmaterialism contributes to environment movement (Dalton 1977, Betz 1990, Crepaz 1990, Kitschelt 1994). Scott Flanagan (1982, 1987) offers a different interpretation of value change. Basically, Flanagan accepts Inglehart's hypothesis but he further asserts the value shift along two dimensions. However, these scholars take the existence of a postmaterialist value dimension for granted.

As to the Achievement Motivation argument, the Achievement Motivation index becomes the center of theoretical and methodological problems. However, scholars do not focus on the construction of the index when criticizing Inglehart's study. Jackman and Miller (1996) point out the dubious causal relation between economic growth and cultural

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factors. Since cultural factors are used to predict economic growth, these factors should be measured prior the time period of economic growth. In order to proceed their analysis with a correct causal direction, Jackman and Miller do not take the Achievement Motivation index as the yardstick to measure the cultural factor. They follow McClelland to use *N* Achievement as the independent variable to test its effects on economic growth. On the other hand, Duane Swank (1996) changes the topic and talks about how communitarian polities could foster economic growth. Neither of them questions why certain values were selected to construct this Achievement Motivation index.

Further, the former communist states pose a challenge to both Postmaterialism theory and the Achievement Motivation argument. In spite of their lagging economic performance, these states score high on the Achievement Motivation index. This implies a theoretical and methodological problem with the Achievement Motivation argument. From a theoretical perspective, the effect of the Achievement Motivation is exaggerated and the cultural factor is not as influential as Inglehart assumed. From a methodological perspective, the format of the Achievement Motivation index explains the high scores of the former communist states. In other words, the construction of the index is flawed. If we want to falsify the Achievement Motivation argument, we must focus on how these index components are selected.

On the other hand, some of these states show a high level of postmaterialism in other surveys (Inglehart & Kiemenska, 1988). Inglehart defends his theory by saying the advanced welfare systems of these communist states make people feel secure. This defense is weak since Inglehart did not consider public welfare expenditures as an explanatory variable in his analysis. Though he claims his study is not culturally deterministic, Inglehart neglects the possible institutional factors that can help to explain

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Inglehart is correct when arguing the intergenerational population replacement is conducive to cultural change. However, whether the direction of change is toward Postmaterialism is dubious. If the respondents do answer the questionnaires according to their value priorities, we should observe consistent selections across the questionnaires. In this place, consistency has two implications. First, when the respondents are identified according to their selections from the original materialist-postmaterialist battery, they are assumed to follow their value preference. In other words, the respondents should not switch their value priorities during the survey. Second, consistency also means that respondents should make the same selections across similar questions. If the respondents cannot make consistent selections due to the format of the questionnaires, the validity of the Postmaterialism theory is in question.

In fact, Inglehart acknowledged the problem of randomness in his earlier study (1977,p.24-27). He argued the randomness problem is an inherent imperfection of survey research. Also, he argues less-educated respondents would be more likely to have inconsistent selections than those more-educated respondents. I will examine this argument after sorting out the respondents who change their value preference during the survey. The result shows is no significant correlation between the respondents' education level and their inconsistent selections.

The causal relationship between the cultural factor and economic growth is more perplexing when Inglehart takes both Postmaterialism and Achievement Motivation as explanatory variables. According to Inglehart's hypothesis, Postmaterialism and Achievement Motivation are assumed to have opposite effects on economic growth. Granato, Inglehart and Leblang notice the modest correlation between achievement

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motivation and the materialist-postmaterialist dimension. They argue that the achievement motivation dimension seems to link with the modernization process and the postmaterialism dimension shows a transition toward post-industrial society. They seem to forget that these variables are measured from the same surveys and are integrated into the same model. Under such a situation, at least two or more value dimensions are measured at the same time and these value dimensions are crosscutting and these value dimensions cannot be separated. The consequence is an implicit contradiction between the Postmaterialism theory and Achievement Motivation studies.

When respondents are identified according to their selections from the materialist-postmaterialist battery, these respondents also make selections from the Achievement Motivation list. If we assume that Postmaterialism and Achievement Motivation have opposite effects on economic growth, we should expect that postmaterialists score low on the Achievement Motivation index in comparison with the materialist respondents. Are postmaterialist respondents more likely to select index components negatively related with economic growth than materialist respondents? As we know, the negative components of the Achievement Motivation Index (Religious Faith and Obedience) are somewhat opposed to postmaterialist values. If postmaterialist respondents are more likely to select these negative index components than the materialist respondents are, it will be hard to explain why they select these values in spite of their value preferences.

On the other hand, if postmaterialist respondents tend to select the positive index components (Thrift and Determination) more often than the materialist respondents, it will be a mistake to argue that Postmaterialism can impose negative effects on economic growth. On the contrary, the hypothesis should be reversed. Under such a situation, the contradiction between the Postmaterialism theory and Achievement Motivation is

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I will explore the World Values Surveys from four perspectives. **First, I need to reexamine the reliability of the survey data.** The validity of the Postmaterialism theory must be examined from both individual and system levels. Inglehart uses the World Values Surveys to support his hypotheses. However, whether these surveys can reflect the respondents' value dimension is still in question and most critiques center on the measurement of postmaterialism. I will first examine the compiled data of WVS 81, WVS 90 and WVS 95 to see whether a shift toward postmaterialist values becomes a global phenomenon. If Inglehart's hypothesis is correct, we should find that states that experience prosperity should have higher Postmaterialism than other states. If there is any anomaly in the data, we should try to find out what causes the anomaly.

The next step is to examine Inglehart's arguments thoroughly. This begins our examination of the consistency between respondents' value preferences and their selections from certain questionnaires of the World Values Surveys. To confirm that the respondents answer the questionnaires according to their value priorities, we must focus on the individual level analysis. The basic strategy to decipher this puzzle is to examine how respondents of different value preferences answer the questionnaires of the World Values Surveys.

Inglehart already argues that postmaterialist respondents are more likely to be involved in elite-challenging behavior than materialist respondents are. However, other assumptions need to be examined. Inglehart also assumed different types of respondents would have different attitudes toward work and religion. In *Modernization and Postmodernization*, Inglehart begins to use "postmodern shift" to analyze the trend of value change. The erosion of institutional authority is a significant phenomenon of

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Postmodernization. In this place, institutions include religious and bureaucratic institutions. I will explore the World Values Surveys to see whether respondents' value preference can predict their confidence toward certain institutions.

Until now, the test of the Postmaterialism theory is based on the WVS 81 and WVS 90. With the newly released WVS 95, I can examine the survey results from three time points. Even if not every nation appears in all three surveys, I still can observe the differences between materialist and postmaterialist respondents at each time point. If the differences become less and less evident across the surveys, I can argue that both types of respondents are actually shifting toward the same instead of opposite value orientations.

On the other hand, several consistency tests are conducted to target WVS 95 respondents only, since some questions are not asked in the previous surveys. I will use these tests to examine whether WVS 95 respondents make consistent selections from these specific questions. Furthermore, two questions of WVS 95 will be utilized to make a proxy measurement of Postmaterialism. If the materialist-postmaterialist value dimension is valid, we should observe that the proxy measurement shows similar value distributions across the nations. For those states with higher percentages of postmaterialists or materialists, their value distributions should echo those according to Inglehart's original four-item index.

Second, the construction of the Achievement Motivation index needs to be reconsidered. There is a paradox that the former communist states score high on the Achievement Motivation index but with lagging economic performance. We need to know how this paradox emerges? Apparently, this paradox comes from the measurement of achievement motivation. Inglehart excludes these former communist states from his analysis by saying the economic data is not reliable. However, these cases can

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demonstrate the poor construction of the achievement motivation index. A simple descriptive analysis can show how these states score differently on the Achievement Motivation index in WVS 90 and WVS 95. As we know, these states recently experienced economic transformation from centrally planned economies to market economies. If these states continue to score similarly on the index while the economy is declining, institutional factors should contribute more than cultural factors in explaining various economic performances. Furthermore, we should examine why the former communist states score high on the Achievement Motivation index. We argue that the selection of index components has an influence on the index scores of the former communist states.

Inglehart constructs the Achievement Motivation index with weak theoretic explanations and does not clearly indicate the relationship between the index components and economic growth. From his analysis, we can find “Thrift” is the most influential component of the Achievement Motivation index since “Thrift” is believed to lead to saving and economic growth. Inglehart does not consider the effect of economic growth on saving or other possible incentives that can attract saving. In fact, he argues “.. This does not rule out the possibility that economic growth might be conducive to thrift but this linkage is less obvious.” (1996, p.613).

As we know, East Asian states are distinguished for their high saving rates. On the other hand, we also find East Asian states have a high percentage of respondents who select “Thrift” from the Achievement Motivation battery. It seems the causal direction is quite evident. However, recent studies (World Bank 1993) indicate a different direction and contribute the high saving rates of East Asian states to their policy fundamentals. There will be a brief discussion of this issue and the relationship between saving and

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economic growth will be reexamined. As to the other three components, I will analyze “Religious Faith” and disregard “Determination” and “Obedience” since Inglehart never really explains why these values can be selected as index components.

On the other hand, if we read through McClelland’s *The Achieving Society*, we can find Inglehart omits several important values that could be conducive to individual economic achievement. Furthermore, these values are also listed in the Achievement Motivation battery of the World Values Survey (Independence and Feeling of Responsibility). If we want to examine the effects of Achievement Motivation on economic growth, we have no reason to disregard these values and exclude them as the index components. Under such a situation, the Achievement Motivation index cannot be a good indicator to explain the causal relationship between cultural factors and economic growth since two possible index components are missing. Under such a situation, we need to construct an alternative Achievement Motivation index, replacing “Thrift” and “Determination” with “Independence” and “Feeling of Responsibility” as the index components.

Furthermore, the causal relationship between cultural factors and economic growth is misleading since cultural factors are measured incorrectly. If we want to follow Inglehart’s measurement, the causal relationship should be reversed. This mistake can be corrected if only the cultural factors are measured before the dependent variable (economic growth). As we know, Postmaterialism and Achievement Motivation can be measured from three different time points. If we use WVS 90 to measure the cultural factors, it is impossible to test their effects on the economic growth of a previous time period. We can only tell whether these cultural factors have effects on the economic growth of a later time period.

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We have already argued that a flawed index and a dubious causal direction between cultural factors and economic growth weakened the theoretical validity of Achievement Motivation. In order to examine the Achievement Motivation argument thoroughly, we need to develop new models that can reveal the correct causal direction between the cultural factors and economic growth. On the other hand, we need to assess the effect of the Achievement Motivation index by unpacking this index and also construct another index which includes the two neglected index components.

In this research, there will be several different models based on different time period measurement and also economic data availability. The earliest time period in which we can measure cultural factors is from WVS 81. If we take WVS 81 cultural factors as the independent variables, the dependent variable should be the mean economic growth rate of a time period after 1981. The other models will take WVS 90 cultural factors as the independent variables. The detailed description of the data will be formulated in a later section.

My models are distinguished by treating the cultural factors differently. The major difference is that I will unpack the Achievement Motivation index and test the index components separately to see whether each value has the assumed effects on economic growth. According to the original hypothesis, “Thrift” and “Determination” should have positive effects on growth while “Obedience” and “Religious Faith” should have negative effects on the consequent economic growth.

When we use the scores on the Achievement Motivation index as the independent variable, we cannot differentiate the effect of each index component. Using each index component as independent variables can show their real effects of the Achievement Motivation index components on economic growth. Granato, Inglehart and Leblang take

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WVS 90 measurement as a proxy of the 1960 cultural factor. We already argued that the causal relationship between independent and dependent variables is ambiguous. However, I will follow their model to test the effect of the alternative Achievement Motivation index on economic growth.

Third, we need to examine the possible contradiction between Achievement Motivation and Postmaterialism. According to Granato, Inglehart and Leblang, “..the achievement motivation dimension seems to tap the transition from preindustrial to industrial values systems, linked with modernization process.” (1996, p.614). On the other hand, Postmaterialism indicates the transition to post-industrial society. It seems the two value dimensions do not interact with each other. Achievement Motivation is assumed to have a positive effect on economic growth while Postmaterialism is assumed to have a negative effect on economic growth. However, the measurement of Postmaterialism is actually a percentage difference between postmaterialist and materialist respondents. Under such a situation, we need to treat materialist and postmaterialist respondents as two separate groups. When we analyze the effect of Achievement Motivation on economic growth, the analytic unit is a state or a case of the World Values Surveys. In order to examine the interaction between materialist-postmaterialist value dimension and Achievement Motivation, we need to take group identity as the analytic unit.

The next step is to examine whether these two groups have opposite attitudes toward economic growth or toward certain values which could conducive to economic growth. In other words, we need to compare how materialists and postmaterialists score on the Achievement Motivation index. As we know, Postmaterialist respondents care less about economic growth. But how they select from the Achievement Motivation list or index

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components will reveal the clash between Postmaterialism and Achievement Motivation. If the postmaterialists are more likely to score high on the Achievement Motivation index than the materialists are, the effect of Postmaterialism on economic growth needs to be reconsidered.

Fourth, Inglehart attributes the high economic growth rates of three East Asian states (Japan, China and South Korea) to their high achievement motivation value. However, these states are also influenced by Confucian culture. It is reasonable to argue that Confucian culture should also be an explanatory variable in this analysis. Since Confucian culture also emphasizes “Thrift”, it is possible the Achievement Motivation and Confucian values are somewhat overlapped. However, a geopolitical dummy variable is not a good way to examine the effect of Confucian culture. I will develop a Confucian culture index from the Achievement Motivation list to examine the effect of this variable on nations’ economic performances.

Like the former communist states, China also scores high in the achievement motivation index. However, China shows better economic growth in comparison with these East European states. Besides the possible effect of the cultural factor, what other factor can explain the different economic performances between states with high achievement motivation? If we focus on the economic development of China, the economic performance after 1978 should show that institutional factors are more influential than cultural factors. On the other hand, China, Germany and Korea have been divided after the Second World War. It is evident that Taiwan, West Germany and South Korea are doing better than their counterparts even though they share the same cultural heritage. This situation indicates that institutional factors should be more decisive when explaining economic growth.

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Social capital is another cultural factor mentioned by many scholars (Coleman 1990, Putnam 1993). Interpersonal trust and voluntary association membership are two important components of social capital. According to Inglehart, interpersonal trust and long-term stability of democracy are strongly correlated. However, the causal relationship of these two variables can go either way. Economic development is assumed to give rise to both social structural change (rising education and occupational specialization) and cultural change (culture of trust and mass legitimacy). Let us focus on the cultural change in this place.

So does the economic development of the East Asian states give rise to interpersonal trust? Or does “trust” have an effect on economic growth? In this research, I will measure interpersonal trust from the survey data and test its relationship with economic growth. By using the economic data of Levine and Renelt (1992), we can test the effects of economic growth on the level of interpersonal trust. In this place, the level of interpersonal trust is measured from the World Values Survey 1990. On the other hand, we can test whether the level of interpersonal trust can pose effects on subsequent economic growth.

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CHAPTER 1 PROBLEMS AND CHALLENGES IN CULTURAL EXPLANATION OF POLITICAL AND ECONOMIC PERFORMANCE

1. The Development of Political Culture Approach:

1.1. Civic Culture:

Scholars have studied the entangled relationship between democracy, economic development and political culture for decades. In the earlier studies of democratic transitions, most scholars focused on the prerequisites for the emergence of a stable democracy. From the perspective of the **Modernization** approach, democracy is considered a result of social, economic and cultural development. Besides structural factors (such as economic development and urbanization), political culture is another important variable to correlate with democracy.

In *The Civic Culture* (1963), Almond and Verba study the relationship between political culture and political structure in five nations. They conducted interviews to measure the nations' political culture and argue that congruence between political culture and political institutions is necessary to maintain political stability. Culture difference is the main reason why democracy flourished in some nations (the United States and Britain) but not others (Germany, Italy and Mexico). As they noted "What must be learned about democracy is a matter of attitude and feeling." (1963.p.5). However, their work was criticized from many perspectives. First of all, their civic culture was attacked as a static concept since their research was based on data from a single time point. Second, their research was considered as ethnocentric since the United States and Britain rank higher than the other states in the measurement of civic culture.

1.2. Postmaterialism:

Ronald Inglehart (1971,1977,1990,1997; Abramson & Inglehart 1995) is the first

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scholar to compile data on attitudes of the general public of many nations. Based on **scarcity and socialization hypotheses**, Inglehart's **Postmaterialism** theory indicates that mass values and attitudes would shift when people emphasize more about the quality of life instead of economic development. The scarcity hypothesis came from Abraham Maslow's (1954) hierarchical order to human needs. Material values are related to lower-order physiological and safety needs and postmaterialist values are related the high-order needs. The scarcity hypothesis is very similar to the diminishing marginal utility theory in economics. The socialization hypothesis claims one's basic values reflect the conditions of one's preadult years.

Since the advanced industrial states already enjoyed high levels of economic growth after the World War II, Inglehart argues that young people in these societies would lay more emphasis on their quality of life needs instead of material ones. These postmaterialist values help people to challenge the religious, political authority. These hypotheses generate several predictions about value change. First, the younger cohorts experience material improvement the less materialist value-oriented they should be. Second, value change is a gradual process and cohort replacement, instead of life cycle effect, should be the main reason to explain the increasing postmaterialists. Third, Inglehart believes that democratization is facilitated by the spread of these "postmaterialist" values. From his viewpoint, the effect of the cultural factor on economic development and democracy is evident, and he tried to use the World Values Survey to prove his arguments.

In the beginning, Inglehart measured postmaterialism via numerous surveys in eight advanced Western industrial societies.¹ Respondents were asked to pick the two most

¹ Germany, Britain, Netherlands, France, Belgium, Italy, Denmark and Ireland

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important goals in the next four items for their countries in the next ten to fifteen years.

- (a) maintaining order in the nation
- (b) giving the people more say in important government decisions
- (c) fighting rising prices
- (d) protecting freedom of speech

There are three types of respondents. People who choose (a) and (c) are classified as having “materialist” values. People who choose (b) and (d) are considered as having “postmaterialist” values. Other respondents are identified as having “mixed” values. In order to measure the trend toward postmaterialism, Inglehart uses the percentage of postmaterialist minus the percentage of materialist to compose the percentage difference index (PDI).

The original battery was extended to a twelve-item battery in the later surveys. Respondents were asked to answer two more sets of questions. They have to pick the top two goals in each of the following two sets of questions.

- (e) maintaining a high rate of economic growth
- (f) making sure this country has strong defense forces.
- (g) seeing that people have more to say about how things are done at their jobs and in their communities.
- (h) trying to make our cities and countryside more beautiful.

In the first set, (e) and (f) are designed to tap “materialist” values, (g) and (h) are designed to tap “postmaterialist” values.

- (i) maintain a stable economy;
- (j) progress toward a less impersonal society, more humane society;
- (k) the fight against crime;

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(l) progress toward a society where ideas are more important than money.

In the second set, (I) and (k) are designed to tap “materialist” values, (j) and (l) are designed to tap “postmaterialist” values.

However, few scholars pay attention to the “mixed” respondents in the World Values Survey. In the original four-item battery, Inglehart simply subtracts the percentage of materialist respondents from that of postmaterialist respondents. In other words, he took the “mixed” respondents as a constant. When a respondent is identified as a “mixed” type, this respondent should possess both materialist and postmaterialist values. In all three surveys, we can find that more than half of the respondents were identified as “mixed” respondents. Then how can we assume the trend is toward postmaterialism?²

Scarborough was the only one that made a clear observation that “...the decline of materialism is not paralleled by an increase in postmaterialism: materialism and postmaterialism are not, it seems, two sides of the same coin. Rather, much of the change in the materialist-postmaterialist index consists of bulges in the ‘mixed’ value type as materialism declines.” (Van Deth & Scarborough 1995.p.131-32). However, he did not develop any way to adjust this index. Considering the flaw of this measurement, the shift toward postmaterialism seems to be an assumption on partial facts. The only fact that we can confirm is the decrease of the materialist percentage in those advanced industrial states.

Inglehart argues the 12-item battery is as useful as the original battery. However, we find “mixed” respondents are misrepresented according to the 12-item battery. In Inglehart’s early study, respondents were asked to select first, second and the least items

² Abramson and Inglehart used a table (1995,p.12-15) to show the trend toward postmaterialism in eight Western European states from early 1970s to 1993. To me, their description did not match the table.

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from the battery. But in his recent studies, Inglehart focuses on the number of Postmaterialist values that respondents select from the 12-item battery. The shift toward postmaterialist values is confirmed by the percentage difference between “high” and “low” scores from the 12-item measure. In this place, “high” score means a respondent selects three or more postmaterialist values from the battery while “low” means a respondent selects no postmaterialist value.

This measurement cannot show the real value distribution since it only shows the percentage difference between materialist respondents and other two types of respondents. It is meaningless to define “high” and “low” scores since we cannot differentiate postmaterialist respondents from “mixed” respondents. If we want to utilize the 12-item battery, we should treat it as three separate batteries and each of them can be used to measure postmaterialism.

1.2.1. The Recent Debate between Inglehart and Other Scholars:

Davis and Davenport argue that the respondents do not refer to a value dimension when answering the questionnaires of the World Values Surveys. In other words, the respondents make their selections randomly. They use conditional probability and two randomness tests to support their argument. Inglehart and Abramson argue that the focus should be the relationship between the respondents’ first and second selections from the materialist-postmaterialist battery. If the respondents select a postmaterialist value first, they are more likely to select another postmaterialist value in comparison with those who select a materialist value first.

However, Inglehart and Abramson do not treat the 12-item index as three independent batteries. If all three batteries can tap materialist-postmaterialist value dimension, their

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argument should be applied to respondents' first and second selections. Since the data of both sides comes from the U.S. surveys, we should examine the World Values Surveys to see which side makes the correct argument.

As to Clarke and his colleagues, they employ an experimental survey in which "fighting rising prices" was replaced by "creating more jobs" in the materialist-postmaterialist battery. Their research shows the selections of the respondents would be influenced by their macro-economic conditions and the format of the questionnaires. The response from Inglehart and Abramson is indirect since they never tried to change the options of the battery before.

1.2.2. The Uniqueness of WVS 95

In comparison with the previous surveys, WVS 95 is unique in several aspects. First, WVS 95 surveys more states than WVS 81, WVS 90. Second, some questions asked in WVS 95 are not asked in the previous surveys and these questions can help us to examine postmaterialism theory more thoroughly. Furthermore, some of the new questions can help us to evaluate the validity of the value dimension. For example, V41 and V159 in WVS 95 represent two compressed materialist-postmaterialist batteries.

V 41. Here are two statements people sometimes make when discussing the environment and economic growth. Which of them comes closer to your own point of view?

1. Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs.

2. Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent

3. Other answer

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V 159. *If you had to choose, which would you say is the most important responsibility of government:*

1. To maintain order in society OR 2. To respect freedom of the individual

V41 and V159 are two WVS 95 questions that contain one materialist value and one postmaterialist value. First, I will examine whether WVS 95 materialists and postmaterialists recognize the value dimension and make consistent selections from these two questions. Second, I will utilize these two questions to re-measure the distribution of materialist and postmaterialist respondents across the nations. To be identified as a “Proxy Postmaterialist”, one need to select the postmaterialist values from V41 and V159. To be identified as a “Proxy Materialist”, one has to select materialist values from V41 and V159. This re-measurement can be a continuance of the recent debate about the Postmaterialism theory especially the randomness debate between Inglehart and Davis, Davenport.

To deal with the problem of randomness, I will examine the value distribution according to the proxy measurement of postmaterialism from V41 and V159 across nations. If the respondents do make random selections, the probability of being a “Proxy Postmaterialist” or “Proxy Materialist” should be $1/4(1/2 \text{ times } 1/2)$. So if we find the re-measurement shows the hypothesized value distribution, this will echo the argument of Davis and Davenport that respondents select randomly. On the other hand, we can compare the differences between this proxy measurement and the original measurement from both individual and system levels. From the individual level, we can observe how many respondents make inconsistent selections against their original value preferences. From the system-level, we can observe the proxy measurement across nations and to see whether the structure of values is still similar to what Inglehart hypothesized.

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1.3. Achievement Motivation:

Almost at the same time of *The Civic Culture* research, McClelland argued that achievement motivation is in part responsible for economic growth. In fact, scholars use three approaches to study the effect of achievement motivation. The first approach focuses on group measurement of *n* Achievement in relation to rates of economic development. One way to measure *n* Achievement is to analyze children's literature across nations. After coding children's books and folk tale, the next step is to compare levels of *n* Achievement in readers. However, this study does not confirm the relationship between *n* Achievement and economic development.

McClelland used psychological variables to explain the different economic growth between nations. The way he measured achievement motivation was kind of unusual. Since achievement motivation is a psychological factor, McClelland wanted to observe how achievement motivations were aroused for people under certain circumstances. His first research focused on American male college students and each student was asked to write a five-minute story according to some pictures. The next step was to count the number of achievement-related ideas in one's story. The count was called the score for *n* Achievement (need for Achievement).³ According to McClelland, this experiment showed how people react under the achievement pressure. The experiment showed that American males with high *n* Achievement usually come from the middle class.

In fact, McClelland was influenced by Winterbottom's research (1953, 1958). Winterbottom's analysis represents the second approach to study achievement

³ This method can also be used to measure *n* Affiliation and *n* Power. In the process of coding stories, affiliation is most adequately described by the word *friendship*. So "a high *n* Affiliation indicates a concern in fantasy and in action for warm, close relationships with other people." (McClelland, 1961. P.160-61). As to *n* Power concerns the control of the means of influencing a person. According to McClelland, *n* Power is

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motivation. According to Winterbottom, children's value orientations could be influenced by their mothers. In other words, a mother with high *n* Achievement would expect her children to be self-reliant and independent at an earlier age. Following Weber and Winterbottom's arguments, McClelland claimed that Protestant parents could increase *n* Achievement of their children. So from McClelland's perspective, achievement motivation became the connection between Protestantism and the rise of capitalism.

The third approach focuses on entrepreneurial behavior and characteristics of entrepreneurs. This approach tries to relate one's status with one's behavior and assumes several attitudes are conducive to entrepreneurship. In other words, this study focuses on the motive and behavior of actual businessmen and lists several characteristics of entrepreneurship. These characteristics include risk-taking and individual responsibility.

1.3.1. Achievement Motivation and Economic Growth:

Granato, Inglehart and Leblang (1996) argue that cultural attitudes toward achievement and thrift have a positive effect on economic growth. They first agree with Weber about the influence of Protestantism on the rise of modern capitalism. On the other hand, they also argue that postmaterialist values have a negative effect on economic growth. They construct an achievement motivation index from the World Values Survey. In the World Values Surveys, respondents were asked to select five values from an eleven-item list (Achievement Motivation battery).⁴

related to what political means for a state to use to achieve economic ends.

⁴ This list appears in WVS 81, WVS 90 and WVS 95. In WVS 81, respondents need to identify whether each value is important or not. In WVS 90 and WVS 95, respondents are asked to select up to five items from this list.

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Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five.

- 1. Good manners (V14)*
- 2. Independence (V15)*
- 3. Hard work (V16)*
- 4. Feeling of responsibility (V17)*
- 5. Imagination (V18)*
- 6. Tolerance and respect for other people (V19)*
- 7. Thrift, saving and things (V20)*
- 8. Determination, perseverance (V21)*
- 9. Religious faith (V22)*
- 10. Unselfishness (V23)*
- 11. Obedience (V24)*

This list indicates the qualities that respondents wish their children could learn at home. In this place, we find their argument focuses on child-rearing practices like the study of Winterbottom. However, the researchers only chose four values to construct the Achievement Motivation index. They consider “Thrift, saving money, and things” (V20) and “Determination” (V21) as economic achievement values which means these values should pose positive effects on economic growth of states. On the other hand, they take “Religious Faith” (V22) and “Obedience” (V24) as another set of values that discourages economic growth. They did not explain why they ignored the rest of that list but they recognize that “..These two types of values are not necessarily incompatible;..But, the relative *priority* given to them is strongly related to its growth rate.” (1996,p.613).

This index was constructed by subtracting the percentage emphasizing “Obedience”

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and “Religious Faith” from the percentage emphasizing “Thrift” and “Determination” in each country (i.e. V20+V21-V22-V24). From the World Values Survey 1990, three East Asian states (China, Japan and South Korea) score high in the Achievement Motivation index and two African states (Nigeria and South Africa) score low in this index. Also, Inglehart argued the economic performances of these states indicates the effect of cultural factors.

In order to examine the effect of cultural factors on economic growth, they develop two cultural variables (Postmaterialism and Achievement Motivation) to rerun the model of Levine and Renelt (1992). According to their analysis, Achievement Motivation seems to be an influential explanatory variable but Postmaterialism becomes statistically insignificant. So investment and Postmaterialism are no longer explanatory variables in their final model. By passing several critical significance tests, their final model seems to reaffirm the importance of cultural factors. However, this model still suffers from serious measurement problems and dubious causal relationships between the independent and dependent variables.

The former communist states also score high in the achievement motivation index. However, these cases were excluded from Inglehart’s analysis allegedly due to the lack of reliable economic data. According to Inglehart, the economic growth rates of the former communist states were exaggerated. In this place, Inglehart just disproved his hypothesis since these cases do not confirm the effect of high achievement motivation. In fact, the causal relationship between the cultural factors and economic growth is ambiguous in Inglehart’s analysis. Both the cultural variables were measured from the World Values Survey 1990 and the dependent variable is the mean rate of per capita economic growth 1960-1989. It seems the direction of the causal relationship should be reversed.

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1.3.2. Case Selection Bias and The Flaw of the Achievement Motivation Index: Reiterating the Achievement Motivation Literature:

The achievement motivation argument of Granato, Inglehart and Leblang was severely criticized by Jackman and Miller (1996). They claim Weber's historical analysis is not correct and suffers a selection bias. They argue Inglehart's theory is flawed since he agrees with Weber's assumption about the impact of Protestantism. They also notice Inglehart's measurement of cultural variables cannot support his theory. In order to examine the effect of Achievement Motivation on economic growth, Jackman and Miller use McClelland's data instead of the World Values Survey to rerun the regressions. In contrast with Granato, Inglehart and Leblang, their analysis shows that the cultural factor does not have an impact on subsequent economic growth. However, Jackman and Miller do not analyze further about the index construction and they use *n* Achievement as the independent variable to retest the model of Levine and Renelt.

As we know, selection bias is a serious problem of comparative politics. Barbara Geddes (1990) demonstrates what biased conclusions one would get if we select cases based on their outcome on the dependent variable. Thus we should ask whether the causal relationship between economic growth and Achievement Motivation is actually a faulty inference. In order to answer this question, we need to analyze each index component separately and to examine what Granato, Inglehart and Leblang missed from the Achievement Motivation literature.

The achievement motivation index was constructed on ambiguous theoretical foundations. As we know, the index was constructed by subtracting the percentage of respondents emphasizing "Obedience" and "Religious Faith" from those emphasizing "Thrift" and "Determination" in each country. "Thrift" is believed to produce savings

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which could lead to domestic investment and subsequent economic growth. In fact, “Thrift” is the focus of their argument since this value concerns East Asian states.

Scholars attribute the recent rapid economic growth of East Asian states to two factors: high saving rates and foreign investment (Lim 1994). So East Asian states are known for their high saving rates and this is in fact true. But is saving a good predictor of economic growth? Recent studies show the high savings rates in East Asia since 1960s are partially an outcome of high economic growth rates (World Bank 1993). This means the causal relationship between savings and economic growth can go either way. However, Granato, Inglehart, Leblang do not consider the possible effect of economic growth on savings. Furthermore, people would not have much incentive to save if the government cannot moderate inflation at stable rates. In other words, institutional factors could be more decisive than cultural factors.

So that a state has a high percentage of respondents who emphasize “Thrift” does not necessarily mean that consequent economic growth is guaranteed. To examine the relationship between certain value (Thrift) and economic growth, we should first examine the causal relationship between respondent’s selections and the nations’ previous economic growth. In this place, the percentage of respondents who select “Thrift” from the Achievement Motivation battery in each nation will be the dependent variable and the previous economic growth will be the independent variable. Further, we should examine whether those respondents who select “Thrift” really save money or not.

“Religious Faith” is a debatable item in this index. According to Granato, Inglehart and Leblang, “Religious Faith” and “Obedience” indicate communal obligations. They noted “...from the perspective of a bureaucratized rational-legal society, these norms are antithetical to capital accumulation and conducive to nepotism. Furthermore, conformity

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to authority inhibits innovation and entrepreneurship.” (1996,p.613). Since Inglehart agrees with Weber about the effect of Protestantism on the rapid industrialization of Europe, we have to remember religious commitment should be the basic motivation according to Weber’s arguments. If “Religious Faith” is really a negative value to economic growth, I just wonder why Protestant beliefs were conducive to the emergence of capitalism?

On the other hand, “Religious Faith” means less to people in many of the communist states. If people are prohibited from having a religion, it is dubious to ask their opinions about “Religious Faith” in surveys.⁵ Under such a situation, the former communist states may get a high score from the Achievement Motivation index due to the format of the index. In other words, this index may be sensitive to some respondents of states with or without certain religious dominance. In this place, we still cannot decide whether “Religious Faith” is really a negative factor to explain economic growth.

In order to proceed with this analysis, I need to examine how respondents of different religions would select from the Achievement Motivation list. The reason for this analysis is because scholars argue how Catholic and Protestant parents in the U.S show different value priority when teaching their children (Lenski 1963, Alwin 1986). On the other hand, McClelland also noted Jewish families should produce high *n* Achievement in their sons on religious grounds. Besides U.S, successful Jewish businessmen are also in other regions (such as Turkey and Columbia). If their religious faith contributes to their success then this value should not pose a negative effect on economic growth.

Since the respondents of the World Values Surveys come from various religious

⁵ In fact, McClelland mentioned that conversion to communist ideology can increase *n* Achievement in a society (1961,p.411-413). The evidence was found in the former Soviet Union and China. However, Inglehart does not consider the former communist cases in his analysis.

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backgrounds, we can observe whether there are significant differences between respondents of different religions. If we find Jewish respondents prefer “Religious Faith” or even “Obedience” to other values, the validity of the Achievement Motivation index will be weakened since the assumed negative factor might have a possible effect on economic growth. As to “Determination”, the reason for its becoming an index component is never explained.

So what are Granato, Inglehart, Leblang missing from their argument? If they do focus on child-rearing practices, they ignore the importance of “Independence” in the studies of achievement motivation. According to Winterbottom (1958), Protestantism might lead to independence and mastery training, and therefore lead to greater *n* Achievement and the rise of modern capitalism. According to Child (1958), this is also called “responsibility” training. If Inglehart’s analysis does not define Achievement Motivation as mere child-rearing practices, he ignores the importance of “individual responsibility” since this value is taken as an important characteristic of entrepreneurship. We can find “Independence” and “Feeling of Responsibility” are two options in the Achievement Motivation list (V15 & V17) of the World Values Surveys. However, Inglehart overlooks these options as possible components for the Achievement Motivation index.

Until now, we have analyzed four questionable index components and two neglected positive factors. Since the index is poorly constructed, we cannot use it to examine the causal relationship between achievement motivation and economic growth. We need to unpack the index and examine the index components individually. This unpacking procedure can help us to estimate the assumed effects of each index component. Also, we can examine how the two neglected factors can affect the relationship between index components and economic growth by developing an alternative Achievement Motivation

index.

1.4. The Clash between Postmaterialism and Achievement Motivation:

According to Inglehart, Postmaterialism and Achievement Motivation are assumed to have opposite effects on economic growth. When a society transits from Modernization to Postmodernization, Inglehart argued that individuals would also change their emphasis on key aspects of life. As Inglehart noted “In the Postmodern shift, values that played a key role in the emergence of industrial society-economic achievement motivation, economic growth, economic rationality-have faded in salience.” (1997,p.77). So when the publics of a society shift their value preferences from materialist to postmaterialist values, we should also expect to observe a declining emphasis on achievement motivation values at the same time. However, Inglehart’s argument cannot be confirmed from the World Values Surveys.

Since Postmaterialism and Achievement Motivation are both measured from the same surveys, we should ask whether the negative correlation between these two factors could be observed from the societal level and also the individual level. When respondents are identified according to their selections from the materialist-postmaterialist battery, they also make selections from the Achievement Motivation battery. If Inglehart’s argument is correct, we should observe that a society with a high percentage of postmaterialists would score low on the Achievement Motivation index. From the individual level, we should expect postmaterialists to score lower on the index compared to materialists. In this place, the respondents’ selections from the Achievement Motivation battery will bring about the conflict between two value dimensions and jeopardize the validity of both Achievement Motivation and Postmaterialism.

According to Postmaterialism theory, the postmaterialist respondents care less about economic growth and personal prosperity than materialist respondents do. That is why they avoid selecting materialist values from the original battery. However, postmaterialist respondents will face a dilemma when they make selections from the Achievement Motivation battery. Since Postmaterialist values are assumed to have negative effect on economic growth, they ought to be less likely to select “Thrift” or “Determination” from the list. On the other hand, the postmaterialist respondents are also assumed to be against authority and to emphasize religion less. Under such a situation, they are also less likely to select “Religious Faith” and “Obedience” from the Achievement Motivation battery.

Again, Inglehart’s analysis is challenged by the format of the questionnaires. We will need to compare how different types of respondents select from the Achievement Motivation battery. If postmaterialist respondents are more likely to select “Thrift” or “Determination” than materialist respondents are, postmaterialist values should be considered as a positive factor to explain economic growth. In this place, we will have to observe how materialist and postmaterialist respondents score on the Achievement Motivation index. Based on their selections from the Achievement Motivation battery, we can compare their scores in different time periods. If we find postmaterialists score higher than materialists in these surveys, the validity of the Postmaterialism and Achievement Motivation will be challenged at the same time.

For WVS 95 respondents, we should also examine how respondents select from four index components from V25, V26 of WVS 95. Instead of an eleven-item list, respondents will have to make two selections from four index components. If we utilize this question to re-measure the Achievement Motivation scores of the WVS 95 cases, we can observe how states would score based on their selections from the index components. We also can

observe the selections of materialist and postmaterialist respondents. This examination will show the respondents' real preference for the index components.

As to two possible index components "Independence" and "Feeling of Responsibility", we also need to examine how respondents prioritize these values. This will be a decisive step to show the ambiguity between Inglehart's two main theories. According to my earlier analysis, "Independence" and "Feeling of Responsibility" can be considered as core values of classic achievement motivation studies. Since these two factors are ignored from the process of index construction, we never have a chance to examine their effects on economic growth.

If we use these values to construct another Achievement Motivation index, which index would be more influential if we employ this new index to rerun the model of Levine and Renelt? Furthermore, who is more likely to select these values from the Achievement Motivation battery? Since these values are believed to be conducive to entrepreneurship, we would not expect postmaterialist respondents to prefer these values more than materialist respondents do. If my analysis shows the opposite result, either Postmaterialism theory or Achievement Motivation is falsified.

1.5. Social Capital:

From Almond and Verba to Putnam, **interpersonal trust** is an important indicator to measure civic culture. According to Putnam (1993), trust is also a part of social capital since social capital is taken as a way to solve the dilemma of collective action. In *Making Democracy Work*, Putnam shows the differences in levels of socioeconomic development among the Italian regions lie in the different levels of social capital. In the more civic regions, Putnam found that people have higher interpersonal trust and are involved more

in voluntary associations. This is true in Italy, but can it be generalized across nations? Interpersonal trust is usually described as a part of civic culture and civic culture is conducive to democracy. However, is there any relationship between interpersonal trust and economic development?

If we examine the nature of economic institutions between these East Asian states, we will find their levels of interpersonal trust are quite different. Francis Fukuyama argued that “..Cultures inclined toward voluntary associations,..can create large economic organizations spontaneously and do not need the state’s support.” (1995,p.63). According to Fukuyama, China and South Korea are low-trust societies and Japan is a high-trust society.⁶ In a low-trust society, people tend to trust only family member and this attitude will shape a nation’s economic structure. Family ties and kinship will be the basis of business in a low-trust society.

Besides China and South Korea, France and Italy are also considered as the low-trust societies.⁷ Fukuyama used “Italian Confucianism” to describe the similarity between Confucian culture and Italian culture: distrust of people outside the family. The consequence of the low-trust culture is the intermediate associations between state and individual. If we follow Fukuyama’s analysis, we can find the effect of interpersonal trust on economic performance is inconclusive. The level of interpersonal trust between China, South Korea and Japan is different but they all have experienced rapid economic growth recently.

⁶ Even Fukuyama labeled China as a low-trust society, WVS 90 did show a surprisingly high level of interpersonal trust in China. Although the result is dubious, Inglehart argued other surveys (Manabe 1995) also show the similar results. In WVS 95, China still shows a high level of interpersonal trust.

⁷ The low level of interpersonal trust of France is confirmed by the World Values Surveys. In all the three surveys, French respondents consistently have lower level of interpersonal trust in comparison with other West European democracies.

In comparison with East Asian states, African states (South Africa, Nigeria) score low in the achievement motivation index and have low economic growth rates. In fact, African economic performance is indeed worse than other regions. According to Collier and Gunning (1999), the slow growth of African states can be partly explained by a **lack of social capital**. In this place, social capital has cultural and institutional implications. From the cultural perspective, social capital represents a culture of trust and tolerance. From the institutional perspective, social capital means institutions can promote cooperation and inhibit opportunism and cheating.

In the World Values Surveys, respondents are asked whether most people can be trusted (V27). I will utilize that question to measure the level of interpersonal trust across nations. From the descriptive analysis, we can observe how different are the levels of interpersonal trust across nations. Further, this measurement will be taken as an independent variable and its effect on economic growth can be tested.

1.6. Who Prospers? Why?

1.6.1. Does Confucianism matter?

Confucianism is brought into this study for two reasons. First, Inglehart took South Korea, China and Japan to confirm the causal relationship between achievement motivation and economic growth. All these states are located in East Asia and they share a common Confucian heritage. Second, the so called “Confucian Values” that can promote economic growth are also in the Achievement Motivation list. This will be a good chance to measure Confucianism more precisely.

Inglehart does not deny the possible effect of Confucianism on economic growth. In *Cultural Shift* (1990), Inglehart has a brief discussion of Confucianism (ibid. p.61-63).

Inglehart believes the Confucian system is unique since upward social mobility can be accomplished via nonviolent individual achievement instead of ascription. In the studies of Achievement Motivation, Duane Swank (1996) takes a different approach to join the debate.⁸ He argues that communitarian polities (including Confucian statist and social corporatist) should have higher economic growth rates than other noncommunitarian polities. His analysis is straightforward and also misleading. He does not question the ambiguous causal relationship and he takes regime type as an explanatory variable with an unclear definition. In his model, the Achievement Motivation factor becomes statistically insignificant and communitarian polities become a more significant factor. However, the new variable indicates nothing but geographic locations of certain states.⁹

According to Weber, Confucianism is a “rationalism of order” and Weber took Confucian ethos to explain the economic decline of China. However, we need to clarify first that Confucianism is not a religion. It would be a mistake to draw a parallel between Protestantism and Confucianism to discuss the effect of religious motivation on economic growth.

Confucianism is a popular explanation of the spectacular economic success of the East Asian states (Hofheinz & Calder 1982; Morishima 1982; Berger & Hsiao 1988; Harrison 1992). According to these scholars, Confucianism stresses the importance of diligence, group loyalty, hard work, good manners and respect for education. Scholars believe these values can promote rapid economic growth. However, the effect of Confucianism is not convincing if we recall the economic decline of China in the past. Furthermore, we still

⁸ Knowing postmaterialism is associated with rising level of education, Swank notices that Postmaterialism may be positively correlated with economic performance since human capital is also reinforced. However, he did not go further to study the conflict between Postmaterialism and Achievement Motivation.

⁹ Swank codes Japan, South Korea, China as Confucian statist and Austria, Denmark, Finland, Norway, and

cannot explain why some nations without Confucian heritage still prosper. If Confucianism can be measured from national surveys, we should expect the respondents of the East Asian states show different value priorities in comparison with other respondents. Apparently, “thrift” and “hard work” are two important characteristics of Confucian values.¹⁰

On the other hand, Confucianism is based on hierarchical relationships between family members and between the ruling and the ruled groups. “Obedience” should be considered as an essential characteristic of Confucianism. However, scholars do not use the exact same word in their analysis. They use “Team spirit” or “Loyalty” to describe the work force of the East Asian states. Under such a situation, I will not include “Obedience” in the Confucian Values Index. Furthermore, Confucianism assumes a benevolent human nature and ethical order can be achieved through harmony and good manners. In this place, we can find several important characteristics of Confucianism are also in the Achievement Motivation list.

In this place, I would like to construct a Confucian Value Index (CVI) from the World Values Survey. From the Achievement Motivation battery, we can find “Good Manners” (V14), “Hard Work” (V16), “Thrift” (V20) are essential Confucian values. So the Confucian value index is based on percentage in each society who emphasized the above values.

As we know, Achievement Motivation index is composed of two sets of opposite values. However, CVI will not contain such opposite values. Scholars believe that a

Sweden social corporatist.

¹⁰ “Hard work” is a value that needs more attention. In their analysis, Granato, Inglehart and Leblang note “In connection with our achievement motivation index, the obvious interpretation would be that emphasis on thrift and hard work, rather than on obedience and respect is conducive to economic growth” (p.613). However, they do not take “hard work” as an important index component.

“modernized” Confucianism is the driving force behind the economic success of these East Asian states. However, no one ever explains how Confucianism became modernized and the difference between traditional and modernized Confucianism. So the Confucian value index can only define traditional Confucianism. We need to examine first whether East Asian respondents select these values from the Achievement Motivation list more often than their counterparts in other regions. If this index cannot confirm the effect of Confucianism on economic growth, we should also unpack this index and examine the index components individually.

1.6.2. China’s Economic Reform:

China is an interesting case in achievement motivation research. In China, communism is in the context of Confucian civilization. In recent years, China has experienced an impressive economic growth in comparison with the former communist states. So what is the main difference between China and other planned communist economies? As we know, the economic reform was not launched in China until 1979. Before 1979, China was in turmoil under Mao’s leadership and China experienced different economic performance before and after Mao’s era. Under such a situation, it is difficult to tell whether Chinese people persistently value “thrift”, “determination” over “obedience” and “religious faith”.

Furthermore, China and East European states score relatively high in the achievement motivation index but have contrasting economic performances. Under such a situation, achievement motivation becomes a less significant explanatory factor. In post-Mao China, new regulations and new agencies were set up to attract foreign

investment from the capitalist states.¹¹ Special economic zones were set up in several coastal cities and China's economic growth rate has averaged 6 to 8 percent from 1978-86. It is reasonable to assume that institutional factors are more influential than the cultural factors to explain China's economic success. In other words, we should focus on the policies and incentives of these East Asian states.

1.7. Toward A Policy-Relevant Approach to Explain Economic Growth:

After World War II, most economists took the amount of physical capital per person as an indicator of economic growth. Besides physical capital, human capital and social capital were also considered as important determinants of economic growth. However, high rates of physical capital accumulation do not guarantee high economic growth and the expansion of education in sub-Saharan Africa and South America also failed to stimulate subsequent economic growth. Scholars are beginning to emphasize the importance of institutions. In this place, institutions mean both economic and political institutions. Scholars have studied the relationship between democracy and economic growth for a long time and have found contrasting results. Basically, economic development has been taken as a prerequisite of democracy. However, the effect of democracy on subsequent economic growth is inconclusive.

Some scholars argue that democracy will inhibit economic growth since democratic regimes cannot implement certain policies that can facilitate rapid economic growth. In other words, an authoritarian regime is a better regime type to achieve rapid economic growth (Andreski 1968, Chirot 1977, Rao 1985). Other scholars argue that democracy

¹¹ "Law of the People's Republic of China on Joint Ventures Using Chinese and Foreign Investment." was approved in 1979.

and economic development support one another and that democracy is conducive to a sustained economic growth in the long run. (Marsh 1979) In this place, regime type does not appear to be an influential factor to explain various economic performances.

On the other hand, development economists argue that poorer states with the advantage of “relative backwardness” should grow faster than the richer states. However, this hypothesis cannot be confirmed and some poor countries even suffer declining economic growth. From the perspective of the New Institutional Economics, one obstacle for poor states to develop economically is the differences in property rights and contract enforcement mechanisms. (Clague 1997, Keefer & Knack 1997). If there are no adequate institutions to ensure the credibility of the policy environment, investors will be deterred and no further investment.

ICRG (International Country Risk Guide) and **BERI** (Business Environmental Risk intelligence) are two political risk indicators from two private international investment risk services. Keefer and Knack (1995, 1997) take them as variables to measure the security of property and contract enforcement. In ICRG, *expropriation risk* and *rule of law* can be used to measure security of property. A high risk of expropriation means any foreign investment can be confiscated arbitrarily by the state. A low score on rule of law indicates the contract enforcement could be problematic in this environment. *Repudiation of contracts by government* is another indicator of contract enforcement. If the government is willing to repudiate the contracts with foreign investors, the government is less likely to ensure the contract enforcement between private parties. *Corruption in government and quality of the bureaucracy* indicates the efficiency of government services.

In BERI, available indicators are *contract enforceability*, *infrastructure quality*,

In BERI, available indicators are *contract enforceability*, *infrastructure quality*, *nationalization potential* and *bureaucratic delays*. These indicators serve the similar function as the indicators in ICRG. According to Keefer and Knack, East Asian countries¹² score higher in ICRG and BERI than African and Latin American states. In other words, these East Asian states have relatively secure property rights and enforceability of contracts. From the description, we can find institutional factors should be better than cultural factors as explanatory variables. However, BERI and ICRG will not be included in this analysis due to the data availability.

¹² Hong Kong, Indonesia, Korea, Malaysia, Singapore, Taiwan and Thailand.

CHAPTER 2 RESEARCH DESIGN

2.1. Level of Analysis:

This research will focus on both national level and individual level analyses. In the national level analysis, the analytic unit will be a nation of the World Values Surveys and political culture will become a national characteristic. National level analysis will basically focus on the effects of the cultural factors on subsequent economic growth. The analytic unit in the individual level analysis will be a respondent of the World Values Surveys. In this place, a respondent may or may not have an assigned value preference or religious domination. When respondents do not have assigned value preferences, this individual level analysis will target WVS 95 respondents to examine whether they make consistent selections between the Achievement Motivation list and V25, V26.

On the other hand, religious denomination and group identity will be utilized as analytic units. Group identity indicates one's value preference according to their selections from the materialist-postmaterialist battery. We will examine whether respondents select according to their value priority. Further, respondents will be differentiated according to their religious denomination. This individual analysis can show how respondents of different religions make their selections from the Achievement Motivation battery.

2.2. Measurement and Variables:

2.2.1. Measurement of Postmaterialism:

The basic way to measure Postmaterialism we employ in this research is taken directly from Inglehart's work. We first differentiate the respondents based on how they prioritize values from the original materialist-postmaterialist battery. Respondents who regard

“Maintaining Order” and “Fighting Prices” as their value priority are classified as materialists. Respondents who regard “More Say” and “Freedom of Speech” as their value priority are classified as postmaterialists. For those respondents whose value priority consists of a materialist value and a postmaterialist value, they are classified as mixed respondents.

In contrast with Inglehart, we do not employ the 12-item battery to measure postmaterialism. We treat this 12-item battery as three different materialist-postmaterialist batteries and differentiate respondents separately according to their selections from these batteries. Inglehart usually use PDI (Percentage Difference Index) to indicate the level of Postmaterialism of a certain state. However, we will focus more on the states’ percentages of materialist and postmaterialists since we want to utilize group identity as an analytic unit.

2.2.2. Proxy Measurement of Postmaterialism:

In this research, we employ two questions of WVS 95 to run a proxy measurement of Postmaterialism. This proxy measurement is based on the assumption that the materialist-postmaterialist value dimension is valid and WVS 95 respondents should select from V41 and V159 according to their value preferences. As a proxy materialist, one has to select “Environmental Protection” from V41 and “Individual Freedom” from V159. As a proxy postmaterialist, one has to select “Economic Growth” from V41 and “Maintaining Order” from V159.

To be identified as a proxy mixed respondent, one has to select one materialist value and one postmaterialist value from V41 and V159. In this place, we do not calculate a proxy PDI score but focus on the value distributions of each state from the proxy

measurement of Postmaterialism.

2.2.3. Achievement Motivation Index:

I will follow Inglehart to construct this index by summing up the percentage difference of goal emphasis in each country. The index components are “Thrift”(V20), “Determination”(V21), “Religious Faith” (V22) and “Obedience” (V24). So the highest score for a certain state is 200% and lowest score is –200%. This index score can be calculated for the cases of the World Values Surveys unless certain states do not make selections from the battery in their questionnaires. If a state is surveyed in three waves of WVS, this state should have three different scores on the Achievement Motivation index.

If we utilize group identity and religious denominations as analytic units, we also can calculate how each group score on the Achievement Motivation index in each wave. So postmaterialists or Catholic respondents of WVS 81, WVS 90 and WVS 95 will have different scores.

2.2.4. Alternative Achievement Motivation Index:

In comparison with the original Achievement Motivation index developed by Granato, Inglehart and Leblang, this alternative index replace “Thrift”, “Determination” with “Independence” (V15) and “Feeling of Responsibility” (V17). So the index score is comprised of (Independence + Feeling of Responsibility)-(Religious Faith + Obedience). The highest score for any state to get on the index is still 200% and the lowest score is –200%.

2.2.5. Confucian Values Index:

This index is constructed from the Achievement Motivation battery of the World

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Values Survey since the assumed core Confucian values are also options in this battery. Confucian values index is based on the percentage in each society who emphasized V14(Good manners), V16(Hard work), V20(Thrift). In contrast with the Achievement Motivation index, I will not define the opposing values of Confucian values. Also, this index will only indicate elements of traditional Confucianism since a modernized Confucianism can not be fully defined.

I will calculate the mean score on the Confucian values index for every nation first. If East Asian states do show higher scores than other states, we can argue that respondents in these states do possess Confucian values. In the World Values Survey 81, Japan and South Korea are the only two states with a Confucian heritage and China appeared in the World Values Survey 90-91. It will be useful to examine how different these states score on the Confucian values index in different World Values Surveys.

2.2.6. Social Capital: Interpersonal Trust:

In the compiled data, V27 ask the respondents whether most people can be trusted or can't be too careful in dealing with people? The level of interpersonal trust of a nation will be measured by the percentage of its respondents who believe most people can be trusted (V27=1).

2.3. Assumption and Hypotheses:

2.3.1. Assumption:

Intergenerational value change is a fact. However, what causes the change cannot be fully explained by Inglehart's scarcity and socialization hypotheses. Furthermore, the direction of value change is not clear and whether there is a materialist-postmaterialist

value dimension is still in question. As to the Achievement Motivation argument, we assume that values cannot be good predictors since the process of index construction is subjective.

2.3.2. Individual level hypothesis 1:

This hypothesis concerns whether respondents make consistent selections across similar questions. There is a unique battery in WVS 95 that needs more attention. After selecting from the achievement motivation battery (V14-V24), WVS 95 respondents were immediately asked to select two most important values from four Achievement Motivation Index components (V25 & V26). WVS 95 respondents are asked to select up to five values from the Achievement Motivation battery. There are various combinations of WVS 95 respondents' possible selections from the Achievement Motivation battery. In these combinations, respondents can select from a minimum of zero to a maximum of four of the index components. So the possible selections could be (X,X,X,X,IC), (X,X,X,IC,IC), (X,X,IC,IC,IC), (X,IC,IC,IC,IC) and (X,X,X,X,X). In this place, IC indicates Index Component and X indicates other values besides index components in the Achievement Motivation battery.

If respondents select none of the index components from the Achievement Motivation battery, we can observe whether their selections are randomly distributed. If respondents select only one index component from the battery, we would expect that they select the same value when answering V25 since they select none of the remaining index components from the Achievement Motivation battery. In other words, the probability for these respondents to make consistent selections should higher than .25.

For those respondents who select two index components from the Achievement

Motivation, the situation will be somewhat complicated. If respondents select exactly two index components from the Achievement Motivation battery, we would expect them to select the same values from V25, V26. In this place, there are six combinations for the selections of two index components. These combinations are “Thrift, Determination” (V20,V21), “Thrift, Religious Faith” (V20,V22), “Thrift, Obedience” (V20, 24), “Determination, Religious Faith” (V21,V22), “Determination, Obedience” (V21,V24) and “Religious Faith, Obedience” (V22,V24).

In WVS 95, we need to examine to whether respondents’ selections from the Achievement Motivation battery and V25, V26 are correlated. In this place, we do not examine respondents’ selections according to their value preferences. This is just a test to see whether respondents remember what they selected in previous questions. If respondents do not make consistent selections, we cannot expect that they would recognize the existence of the materialist-postmaterialist value dimension. In this place, I will employ Pearson Correlation to examine the WVS 95 respondents’ selections across these two batteries.

2.3.3. Individual level hypothesis 2:

The second individual level hypothesis also concerns the consistency between respondents’ selections across different batteries. However, respondents’ value priority will be the focus of the hypothesis. The respondents are classified according to their selections from the materialist-postmaterialist battery. If they do follow their value priorities, they will not change their preference during the survey. In WVS 95, V41 and V159 are two questions that represent two compressed materialist-postmaterialist batteries. In each battery, respondents are asked to make one selection from two options.

One is a materialist goal and the other is a postmaterialist goal. The validity of the value dimension can be verified by examining how respondents select for V41 and V159.

Postmaterialist respondents are assumed to select postmaterialist goals from the two questions. Materialist respondents are also assumed to select materialist goals from the two questions. As we know, materialists and postmaterialists are identified according to their selections from the original battery. Since they select either two materialist values or two postmaterialist values from the original battery, they should not change their value priority when selecting from a two-item question. Any significant change implies respondents' value preferences are not stable and their selections are influenced by the format of questions. I will examine the correlation between WVS 95 respondents' value preferences and their selections from V41 and V159

2.3.4 Individual level hypothesis 3:

Postmaterialist and materialists respondents are assumed to have opposite opinions toward economic growth. In other words, postmaterialists should score lower than the materialists do on the Achievement Motivation index.

2.3.5 National level hypothesis 1:

The first national level hypothesis concerns the proxy measurement of Postmaterialism. If the materialist-postmaterialist value dimension is valid, the proxy measurement should at least mirror the value distributions according to the original materialist-postmaterialist battery. In other words, the percentages of postmaterialists and materialists of a state should have a positive effect on the percentages of proxy materialists and proxy postmaterialists. This hypothesis will just focus on the WVS 95

cases.

2.3.6. National Level Hypothesis 2:

As we argued earlier, East Asia' high saving rates are more likely a product of policy fundamentals and lasting economic growth. We hypothesize the causal direction between a state's emphasis on "Thrift" and economic growth is opposite to that of Granato, Inglehart and Leblang. In other words, economic growth should pose positive effects on a state's percentage of respondents who select "Thrift" from the Achievement Motivation battery.

2.3.7. National Level Hypothesis 3:

If the Achievement Motivation index was constructed correctly, the index components should keep their assumed effects on economic growth if the index is unpacked. This means "Thrift"(V20) and "Determination" (V21) should have positive effects and "Religious Faith" (V22), "Obedience" (V24) should have negative effects on economic growth.

2.3.8. National Level Hypothesis 4:

Since Postmaterialism is assumed to have a negative effect on economic growth, the states with higher percentage of postmaterialists should score lower than those states with lower percentage of postmaterialists on the Achievement Motivation index.

2.4. Case Selection and Data:

2.4.1. World Values Surveys:

All the data will come from the World Values Survey 81,90-91, 95. In WVS 81, 24

nations were surveyed and more than 40 nations were surveyed in WVS 90-91, 95. On the other hand, there were 168,482 respondents in these surveys. A nation and a respondent can both be an analytic unit depending on the different hypotheses. Dowley and Silver (manuscript, 2000.) argue the World Values Surveys need to be weighed more properly to show the representativeness of the data. I will follow them to use the weight variable V236 to sort the World Values Surveys.

2.4.2. Cases related to Postmaterialism and Achievement Motivation:

To examine the value distributions across nations in the World Values Surveys, we first need to sort the cases to classify the respondents. In the beginning, I will just use the original four-item battery to differentiate materialist, postmaterialist and mixed respondents. So there will be nine groups of respondents after the basic classification (M81, PM81, MIX81, M90, PM90, MIX90, M95, PM95 and MIX95).¹³ This classification will help us to know value distributions across nations in the three surveys and we can observe whether a shift toward Postmaterialist value can be verified by the data.

In a later section, this classification will be further utilizing the other two four-item batteries to differentiate the respondents again. As we know, WVS 81 respondents were only asked to select from the original battery. So there will be total a 21 types of respondents according to their selections from the batteries in different waves of surveys. If respondents are classified as postmaterialists or materialists according to the original battery, their group identity might be changed if we use other batteries to identity respondents. The reason for this classification is mainly to examine how certain types of

¹³ M=materialist, PM=postmaterialist and MIX=mixed

respondents make their selections in certain questionnaires. In order to examine respondents' consistency between their selections within the survey batteries, this analysis will take each respondent in each World Values Survey as a single case.

As to the Achievement Motivation argument, the analysis will be basically system level. We need to examine first whether the former socialist states score similarly from the Achievement Motivation Index of WVS 95 in comparison with the previous World Values Surveys. Hungary is the only communist state that included in WVS 81 and WVS 90.¹⁴ However, Hungary is not in WVS 95 and only can be analyzed systematically according to the survey data from 81-90. In the WVS 90, there are 13 former communist cases and China.¹⁵ We need to compare their value orientations with the WVS 95 to see the differences between these two surveys. Furthermore, I will also employ religious denomination to sort cases of the World Values Surveys. This step can help us to examine how respondents of different religious denominations select from the Achievement Motivation battery.

2.4.3. Cases related to Confucian Values Index:

It would be easy to identify which states of the World Values Surveys have Confucian heritage. However, we still need to estimate how every state scores on this index and whether East Asian states score differently in comparison with other states. Japan and South Korea are the only two nations with a Confucian heritage in WVS 81. Besides Japan and South Korea, China is another Confucian society in WVS 90 and Taiwan

¹⁴ As a Russian region, Tambov appears in WVS 81 and reappears in WVS 95. However, I cannot find how many Tambov respondents selected "Religious Faith" from the Achievement Motivation list in WVS 81. Under such a situation, there is no index score of Tambov in WVS 81.

¹⁵ Hungary, Poland, Belarus, Czechoslovakia, East Germany, Slovenia, Bulgaria, Romania, Moscow,

appears as the fourth Confucian society in WVS 95.

After measuring how each state scores on this index in each World Values Survey, the next step is to compare the scores of the East Asian states individually in different surveys. We can find how Japan and South Korea scored in WVS 81, 90, and 95. The differences between these scores can show whether these states experience a cultural change in this time period. As to China, we only can observe the change in a shorter time period. The above analysis is descriptive and we need to take Confucian values as the independent variable to test its effect on economic growth.

2.5. Data and Models

2.5.1. Value priorities consistency model:

This model will focus on how respondents select across the questions of the World Values Surveys. According to Inglehart, there are three categories to differentiate the respondents: materialist, mixed and postmaterialist. Scholars refute the validity of the Postmaterialism theory by examining the consistency in responses between the three materialist-postmaterialist batteries. In this model, consistency has two implications: first, whether respondents can make same selections across similar questions; second, whether there is a consistency between respondents' selections and their value priorities.

After selecting five values from the Achievement Motivation battery, WVS 95 respondents were asked to make two selections from four Achievement Motivation Index components. If respondents selected religious faith and obedience or if they selected thrift and determination from the original list, they should make the same selections from the short list. In this place, this consistency needs more specification. When respondents

Lithuania, Latvia, Estonia, Russia.

make selections from the list, there are various combinations of their selections. They probably select at least 0 or at most 4 index components from the Achievement Motivation battery. If the WVS 95 respondents select only one index component from the Achievement Motivation battery, we expect them to make the consistent selection from V25 (first selection). In this place, consistency means the probability for WVS 95 respondents to select the same value from V25 should not be lower than .25.

So the first null hypothesis is $H_0: p > 0.25$

If we find the probability for WVS 95 respondents to select the single index component across the Achievement Motivation battery and V25 is lower than .25, the null hypothesis is rejected. On the other hand, if a respondent of WVS 95 select two index components from the Achievement Motivation battery, we need to examine whether their selection combinations from the Achievement Motivation battery are correlated with their selections from V25 and V26.

2.5.2. Baseline Endogenous Growth Model:

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \varepsilon$$

Inglehart utilized Levine and Renelt's model (1992) to test the effect of Achievement motivation and Postmaterialism. In the original model, the dependent variable is the mean rate of per capita economic growth 1960-89. The independent variables are (1) Per capita GDP in 1960, (2) Primary education in 1960, (3) Secondary education in 1960, (4) Investment.

X_{i1} = Per Capita GDP 1960 of state i

X_{i2} = The number of students enrolled in primary school grade level relative to the total population of that age group in state i in 1960.

Xi3=The number of students enrolled in secondary school grade level relative to the total population of that age group in state *i* in 1960.

Xi4= The mean ratio of real domestic investment to real GDP of state *i* in 1960

This model first confirms “Convergence” of neoclassical analyses and implies poorer nations should grow faster than richer ones¹⁶. Second, human capital is an influential factor to explain economic growth since both primary and secondary education. Third, Granato, Inglehart, Leblang utilize this model and test the effects of Postmaterialism and Achievement Motivation on economic growth. As I mentioned earlier, the causal relationship between cultural factors and economic growth should be reversed since these cultural factors were measured in 1990, not 1960. Under such a situation, Inglehart’s analysis does not verify the effect of cultural factors on economic growth.

However, I will still keep this model to run another test to falsify the argument of Granato, Inglehart and Leblang. This does not mean that their causal relationship is accepted. I merely wish to demonstrate the impact on the regression if we unpack the index and if we employ the alternative Achievement Motivation index as an independent variable.

2.6.Data I (The Original Data of Granato, Inglehart, Leblang):

The data for the causal relationship between achievement motivation and economic growth is somewhat complicated. Data I (please see the appendix) is the original data from the appendix of Granato, Inglehart, Leblang (1996, p.628). As we know, most of their data is from Levine and Renelt (1992) and there are 25 cases. Achievement

¹⁶ In fact, neoclassical models have been refuted by other scholars since some poor countries are falling back rather than catching up.

Motivation and Postmaterialism are measured from WVS 90 and I will add 7 new variables into this data set. Besides the Achievement Motivation index scores, I will unpack the index and the four index components will become separate variables. So the percentages of each state selecting “Thrift”, “Determination”, “Religious Faith” and “Obedience” from WVS 90 Achievement Motivation battery will become variables.

On the other hand, I will also add the percentages of the states selecting “Independence” and “Feeling of Responsibility” from the Achievement Motivation battery of WVS 90. Furthermore, how these 25 states score on the alternative Achievement Motivation index will also become a variables in Data I. Four models will be developed from Data I. The first model will examine the effects of economic growth on the percentages of respondents selecting “Thrift” from WVS 95 in 25 states. The second and the third models will follow the steps of Granato, Inglehart and Leblang to examine the effects of the alternative Achievement Motivation index on economic growth. In other words, the alternative index will replace the original Achievement Motivation index to become an independent variable in model 2 and model 3. Data I will have several variations to include different numbers of cases. These variations are based on the different time periods we select and data availability.

2.6.1. Model 1: Simple Regression between Economic Growth 1960-89 and “Thrift” of WVS90 (N=25)

$$Y_i = \alpha + \beta_1 X_{i1} + \varepsilon \quad (1)$$

As a positive component of the Achievement Motivation index, Granato, Inglehart and Leblang regard “thrift” as a value that could leads to saving and consequent economic growth. This model is utilized to argue it is possible that economic growth could be

conducive to thrift. The independent variable of this model is the mean economic rate 1960-89 of a certain state and the dependent variable is the percentage of respondents of a certain nation select “Thrift” from the Achievement Motivation battery of WVS 90. If we find that economic growth can pose positive effects on respondents’ selections of “Thrift” then the causal relation between economic growth and “Thrift” can go either way.

2.6.2. Model 2: Economic Growth 1960-89 as the Dependent Variable and Postmaterialism, Alternative Achievement Motivation as the Independent Variables (N=25).

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \varepsilon \quad (2)$$

Y_i still indicates the economic growth 1960-89 of state i

X_{i1} = the score of state i on the alternative Achievement Motivation index of WVS 90.

X_{i2} = mean score of postmaterialism WVS 90.

This model is basically a simple regression between economic growth 1960-89 and two cultural factors. However, the alternative Achievement Motivation index will replace the original index to become an independent variable in this model.

2.6.3. Model 3: Modified Baseline Endogenous Growth Model and Alternative Achievement Motivation as one Independent Variable (N=25)

After testing the effects of Postmaterialism and alternative Achievement Motivation index on economic growth, I will integrate these two cultural factors into the original model of Levine and Renelt.

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \beta_5 X_{i5} + \beta_6 X_{i6} + \varepsilon \quad (3)$$

X_{i1} =GDP of state i in 1960

X_{i2} =The number of students enrolled in primary school grade level relative to the total population of that age group in state i in 1960.

X_{i3} =The number of students enrolled in secondary school grade level relative to the total population of that age group in state i in 1960.

X_{i4} = The mean ratio of real domestic investment to real GDP of state i in 1960.

The data for X_1 , X_2 , X_3 , X_4 comes from Levine and Renelt (1992).

X_{i5} = The score of state i on the alternative Achievement Motivation index of WVS 90

X_{i6} = The mean score of Postmaterialism of state i in WVS 90.

2.6.4. Model 4: Modified Endogenous Growth Model (Unpacking the Achievement Motivation Index)

In this new model, the dependent variable will be the mean rate of per capita economic growth from 1960-89. As to the independent variables, I basically follow Levine and Renelt to take initial GDP, human capital and investment as the basic explanatory factors. The Achievement Motivation factor will become four separate variables. In other words, four index components become four independent variables. The process of unpacking the Achievement Motivation index can help us to observe whether each index component can still have its assumed effects on subsequent growth. The model should be interpreted as the following equation:

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \beta_5 X_{i5} + \beta_6 X_{i6} + \beta_7 X_{i7} + \beta_8 X_{i8} + \beta_9 X_{i9} + \epsilon$$

(4)

In this model, Y_i represents the mean rate of per capita economic growth 1960-89 for state i .

X_{i1} =GDP of state i in 1960

X_{i2} =The number of students enrolled in primary school grade level relative to the total population of that age group in state i in 1960.

X_{i3} =The number of students enrolled in secondary school grade level relative to the total population of that age group in state i in 1960.

X_{i4} = The mean ratio of real domestic investment to real GDP of state i in 1960

The data for X_1 , X_2 , X_3 , X_4 comes from Levine and Renelt (1992).

X_{i5} = The percentage of respondents of state i select “Thrift” from WVS 90 Achievement Motivation list.

X_{i6} = The percentage of respondents of state i select “Determination” from WVS 90 Achievement Motivation list.

X_{i7} = The percentage of respondents of state i select “Religious Faith” from WVS 90 Achievement Motivation list.

X_{i8} = The percentage of respondents of state i select “Obedience” from WVS 90 Achievement Motivation list.

X_{i9} = The mean score of Postmaterialism of state i from WVS 90.

2.7. Data II:

In the previous models, I basically follow the causal direction of Granato, Inglehart and Leblang. Data II is a variation of Data I. In Data II, all cultural factors are measured from WVS 90 and most economic data are measured after 1989. I will utilize this data to develop three models to test the effects of different cultural factors on the mean economic growth rate 1990-99. In this place, we can find the causal relations between the independent variables and the dependent variable are not the same as that of Granato,

Inglehart and Leblang. Again, we will need to unpack the Achievement Motivation index and test the index components separately. Furthermore, the effects of the alternative index on economic growth are also examined. Since we do not have the data of investment, primary education and secondary education of 1990, these variables will be tested in the following models.

So the mean economic growth rate 1990-99 will become the dependent variable in all three models. The cultural factors are achievement motivation, postmaterialism and alternative achievement motivation index. There are 25 cases in Data I. West Germany and Switzerland will not be cases of Data II. West Germany cannot be a case of Data II since its economic data is not available.¹⁷ As to Switzerland, this state is not qualified to be a case since their data is incomplete¹⁸. According to Granato, Inglehart and Leblang, Switzerland scores -0.03 from the Achievement Motivation index. But from WVS 90, we cannot find how many Swiss respondents selected “Determination” from the list. The score is just a percentage difference between other three index components. If “Determination” is not an option in the questionnaire of Switzerland, there is no way to measure achievement motivation. So Switzerland will be excluded from this data and the number of cases is 23 (Please see the appendix for the detailed description).

2.7.1. Model 5: Model with Achievement Motivation and Postmaterialism (WVS 90) as the Independent Variables and Economic Growth 1990-99 as the Dependent Variable (N=23)

This model is simply a regression analysis between two cultural factors measured from

¹⁷ In the World Values Surveys, Inglehart did differentiate the respondents from East Germany and West Germany. However, the economic data after German unification is not available.

¹⁸ Switzerland is still a case of Data I since I want to follow the causal direction of Granato, Inglehart and Leblang.

WVS 90 and economic growth 1990-99. In this place, we can find the cultural factors are measured before the time period of economic growth.

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \varepsilon \quad (5)$$

Y_i indicates the economic growth 1990-99 of state i

X_{i1} = the score of state i on the Achievement Motivation index of WVS 90.

X_{i2} = mean score of postmaterialism WVS 90.

2.7.2. Model 6: Model with Achievement Motivation Index Components and Postmaterialism (WVS 90) as the Independent Variables and Economic Growth 1990-99 as the Dependent Variable (N=23)

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \beta_5 X_{i5} + \varepsilon \quad (6)$$

Y_i = the mean rate of per capita economic growth 1990-99 for state i (The World Bank 1999)

X_{i1} = the mean of Postmaterialism of state i in WVS 90

X_{i2} = the percentage of respondents of state i select "Thrift" from WVS 90 Achievement Motivation battery.

X_{i3} = The percentage of respondents of state i select "Determination" from WVS 90 Achievement Motivation battery.

X_{i4} = The percentage of respondents of state i select "Religious Faith" from WVS 90 Achievement Motivation battery.

X_{i5} = The percentage of respondents of state i select "Obedience" from WVS 90 Achievement Motivation battery.

2.7.3. Model 7: Model with Alternative Achievement and Postmaterialism (WVS 90) as

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the Independent Variables and Economic Growth 1990-99 as the Dependent Variable (N=23)

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \varepsilon \quad (7)$$

Y_i = the mean rate of per capita economic growth 1990-99 for state i (The World Bank 1999)

X_{i1} = the mean of Postmaterialism of state i in WVS 90

X_{i2} = the score of state i on the alternative Achievement Motivation in WVS 90.

2.8. Data III:

This data focuses on WVS 81 cases. In the previous models, the cultural factors are measured from WVS 90. If we measure the cultural factors from WVS 81, the dependent variable should be the economic growth rate after 1981. In this data, I will first take mean economic growth rate 1980-90 as the dependent variable and the independent variables are the cultural factors measured from WVS 81. Also, we will calculate how WVS 81 cases score on the alternative achievement motivation index. The effects of the alternative index on subsequent economic growth will also be examined. Furthermore, the scores of WVS 81 cases on the Confucian Values index and the level of interpersonal trust of each case will also be the independent variables.

There are 24 cases in WVS 81. Tambov cannot be a case since it is a Russian region and “religious faith” is not an option for their respondents. Finland is also excluded since Finnish respondents do not make selections from the list and there is no achievement motivation score for them. Northern Ireland is excluded since the economic data is not available. So there are 21 cases in this data and four models will be developed from Data III.

2.8.1. Model 8: Model with the WVS 81 Achievement Motivation as the Independent Variable and Economic Growth 1980-90 as the Dependent Variable (N=21)

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \varepsilon \quad (8)$$

Y_i = the mean rate of per capita economic growth 1980-90 for state i (The World Bank 1999).

X_{i1} = the score of state i on the Achievement Motivation in WVS 81.

2.8.2. Model 9: Model with WVS 81 Achievement Motivation Index Components as the Independent Variables and Economic Growth 1980-90 as the Dependent Variable (N=21)

This model will simply examine the causal relationship between Achievement Motivation Index components and economic growth.

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \varepsilon \quad (9)$$

Y_i = the mean rate of per capita economic growth 1980-90 for state i (The World Bank, 1999)

X_{i1} = the percentage of respondents of state i select “Thrift” from WVS 81 Achievement Motivation list.

X_{i2} = The percentage of respondents of state i select “Determination” from WVS 81 Achievement Motivation list.

X_{i3} = The percentage of respondents of state i select “Religious Faith” from WVS 81 Achievement Motivation list.

X_{i4} = The percentage of respondents of state i select “Obedience” from WVS 81 Achievement Motivation battery.

2.8.3. Model 10: Model with WVS 81 Alternative Achievement Motivation as the

Independent Variables and Economic Growth 1980-90 as the Dependent Variable

(N=21)

$$Y_i = \alpha + \beta_1 X_{i1} + \varepsilon \quad (10)$$

Y_i = the mean rate of per capita economic growth 1980-90 for state i (The World Bank 1999).

X_{i1} = the score of state i on the alternative Achievement Motivation in WVS 81.

2.8.4. Model 11: Model with WVS 81 Interpersonal Trust and WVS 81 Confucian

Values as the Independent Variables and Economic Growth 1980-90 as the

Dependent Variable (N=21)

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \varepsilon \quad (11)$$

Y_i = the mean rate of per capita economic growth 1980-90 for state i (The World Bank 1999).

X_{i1} = the level of interpersonal trust of state i in WVS 81.

X_{i2} = the score of state i on the Confucian Values index in WVS 81

2.9. Data IV:

This data is basically a variation of Data III. In Data III, the dependent variable is the economic growth 1980-90. In this data, cultural factors are still measured from WVS 81 but a longer time period of mean economic growth rate will be the dependent variable. With the World Bank data, we extend the time period to 1997. In other words, the dependent variable will be the economic growth 1980-97. However, Germany and Iceland need to be excluded since the economic data is not available. So there will be 19 cases and three models will be developed from this data.

2.9.1. Model 12: Model with WVS 81 Achievement Motivation as the Independent Variable and Economic Growth 1980-97 as the Dependent Variable (N=19)

$$Y_i = \alpha + \beta_1 X_{i1} + \varepsilon \quad (12)$$

Y_i = the mean rate of per capita economic growth 1980-90 for state i (The World Bank 1999).

X_{i1} = the score of state i on the Achievement Motivation index in WVS 81

2.9.2. Model 13: Model with WVS 81 Achievement Motivation Index Components as the Independent Variables and Economic Growth 1980-97 as the Dependent Variable (N=19)

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \varepsilon \quad (13)$$

Y_i = the mean rate of per capita economic growth 1980-97 for state i (The World Bank 1999)

X_{i1} = the percentage of respondents of state i select “Thrift” from WVS 81 Achievement Motivation list.

X_{i2} = The percentage of respondents of state i select “Determination” from WVS 81 Achievement Motivation list.

X_{i3} = The percentage of respondents of state i select “Religious Faith” from WVS 81 Achievement Motivation list.

X_{i4} = The percentage of respondents of state i select “Obedience” from WVS 81 Achievement Motivation list.

2.9.3. Model 14: Model with the WVS 81 Alternative Achievement Motivation as the Independent Variable and the Economic Growth 1980-97 as the Dependent

Y

Y

1

X

2

2

2

a

V

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re

m

s

A

V

C

n

2

2

2

Y

Y

Variable (N=19)

$$Y_i = \alpha + \beta_1 X_{i1} + \varepsilon \quad (14)$$

Y_i = the mean rate of per capita economic growth 1980-97 for state i (The World Bank 1999).

X_{i1} = the score of state i on the alternative Achievement Motivation index in WVS 81

2.10. Data V:

This data is another variation of Data III and will be used to examine the effect of achievement motivation and Postmaterialism on economic growth. In this data, PDI of WVS 81 cases will be used to indicate Postmaterialism. In WVS 81, the original battery was not asked in Austria and there is no way to measure the value distribution of Austrian respondents. Austria will be excluded from this data and the number of cases is 18. Three models will be developed from Data V to test the effects of different cultural factors on subsequent economic growth. These factors include Achievement Motivation, alternative Achievement Motivation, Postmaterialism (PDI), interpersonal trust and Confucian Values. Since Achievement Motivation, alternative Achievement Motivation and Confucian Values are somewhat overlapped, these factors cannot appear in the same model.

2.10.1. Model 15: Model with WVS 81 PDI, WVS 81 Interpersonal Trust, WVS 81 Achievement Motivation as the Independent Variables and Economic Growth 1980-97 as the Dependent Variable (N=18)

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \varepsilon \quad (15)$$

Y_i = the mean rate of per capita economic growth 1980-97 for state i .

X_{i1} = PDI of state i in WVS 81

X_{i2} = the score of state i on the Achievement Motivation index in WVS 81

X_{i3} = the level of interpersonal trust of state i in WVS 81

2.10.2. Model 16: Model with WVS 81 PDI, WVS 81 Alternative Achievement Motivation, WVS 81 Interpersonal Trust as the Independent Variables and Economic Growth 1980-97 as the Dependent Variable (N=18)

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \varepsilon \quad (16)$$

Y_i = the mean rate of per capita economic growth 1980-97 for state i .

X_{i1} = PDI of state i in WVS 81

X_{i2} = the score of state i on the alternative Achievement Motivation index in WVS 81

X_{i3} = the level of interpersonal trust of state i in WVS 81

2.10.3. Model 17: Model with WVS 81 PDI, WVS 81 Interpersonal Trust and WVS 81 Confucian Values as the Independent Variables and the Economic Growth 1980-97 as the Dependent Variable (N=18)

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \varepsilon \quad (17)$$

Y_i = the mean rate of per capita economic growth 1980-97 for state i .

X_{i1} = PDI of state i in WVS 81

X_{i2} = the score of state i on the Confucian Values index (Thrift + Good Manners + Hard Work) in WVS 81

X_{i3} = the level of interpersonal trust of state i in WVS 81

CHAPTER 3 DATA ANALYSIS

3.1. Postmaterialism: Sorting Cases and Compare WVS 95 with WVS 81, WVS 90:

The compiled data consists of the World Values Survey 81, 90 and 95. My first step is to sort cases and differentiate three types of respondents: Materialist, Postmaterialist and Mixed respondents. As we know, Inglehart used two indexes to measure the respondents' value orientations. The first is the four-item battery and the other is the twelve-item battery. In this place, the original four-item battery will be the only criterion to differentiate the respondents. The other batteries will be utilized in the later consistency test. From the compiled data, V106 and V107 indicate the respondents' selections from the materialist-postmaterialist battery.

Variable: V106 & V107 (Materialist-Postmaterialist battery)

- 1. Maintaining order in the nation*
- 2. Giving the people more say in important political decisions.*
- 3. Fighting rising prices.*
- 4. Protecting freedom of speech*

Respondents are asked to select two most important goals for their nations from this battery. V106 indicates their first selections and V107 indicates their second selections. Respondents' selections from V106 and V107 will define their value orientations. We can sort 9 types of respondents from the compiled data according to their value preferences and the waves of surveys. These types are: M81, M90, M95, P81, P90, P95, Mix81, Mix90, Mix 95. The letter indicates whether a certain respondent is a materialist, postmaterialist or a "mixed" respondent. The number indicates which wave of WVS a certain respondent belongs to.

The next step is to run a cross-tabulation to differentiate the respondents in each wave,

each nation. I will follow Inglehart to compute PDI (percentage difference index) by subtracting the percentage of Materialists from the percentage of Postmaterialists of each state. Table 3-1 shows the distributions of postmaterialist and mixed respondents in each World Values Survey.

From the aggregate level, it is not clear whether there is a shift toward Postmaterialism. In WVS 81, 32% of the respondents are materialists and 13% of them are classified as postmaterialists. In WVS 90, 27% of the respondents are materialists while 16% of them are postmaterialists. In WVS 95, 35% of the respondents are materialists while 12% of them are postmaterialists. The percentage of materialist respondents declines from WVS 81 to WVS 90 but rises in WVS 95. As to the postmaterialist respondents, the percentage rises from WVS 81 to WVS 90 but declines in WVS 95.

Table 3-1. The Value Distributions in WVS 81, WVS 90, WVS 95

	Materialists	Postmaterialists	Mixed	Total	N
WVS 81	32%	13%	55%	100%	23585
WVS 90	27%	16%	56%	99%	55582
WVS 95	35%	12%	53%	100%	72353

Source: The World Values Survey 1981, 1990, 1995.

Note: To be a materialist, a respondent must select (1.3) or (3.1) from the battery. In other words, a materialist should be defined as (v106=1 & v107=3) or (v106=3 & v107=1). To be a postmaterialist, a respondent must select (2.4) or (4.2) from the battery. In other words, a postmaterialist should be defined as (v106=2 & v107=4) or (v106=4 & v107=2). A mixed respondent is supposed to select one materialist goal and one postmaterialist goal. In other words, a mixed respondents should be defined as (v106=1 & v107=2) or (v106=2 & v107=1) or (v106=1 & v107=4) or (v106=4 & v107=1) or (v106=2 & v107=3) or (v106=3 & v107=2) or (v106=3 & v107=4) or (v106=4 & v107=3).

As we know, WVS 95 includes more cases than the previous surveys and most of the cases are developing countries. In WVS 81, 55% of the respondents are classified as

“mixed” respondents. In WVS 90, 56% of the respondents and 53% of WVS 95 respondents are classified as “mixed” respondents. Even though each survey includes different numbers of cases, we can find the percentage of “mixed” respondents is stable across three time points. Appendix II shows the PDI of each case in each wave. Many former socialist states appear for the first time in WVS 95 and most of them score very low on the PDI.

These former socialist states have experienced both political and economic transition in the past decades. However, it appears that their respondents are more concerned with survival than with political freedoms. In 1988, Inglehart and Siemienińska argued there was a shift toward postmaterialist values among the Polish public. However, Poland’s PDI score declined between WVS 90 and WVS 95 from –21 to –35. Taiwan is another interesting case in WVS 95. Like South Korea and other East Asia states, Taiwan experienced rapid economic growth in recent years. However, 6 percent of the Taiwanese respondents are classified as postmaterialists and 46% are materialists (PDI score is –40). In this place, Taiwan’s low percentage of postmaterialist becomes a puzzle since all Latin American states in WVS 95 have a higher percentage of postmaterialists.

Inglehart claims the distribution of materialist and postmaterialist values in WVS 81,90 shows a global value shift. So does WVS 95 reinforce his arguments? Table 3-2 shows the net shift of PDI score across three surveys. Since some states only appear once in the World Values Survey, these states are excluded from this table. There are three time points in Table 3-2. Inglehart argues that a value shift is evident between WVS 81 and WVS 90. He compared 21 cases that appeared in both surveys (1997 p.156-157). According to Inglehart, the surprising case is South Korea that shows no net shift and two states (Iceland & South Africa) show a shift toward materialist goals.

Table 3-2. Percentage of Postmaterialists Minus the Percentage of Materialists (PDI) in 35 Societies, WVS 81, WVS 90, WVS 95.

	Years of Surveys			Shift	
	WVS81	WVS90	WVS 95	WVS81-90	WVS 90-95
U.S & Europe					
France	-13	5		+18	
Britain	-9	-9	9	0	+18
West Germany	-3	14	29	+17	+15
Italy	-35	0		+35	
Netherlands	-5	23		+28	
Denmark	13	-1		-14	
Belgium	-9	2		+11	
Spain	-39	-4	-12	+35	-8
Ireland	-30	-4		+26	
U.S.A	-24	6	9	+30	+3
Canada	-6	13		+19	
Norway	-20	-19	-3	+1	+16
Sweden	-22	9	11	+31	+2
Iceland	-9	-15		-6	
Finland	21	24	19	+3	-5
Switzerland		11	1		-10
Asia					
Japan	-31	-19	-18	+12	+1
South Korea	-35	-35	-41	0	-6
India		-34	-48		-14
Latin America					
Mexico	-18	-13	-3	+5	+10
Argentina	-21	-6	12	+15	+18
Brazil		-34	-19		+15
Chile		-6	-12		-6
Africa					
South Africa	-25	-33	-38	-8	-5
Nigeria		-29	-35		-6
The former Socialists states					
Hungary	-50	-43		+7	
Poland		-21	-35		-14
Belarus		-30	-43		-13
East Germany		11	6		-5
Slovenia		-24	-6		+18
Bulgaria		-20	-49		-29
Lithuania		-15	-41		-26
Latvia		-17	-32		-15
Estonia		-25	-35		-10
Russia		-36	-53		-17

Source: The World Values Survey 1981, 1990 and 1995. The value questions were not asked in U.S. in WVS 81, the PDI of U.S. in this table is from 1980 National Election Study.

Note: Based on the original materialist-postmaterialist battery.

However, WVS 95 does not validate Inglehart's arguments. South Korea still does not show a shift toward postmaterialist goals. On the contrary, the net shift for South Korea is negative from WVS 90 to WVS 95 (from -35 to -40). Inglehart compared East Asia and East Europe and argued "...we would expect to find higher proportions of Postmaterialists than in East Asia, but less intergenerational change." (1997 p.144). In this place, we can find Table 3-2 does not verify Inglehart's argument.

Many states did show a shift toward postmaterialist values, but the shift becomes a contradictory verification of Inglehart's theory. Inglehart's Postmaterialism theory is based on long-term observations of several West European states. However, whether this theory can be applied to other states is still in question. In WVS95, Britain and West Germany do show an increase in PDI score. On the other hand, the rest of the WVS95 cases do not clarify the theoretical puzzle of Postmaterialism. According to Inglehart, we do not expect a highly industrialized democracy would shift toward materialist goals. However, Finland and Switzerland are two exceptions that do not show a shift in the predicted direction.

A distinguished anomaly comes from some Latin American states. Most Latin American states have experienced economic difficulties like unemployment and inflation in recent decades. Under such a situation, the respondents from Latin American states should not feel economically secure and they should be more materialist-oriented in their value priorities. If Inglehart's theory correct, we should observe a low percentage of postmaterialists in those Latin American states.

When Inglehart demonstrated the relationship between economic growth and intergenerational value change (1997 p.148-149), Argentina and Chile were regarded as deviant cases since they experience larger intergenerational value change but with low

economic growth rates. But if we examine the value distribution of these Latin American states in WVS 95, Argentina and Chile should not be treated as deviant cases at all. Table 3-3 shows the percentage of postmaterialists of eight Latin American states. Mexico and Argentina appear consecutively in three surveys. Brazil and Chile were surveyed in WVS 90 and WVS 95. Columbia, Peru, Uruguay and Venezuela were surveyed in WVS 95.

Table 3-3. Percentages of Postmaterialist Respondents of Eight Latin American States in WVS 81, WVS 90 and WVS 95

States	WVS 81 Postmaterialists	WVS 90 Postmaterialists	WVS 95 Postmaterialists
Mexico	9%	11%	17%
Argentina	12%	20%	29%
Brazil		7%	12%
Chile		19%	14%
Columbia			14%
Peru			12%
Uruguay			27%
Venezuela			12%

Source: The World Values Survey 1981, 1990, 1995.

According to Table 3-3, we can find their postmaterialist respondents are increasing in recent years in Latin American states. The percentage of postmaterialists in Mexico and Argentina is getting higher across three waves of surveys especially in the case of Argentina, where 29 percent its respondents in WVS 95 can be classified as postmaterialists. If Argentina is a deviant case, the other Latin American states would be deviants cases too. We can tell from Table 3-3 that the lowest percentage of

postmaterialists in WVS 95 Latin American states is 12%. Besides Argentina, Uruguay also has 27% postmaterialist respondents in WVS 95.

If we compare these Latin American states with East Asian states, we have to ask why do these East Asian states (Japan, South Korea, Taiwan) fail to shift toward postmaterialist values? And why do these Latin American states still obtain a higher percentage of postmaterialists without impressive economic growth? Under such a situation, we need to examine the reliability of the survey data. If the respondents just answer the questionnaires randomly, there should be no such a materialist-postmaterialist value dimension.

3.2. How Do WVS Respondents Select from other Four-item Batteries?

Instead of using U.S surveys, I will use the World Values Surveys to examine the debate between Inglehart and Davis, Davenport. If we focus only on the original materialist-postmaterialist battery, Inglehart's argument can be sustained. However, we need to examine whether the same argument can be applied to the other two four-item batteries.

From the compiled data, V104, V105, V108, V109 represent respondents' first and second choices from two four-item batteries. For the first battery, respondents need to make two selections from the following four options.

1. A high level of economic growth
2. Making sure this country has strong defense forces
3. Seeing that people have more say about how things are done at their job and in their communities.
4. Trying to make our cities and countryside more beautiful.

For the second battery, respondents need to make two selections from the following four options.

- 1. A stable economy*
- 2. Progress toward a less impersonal and more humane society*
- 3. Progress toward a society in which ideas count more than money*
- 4. The fight against crime*

In the first four-item battery, 1 and 2 tap materialist values while 3 and 4 tap postmaterialist values. In the second four-item battery, 1 and 4 tap materialist values while 3 and 4 tap postmaterialist values. In this place, we can differentiate respondents according to their selections from these two batteries. Since these two batteries were not included in WVS 81, the process of differentiation will be applied to WVS 90 and WVS 95 respondents.

I will employ the data to examine two arguments of Davis and Davenport (1999) and one argument of Inglehart and Abramson (1999). From the perspective of Davis and Davenport, respondents' random selections will lead to a certain distribution of different types of respondents (i.e., 16.6% materialists, 66.6% mixed, and 16.6% postmaterialists). Furthermore, when respondents make their first selections from the batteries, the probability for them to select the rest three values as their second selections should be equal (i.e., no greater than 0.33). From the perspective of Inglehart and Abramson, respondents who select a postmaterialist value as their first selections are more likely to select the other postmaterialist value as their second selections.

Table 3-4. Value Distributions according to Two Four-item Batteries in WVS 90 and WVS 95.

V104 & V105					
	Materialists	Postmaterialists	Mixed	Total	N
WVS 90	14%	15%	71%	100%	53006
WVS 95	24%	9%	67%	100%	67463

V108 & V109					
	Materialists	Postmaterialists	Mixed	Total	N
WVS 90	36%	11%	53%	100%	55872
WVS 95	43%	8%	49%	100%	68608

Source: The World Values Survey 1990 and 1995.

Note: 1. To be identified as a materialist respondent according V104 and V105, one has to select “economic growth” and “strong defense” as their selections for V104 and V105 (V104=1 & V105=2) or (V104=2 & V105=1). To be identified as a postmaterialist respondent according V104 and V105, one has to select “more say” and “beautiful cities” for V104 and V105 (V104=3 & V105=4) or (V104=4 & V105=3). As to be identified as a mixed respondent from this battery, one has to select a materialist value and a postmaterialist value for V104 and V105.

2. To be identified as materialist respondent according to V108 and V109, one has to select “stable economy” and “against crime” for V108 and V109 (V108=1 & V109=4) or (V108=4 & V109=1). To be identified as a postmaterialist respondent according to the same battery, one has to select “humane society” and “ideas count” for V108 and V109 (V108=2 & V109=3) or (V108=3 & V109=2). As to the mixed respondents, they have to select a materialist value and a postmaterialist value for V108 and V109.

We can find the value distribution according the respondents’ selections from V104 and V105 somewhat echos the argument of Davis and Davenport. According to Table 3-4, 14% WVS 90 respondents are classified as materialists and 15% WVS 90 respondents are classified as postmaterialists according to their selections from V104 and V105. This distribution is similar to the distribution if respondents select randomly. On the other hand, 24% of WVS 95 respondents are classified as materialists and 9% of WVS 95 respondents are classified as postmaterialists according to their selections from V104 and

V105. The distribution is a little different in comparison with that of WVS 90 but the percentage of mixed respondents is distinguished since it responds to the assumption of Davis and Davenport.

As to the second four-item battery, the distribution is not close to the assumption of Davis and Davenport. In WVS 90, 36% of respondents are classified as materialists and 11% of respondents are classified as postmaterialists according to their selections from V108 and V109. On the other hand, 43% of WVS 95 respondents can be classified as materialists and 8% of them can be classified as postmaterialists according to their selections from V108 and V109.

So how about the distributions of each state in WVS 90 and WVS 95? If we focus on V104 and V105 only, Canada and Sweden are the only two WVS 90 cases which have similar distributions as Davis and Davenport assumed. Australia, Norway and Puerto Rico are three WVS 95 cases which have similar distributions as Davis and Davenport assumed. As to V108 and V109, there is no WVS 90 or WVS 95 case which has the assumed value distributions.

However, we do find several cases with similar percentages of postmaterialist respondents as Davis and Davenport assumed. If we differentiate respondents according to their selections from V104 and V105, there are 6 WVS 90 cases¹⁹ and 10 WVS 95 cases²⁰ with a close assumed percentage (i.e. 16.6%) of postmaterialist respondents. If we differentiate respondents according to their selections from V108 and V109, there are 11 WVS 90 cases²¹ and 10 WVS 95 cases²² with a percentage of postmaterialist respondents

¹⁹ Ireland, Canada, Norway, Sweden, Iceland and Austria.

²⁰ West Germany, Spain, Australia, Norway, Argentina, Puerto Rico, Chile, Slovenia, Andalusia and Galicia.

²¹ Britain, West Germany, Italy, Netherlands, Denmark, Belgium, Canada, Mexico, Sweden, India and Austria.

which is close to the assumed one. If we focus on the percentage of “mixed” respondents according to these four-item batteries, there are more cases that fit the assumption of Davis and Davenport.

The next step is to examine whether respondents’ selections are related to their first selections in these four-item batteries. Table 3-5 shows how respondents select from V104, V105. Overall, we do not find the random pattern as Davis and Davenport assumed. Following their conditional probability argument, Table 3-5 does not show that respondents make their second selections randomly. However, the defense from Inglehart and Abramson also cannot hold true.

As we know, “economic growth” and “strong defense” are materialist values and “more say”, “beautiful cities” are postmaterialist values. In WVS 90, when respondents select “economic growth” first, 55% of them select “more say” next and they even prefer “beautiful cities” than “defense”. When WVS 90 respondents select “defense” first, they are most likely to select “economic growth” as their second selection. But when they select “more say” first, they prefer “economic growth” as their second selection. When they select “beautiful cities” first, their second selections are equally distributed in “economic growth” and “more say”(the percentage is the same since the difference is trivial). So from Table 3-5, we find that respondents who select a postmaterialist value first are not necessarily more likely to select another postmaterialist value than those respondents who select a materialist value as their first selections. In other words, respondents do not make consistent selections in this four-item battery.

²² Spain, Australia, Sweden, Argentina, Finland, South Korea, Chile, Taiwan, Turkey and Uruguay.

Table 3-5. Cross-Tabulations (Second Choice by First Choice) between V104 and V105 in WVS 90 and WVS 95

	Second Choice (V105)					
First Choice (V104)	Economic Growth	Strong Defense	People have More Say	More Beautiful Cities	Total	N
<hr/>						
WVS 90						
Economic Growth		19%	55%	26%	100%	30213
Strong Defense	43%		33%	25%	101%	3784
People have More Say	51%	9%		40%	100%	14323
More Beautiful Cities	43%	14%	43%		100%	4686
<hr/>						
WVS 95						
Economic Growth		30%	48%	22%	100%	41382
Strong Defense	54%		25%	21%	100%	7643
People have More Say	57%	12%		31%	100%	13809
More Beautiful Cities	48%	19%	33%		100%	4629

Source: The World Values Survey 1990, 1995.

Table 3-6 shows the cross-tabulations between V108 and V109. The result is different in comparison with the previous four-item battery. The most distinguished result is from the respondents who select “humane society” as their first selections. In both WVS 90 and WVS 95, we can find the same pattern that these respondents almost make their second selections randomly.

Table 3-6. Cross-Tabulations (Second Choice by First Choice) between V108 and V109 in WVS 90 and WVS95

Second Choice (V109)						
First Choice (V108)	Stable Economy	More Humane Society	Ideas Counts	Fighting Crime	Total	N
WVS 90						
Stable Economy		32%	17%	51%	100%	28569
More Humane Society	32%		35%	33%	100%	12176
Ideas Counts	25%	35%		39%	99%	5158
Fighting Crime	55%	29%	16%		100%	9969
WVS 95						
Stable Economy		28%	16%	56%	100%	37718
More Humane Society	35%		32%	33%	100%	12604
Ideas Counts	31%	32%		37%	100%	5574
Fighting Crime	64%	24%	12%		100%	12712

Source: The World Values Survey 1990, 1995.

In WVS 90, when respondents select “humane society” as their first selection from the battery, 32% select “stable economy”, 35% select “ideas count” and 33% select “fighting crime” as their second selections from the battery. This pattern does not change much in WVS 95. When WVS 95 respondents select “humane society” first from the battery, 35% select “stable economy”, 32% select “ideas count” and 33% select “fighting crime” as

their second selections from the battery. This result just fit the conditional probability argument of Davis and Davenport.

So can the defense from Inglehart and Abramson hold true from this four-item battery? If WVS 95 respondents select “stable economy” first, they are more likely to select “fighting crime” next. The two materialist values are strongly correlated as respondents’ selections. However, the two postmaterialist values are not strongly correlated. When respondents select “humane society” first, “ideas count” becomes their least favored second selection. When they select “ideas count” first, their second selections are fairly equally distributed. “fighting crime” is little favored over the other and the percentage difference between “humane society” and “stable economy” is trivial. From the above analysis, we find Inglehart’s argument can be just applied to the original battery.

3.3. Declining Religious Authority?

In this place, I will examine whether the respondents answer the questionnaires according to their value priorities. According to Inglehart, postmaterialists are concerned more about their quality of life and self-expression. After experiencing long term prosperity and security, postmaterialists will have less need for absolute rules. In other words, they will emphasize the importance of religion less and less.²³ In WVS 90 and WVS 95, respondents were asked to estimate the importance of religion in their life (V9). Respondents can select from four options: very important (V9=1), rather important

²³ According to Inglehart, “it would be a major mistake to equate either Modernization or Postmodernization with the decline of religion.” (1997.p.80). In the same page, he also notes “Although Postmodernism goes with a continuing decline in traditional religious beliefs, it is linked with a *growing* concern for the meaning and purpose of life.” However, he notes several times that Postmaterialists seem to show much weaker support for traditional religious norms than Materialists. Under such a situation, Inglehart’s argument is ad hoc.

(V9=2), not very important (V9=3) and not at all important (V9=4).

Table 3-7 shows WVS respondents' opinions toward religion in WVS 90 and WVS 95. In WVS 90 34% of materialists and 22% of postmaterialists regard religion as a very important thing in their life. In WVS 95, 39% of materialists and 30% of postmaterialists also regard religion as a very important thing in their life. If we take a glance at the result, we will find that materialists are more likely to emphasize the importance of religion in their life than the postmaterialists are. However, WVS 95 respondents (both materialists and postmaterialists) are also showing more interest in religion than WVS 90 respondents. It seems materialists and postmaterialists are shifting toward the same direction instead of opposite directions on the importance of religion.

Table 3-7. Respondents' Opinions on Religion in WVS 90 and WVS 95

Religion (V9)						
	Very Important	Rather Important	Not Very Important	Not at all Important	Total	N
WVS 90						
Materialists	34%	27%	22%	17%	100%	15239
Postmaterialists	39%	29%	20%	11%	99%	25243
WVS 95						
Materialists	22%	24%	29%	24%	99%	8907
Postmaterialists	30%	25%	25%	19%	99%	8976

Source: The World Values Survey 1990 and 1995.

However, we have to bear in mind that each survey includes a different number of cases. Since WVS 95 surveys more cases than WVS 90, it is possible the new cases bring up the percentage of respondents who believe religion is very or rather important in their

life. In WVS 95, we can observe the respondents of Puerto Rico, Philippines and Bangladesh show their enthusiasm toward religion and all these cases have a high percentage of respondents who think religion is very important. Under such a situation, we need to compare cases which appear in both surveys and observe whether there is an upward trend about their opinions in V9.

Table 3-8. The Percentages of Respondents Regarding Religion (V9) as Very Important or Rather Important of 19 Societies in WVS 90 and WVS 95

Percentage of Respondents Regarding Religion As Very Important or Rather Important				
	WVS90	N	WVS95	N
West Germany	36%	2028	38%	1011
Spain	51%	4101	58%	1203
USA	79%	1823	83%	1534
Japan	20%	864	23%	962
Mexico	72%	1507	80%	1491
South Africa	86%	2679	91%	2920
Norway	40%	1232	38%	1126
Sweden	27%	1026	30%	999
Argentina	64%	996	69%	1070
Finland	38%	573	45%	979
South Korea	64%	1245	51%	1235
Poland	89%	594	84%	1141
Brazil	86%	1778	89%	1147
Nigeria	94%	995	98%	2760
Chile	79%	1489	75%	979
Belarus	30%	937	56%	1917
India	81%	2495	79%	2011
Turkey	84%	1018	91%	1906
Russia	34%	1835	41%	1982

Source: 1990 and 1995 World Values Surveys. Each cell indicates the percentage of respondents who think religion is very or rather important (i.e. V9=1+V9=2) in each case.

Table 3-8 shows how respondents of 19 cases estimate the importance of religion in their life. The cases in Table 3-8 were surveyed in both WVS 90 and WVS 95 and these cases cover different regions of the world. It is evident that most of them have an upward trend about the importance of religion. In the democracies, Norway shows a slight percentage decline.

However, a percentage increase is present in the cases of West Germany, U.S., Finland and Sweden. As to Asian states, South Korea is distinguished for its percentage decline. However, South Korea also fails to show a shift toward Postmaterialism. Under such a situation, we hardly can contribute this percentage decline to the rise of Postmaterialism. On the other hand, India also shows a slight percentage decline.

As to Latin American and African states, they also show a percentage increase in this category. The only exception is Chile that shows a slight percentage decline. For the former communist states, the result is mixed. Poland shows a percentage decline while Russia and Belarus show a percentage increase on this issue. So the upward trend is confirmed from Table 3-8.

We already find that WVS 95 respondents emphasize the importance of religion more than WVS 90 respondents do. This upward trend can also be confirmed by examining how WVS 90 and WVS 95 respondents select from the Achievement Motivation battery.

Table 3-9. The Percentage of Materialists and Postmaterialists Select “Religious Faith” from the Achievement Motivation Battery in WVS 90 and WVS 95

	Selecting “Religious Faith”	N
<hr/>		
WVS 81		
Materialists	21%	4953
Postmaterialists	10%	2359

Table 3-9 (cont'd)

WVS 90

Materialists	31%	15239
Postmaterialists	20%	8907

WVS 95

Materialists	31%	25243
Postmaterialists	25%	8976

Source: 1981, 1990 and 1995 World Values Survey. Each cell indicates the percentage of each group “religious faith” from the 11-item Achievement Motivation battery.

As we know, the Achievement Motivation battery is an 11-item list and “Religious Faith” is one the values that WVS respondents can select from the battery. In the previous analysis, respondents are asked to estimate the importance of religion (V9) individually. It is evident that fewer respondents select V22 from the Achievement Motivation list since respondents need to rank the importance of these items. From the Table 3-9, we find that both materialist and postmaterialist respondents of WVS 95 are more willing to encourage their children to learn about religious faith at home than WVS 81 and WVS 90 respondents. The ambiguity is that postmaterialist respondents are supposed to give less emphasis to religion. However, the data shows that their concern about religion is increasing. This analysis also confirms that materialist and postmaterialist respondents shift toward the same direction on the issue of religion.

Table 3-10. The Percentages of Respondents of 18 Cases Select “Religious Faith” (V22=1) from the Achievement Motivation Battery in WVS 90 and WVS 95

States	WVS 90		WVS 95	
	Religious Faith	N	Religious Faith	N
West Germany	19%	2101	17%	1017

Table 3-10 (cont'd)

Spain	25%	4147	22%	1211
USA	55%	1839	55%	1542
Japan	7%	1011	6%	1054
Mexico	40%	1531	44%	1580
South Africa	51%	2736	64%	2935
Norway	14%	1239	12%	1127
Sweden	6%	1047	5%	1009
Argentina	28%	1002	36%	1079
Finland	13%	588	11%	987
South Korea	19%	1251	16%	1247
Brazil	46%	1782	57%	1149
Nigeria	74%	1001	72%	1996
Chile	54%	1500	46%	1000
Belarus	6%	1015	15%	2092
India	29%	2500	36%	2040
Turkey	44%	1030	42%	1907
Russia	8%	1961	9%	2040

Source: World Values Surveys 1990 and 1995.

Again, we need to examine whether the upward trend is brought about by the new cases of WVS 95. In Table 3-10, we can observe how many respondents of 18 cases select "Religious Faith" from the Achievement Motivation battery in WVS 90 and WVS 95. The cases with an upward trend are Mexico, South Africa, Argentina, Brazil, Belarus, India and Russia. In this place, we can find these cases are either developing countries or the former communist states. For other states without showing an upward trend, the percentage differences are trivial.

Table 3-11. The WVS Respondents' Opinions of the Importance of GOD (V190)

	Importance of God in one's life				
	1-3	4-7	8-10	Total	N
WVS 81					
Materialists	19%	34%	48%	101%	7607
Postmaterialists	40%	33%	26%	99%	3108
WVS 90					
Materialists	22%	25%	52%	99%	15239
Postmaterialists	34%	30%	36%	100%	8907
WVS 95					
Materialists	16%	24%	60%	100%	25243
Postmaterialists	27%	26%	47%	100%	8976

Source: The World Values Survey 1981, 1990 and 1995. Respondents estimate the importance of God from a scale 1-10 while "1" indicates no importance and "10" indicates the highest level of importance. In order to simplify the table, the original scale is abbreviated. In the category "1-3", respondents estimate the importance of God by rating 1 or 2 or 3 from the scale. In the category "4-7", respondents rate 4 or 5 or 6 or 7 from the scale. As to "8-10", respondents rate 8 or 9 or 10 from the scale.

From the compiled data, V190 asks the respondents about the importance of God. For postmaterialist respondents, we would assume the importance of God should be declining. However, Table 3-11 shows both types of respondents are placing more emphasis on the importance of God. The patterns of materialists and postmaterialists are almost identical. If we focus on "1-3" category only, we would find the percentage declines steadily for postmaterialist respondents across three surveys. In WVS 81, 40% of postmaterialists placed less emphasis on the importance of GOD in their life while 34% of WVS 90 postmaterialists and 27% of WVS 95 postmaterialists have the same opinion. The trend of materialists in "1-3" category is a little different since the percentage rises

from WVS 81 to WVS 90 but declines from WVS 90 to WVS 95.

As to the other two categories, we can find the trend for materialists and postmaterialists is identical. The distinguished result comes from the category of “8-10”. In this category, respondents rate the importance of God 8, 9 or 10 from the scale. For postmaterialists, the percentage rises from 26% to 47% across three surveys. For materialists, the percentage rises from 48% to 60% in the same time period. So is this increase is brought by the new cases of the latter surveys? If we focus on postmaterialists only, the percentage increase does not seem to be related to the new cases. As we know, most new cases in WVS 95 are developing states and the cases are distinguished for their low level of Postmaterialism. Under such a situation, the new cases should not have an effect on the percentage change of postmaterialist respondents. In other words, there seems to be no different value priority between materialists and postmaterialists regarding the importance of God in their life.

3.4. Erosion of Institutional Authority?

If there is a shift toward Postmaterialism, postmaterialists should be less likely to join religious organizations. Further, their confidence toward hierarchical institutions should decline. So can the compiled data verify these arguments? V28 concerns whether respondents are members of a church or other religious organization. The format of this question differs somewhat between WVS 81, 90 and WVS 95.²⁴ In WVS 95, V28 asks the respondents whether they are active, inactive members or do not belong to any

²⁴ In fact, V28-V36 concerns the respondents' membership in several voluntary organizations. In WVS 81 and WVS 90, respondents were asked whether they “belonged to” any of them and whether they did unpaid work for these organizations. In WVS 95, respondents need to claim whether they are active or inactive members of certain organizations.

religious organization.

Table 3-12. The Membership of Religious Organization for Each Type of Respondents (V28)

	Church or Religious Organization				
Waves	Active Member	Inactive Member	Don't belong	Total	N
WVS 81					
Materialists	9%	11%	81%	101%	7607
Postmaterialists	6%	8%	86%	100%	3108
WVS 90					
Materialists	6%	8%	86%	100%	15239
Postmaterialists	8%	8%	84%	100%	8907
WVS 95					
Materialists	16%	19%	65%	100%	25245
Postmaterialists	19%	25%	55%	99%	8976

Source: The World Values Survey 1981, 1990 and 1995.

Note: V28 asks the respondents to indicate whether they belong to any religious organization. If the respondents are active members of a church or other religious organization, V28=1. If the respondents are inactive members of religious organizations, V28=2. If the respondents do not belong to any religious organization, V28=3.

According to Table 3-12, we find materialists were a little more likely to become active or inactive members than were postmaterialists in WVS 81. However, the percentage difference between materialists and postmaterialists is trivial. The situation is changed in WVS 90 since postmaterialists are more likely to become active members of religious organizations than materialists are.

In WVS 95, we find postmaterialist respondents are a little more likely to become active members of religious organizations than materialist respondents are. According to Table 3-12, 19% WVS 95 postmaterialists are active members of certain religious

organizations while 16% of WVS 95 materialists are active members of a church or other religious organizations. If we focus on the “not member” category only, we would find that 65% of M95 respondents are not members of any religious organization while 55% of P95 respondents are not members of any religious organization. It seems P95 respondents are more interested in becoming either an active or inactive member of religious organizations.

On the other hand, V181 concerns the frequencies of WVS respondents’ church attendance.

V181. Apart from weddings, funerals and christenings, about how often do you attend religious services these days?

- 1. More than once a week*
- 2. Once a week*
- 3. Once a month*
- 4. Only on special holidays*
- 5. Once a year*
- 6. Less often*
- 7. Never, practically never*

Table 3-13. WVS Respondents’ Religious Services Attendance Frequency (V181)

Waves	Religious Services Attendance Frequency				Total	N
	More than Once A Week	Once A Week	Once A Month	Never		
WVS 81						
Materialists	8%	24%	13%	24%	69%	7607
Postmaterialists	4%	11%	9%	40%	64%	3108

Table 3-13 (cont'd)

WVS 90

Materialists	10%	20%	13%	24%	67%	15239
Postmaterialists	6%	15%	11%	33%	65%	8907

WVS 95

Materialists	11%	16%	12%	19%	58%	25245
Postmaterialists	8%	15%	10%	34%	67%	8976

Source: The World Values Survey 1981, 1990 and 1995.

Inglehart takes “once a month” as an indicator. So I will focus on the respondents who attend church once a month or even more frequently. In this place, I will include respondents who attend church once a week and more than once a week. On the other hand, we also need to focus on how many respondents never attend church. According to Table 3-13, for the respondents who attend church once a month, there is not much difference between materialist and postmaterialist respondents. In WVS 81, 13% of materialists and 9% of postmaterialists attend religious services once a month. In WVS 90, 13% of materialists and 11% of postmaterialists attend religious services once a month. In WVS 95, 12% of materialists and 10% of postmaterialists attend religious services once a month. We can see that the percentages are quite steady for materialists and postmaterialists across the three surveys.

If we focus on respondents with more frequent church attendance, the result shows a different trend for materialist and postmaterialist respondents regarding their church attendance. For respondents who attend religious services once a week, the percentage of materialists in this category is decreasing while the percentage of postmaterialists is increasing. As to the respondents who attend religious services more than once a week, the trend is upward for both types of respondents. It seems the respondents' value

preferences do not interfere with their church attendance. From the analysis above, we hardly can find whether religious faith has declined for the postmaterialist respondents. As to the “importance of God” or church attendance, the results just do not verify Inglehart’s arguments.

According to Inglehart, Postmodern shift leads to declining confidence in hierarchical institutions. So do the World Values Surveys confirm the erosion of institutional authority? Table 3-14 shows a conflicting image about respondents’ confidence toward church (V135), armed force (V136) and police (V141). The confidence level toward church for both types of respondents is upward. In WVS 81, 30% of materialists and 12% of postmaterialists have a great deal of confidence toward the church. In WVS 95, 35% of materialists and 20% of postmaterialists have a great deal of confidence toward the church. Combining with the previous analysis, we find postmaterialist respondents are not only becoming more interested in religion but also have more confidence toward religious organizations across the three waves of surveys.

Table 3-14. The WVS Respondents’ Levels of Confidence toward Church (V135), Armed Force (V136) and Police (V141) in WVS 81, WVS 90 and WVS 95

Confidence toward the Churches (V135)						
	A Great Deal	Quite A Lot	Not Very Much	None At All	Total	N
<hr/>						
WVS 81						
Materialists	30%	32%	27%	11%	100%	
Postmaterialists	12%	24%	39%	26%	101%	
WVS 90						
Materialists	34%	30%	24%	12%	100%	
Postmaterialists	17%	28%	35%	20%	100%	

Table 3-14 (cont'd)

WVS 95

Materialists	35%	35%	21%	9%	100%
Postmaterialists	20%	29%	32%	19%	100%

Confidence toward the Armed Forces (V136)

	A Great Deal	Quite A Lot	Not Very Much	None At All	Total	N
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WVS 81

Materialists	24%	42%	27%	8%	101%
Postmaterialists	10%	30%	36%	24%	100%

WVS 90

Materialists	26%	38%	26%	9%	99%
Postmaterialists	17%	28%	35%	20%	100%

WVS 95

Materialists	23%	42%	26%	9%	100%
Postmaterialists	20%	29%	32%	19%	100%

Confidence toward the Police (V141)

	A Great Deal	Quite A Lot	Not Very Much	None At All	Total	N
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WVS 81

Materialists	24%	50%	20%	6%	100%
Postmaterialists	11%	43%	31%	14%	99%

WVS 90

Materialists	17%	41%	30%	12%	100%
Postmaterialists	9%	41%	36%	14%	100%

WVS 95

Materialists	12%	35%	34%	19%	100%
Postmaterialists	10%	38%	33%	19%	100%

Source: The World Values Survey 1981, 1990 and 1995.

Note: The respondents' answers will be coded "1" if they have "a great deal" of confidence toward a certain organization. "2" indicates the respondents have "quite a lot" of confidence toward a certain organization. "3" indicates the respondents have "not very much" confidence toward a certain organization. "4" indicates the respondents have "none at all" confidence toward a certain organization.

As to the confidence toward the armed forces, we find postmaterialist respondents actually have more confidence toward the armed forces while the confidence level of materialists is stable through the three surveys. If we focus on the category of “A Great Deal”, Table 3-14 shows that 10% of WVS 81 postmaterialists while 20% of WVS 95 postmaterialists have a great deal of confidence toward the armed forces. In other words, the percentage of postmaterialists who have a great deal of confidence toward the armed forces doubled between WVS 81 and WVS 95. The confidence level of materialists toward police declines rapidly while postmaterialists maintain their confidence level. In WVS 81, 24% of materialists have a great deal of confidence toward police. But in WVS 95, only 12% of materialists have the same opinion.

3.5. Consistency Test 1

This test targets the WVS 95 respondents’ selections from the Achievement Motivation battery and V25, V26. Also, this test does not concern the materialist-postmaterialist value dimension. We simply want to test whether respondents make the same selections across similar questions.

V25. Here is a shorter list of things that children can be encouraged to learn. If you had to choose, which one of these do you consider to be the most important thing for a child to learn at home?

V26. And what would you say is the second most important thing for a child to learn?

1. Thrift, Saving money and things

2. Obedience

3. Determination

4. Religious faith

Table 3-15. Cross-Tabulations of V25 and V26 in WVS 95.

		V26				Total	N
		Thrift	Obedience	Determination	Religious Faith		
V25							
Thrift			39%	47%	14%	100%	15227
Obedience	32%			38%	30%	100%	18181
Determination	54%	28%			17%	100%	22867
Religious Faith	24%	44%	32%			100%	8429

Source: The World Values Survey 1995.

In this place, we need to observe how WVS 95 respondents select from V25 and V26 first. According to Table 3-15, when WVS 95 respondents select “Thrift” from V25, they are more likely to select “Determination” from V26. For WVS 95 respondents who select “Thrift” from V25, 47% of them select “Determination” and 39% of them select “Obedience” and 14% of them select “Religious Faith” from V26. When WVS 95 respondents select “Determination” from V25, they are more likely to select “Thrift” from V26 since 54% of them select “Thrift” from V26.

When WVS 95 respondents select “Obedience” from V25, they have no specific preferences for V26. As we know, the short list contains the components of the Achievement Motivation index. Since respondents just made selections from the longer Achievement Motivation battery, they are expected to select the same index component or components from V25 and V26. Respondents were asked to select up to five values from the Achievement Motivation battery. So their selections may include at least none or at most four of the index components. As to V25 and V26, there are 12 combinations of

selections depending on which value the WVS 95 respondents select from V25.²⁵ The consistency test will focus on the correlation between WVS 95 respondents' selections from the Achievement Motivation battery and these 12 combinations of selections from V25 and V26.

For the respondents select zero index components from the Achievement Motivation battery, we should observe whether they randomly select from V25 and V26. Since these respondents do not consider any of the index components as important values for their children to learn at home, they should have no preference when answering V25 and V26. For those respondents who select just one index component from the Achievement Motivation battery, we should expect they make the same selections from V25. In this place, the probability for the WVS 95 respondents to make the same selections should be higher than 0.25.

According to Table 3-16, we find those WVS 95 respondents who select only one index component from the Achievement Motivation battery make consistent selections from V25. For those WVS 95 respondents who select only "Thrift" from the Achievement Motivation battery, 56% of them select "Thrift" from V25. For those WVS 95 respondents who select only "Obedience" or only "Determination" from the Achievement Motivation battery, 63% and 77% of them make the consistent selections. For those WVS 95 respondents who select only "Religious Faith" from the Achievement Motivation battery, 44% of them select "Religious Faith" from V25. Apparently, WVS 95 respondents who select one index component from the Achievement Motivation battery

²⁵ The combinations are (thrift, determination), (thrift, obedience), (thrift, religious faith), (obedience, thrift), (obedience, determination), (obedience, religious faith), (determination, thrift), (determination, obedience), (determination, religious faith), (religious, thrift), (religious faith, obedience), (religious faith, determination).

make consistent selections from V25 since the probability for them to select the same value from V25 is higher than .25.

Table 3-16. Cross-Tabulations between WVS 95 Respondents' Selections from the Achievement Motivation Battery and V25

WVS 95 respondents' selections from the Achievement Motivation battery	<u>WVS 95 respondents' selections from V25</u>					
	Thrift	Determination	Religious Faith	Obedience	Total	N
Thrift (V20) only	56%	16%	26%	3%	101%	7256
Determination (V21) only	15%	63%	18%	4%	100%	5834
Religious Faith (V22) only	10%	11%	77%	2%	100%	10339
Obedience (V24) only	12%	23%	20%	44%	100%	4677

Source: The World Values Survey 1995.

Note: Thrift only indicates those WVS 95 respondents who select only "thrift" but not the other index components from the Achievement Motivation battery. (V1=3 & V20=1 & V21=2 & V22=2 & V24=2)

Obedience only indicates those WVS 95 respondents who select only "obedience" but not the other index components from the Achievement Motivation battery. (V1=3 & V24=1 & V20=2 & V21=2 & V22=2)

Determination only indicates those respondent who select only "determination" but not the other index components from the Achievement Motivation battery. (V1=3 & V21=1 & V20=2 & V22=2 & V24=2)

Religious Faith only indicates those WVS 95 respondents who select only "religious faith" but not the other index components from the Achievement Motivation battery. (V1=3 & V22=1 & V20=2 & V21=2 & V24=2)

The next step is to examine those respondents who select exactly two index components from the Achievement Motivation battery. It is possible that respondents could select more than two index components from the battery. However, when there are just two index components included in the respondents' selections, the respondents just differentiate these index components into two mutually exclusive groups.

Table 3-17. Cross-Tabulations between WVS 95 Respondents' Selections from the Achievement Motivation Battery and V25, V26.

WVS 95 respondents' selections from the Achievement Motivation battery	WVS 95 respondents' selections from V25 and V26						
	T&D	T&R	T&O	D&R	D&O	R&O	N
Thrift & Determination (V20 & V21)	74%						4846
Thrift & Religious Faith (V20 & V22)		35%					2719
Thrift & Obedience (V20 & V24)			63%				4030
Determination & Religious Faith (V21&V22)				52%			2506
Determination & Obedience (V21 & V24)					55%		2688
Religious Faith & Obedience (V22 & V24)						56%	4972

Source: 1995 World Values Survey.

Note: 1. In this table, we only focus on the WVS 95 respondents' selections from the Achievement Motivation battery that are mutually exclusive combinations. So when WVS 95 respondents select "thrift" and "determination" from the Achievement Motivation battery, it means they select neither "religious faith" nor "obedience" from the same battery. (V1=3 & V20=1 & V21=1 & V22=2 & V24=2). The same logic can be applied to other combinations.

2. "T&D" indicates WVS 95 respondents select "thrift" and "determination" from V25 and V26 which means (V1=3 & V25=1 & V26=3) or (V1=3 & V25=3 & V26=1). "T&R" indicates WVS 95 respondents select "thrift" and "religious faith" from V25 and V26 which means (V1=3 & V25=1 & V26=4) or (V1=3 & V25=4 & V26=1). "T&O" indicates WVS 95 respondents select "thrift" and "obedience" from V25 and V26 which means (V1=3 & V25=1 & V26=2) or (V1=3 & V25=2 & V26=1). "D&R" indicates WVS 95 respondents select "determination" and "religious faith" from V25 and V26 which means (V1=3 & V25=3 & V26=4) or (V1=3 & V25=4 & V26=3). "D&O" indicates WVS 95 respondents select "determination" and "obedience" from V25 and V26 which means (V1=3 & V25=2 & V26=3) or (V1=3 & V25=3 & V26=2). "R&O" indicates WVS 95 respondents select "religious faith" and "obedience" from V25 and V26 which means (V1=3 & V25=2 & V26=4) or (V1=3 & V25=4 & V26=2).

As we know, respondents can select up to five values from the Achievement Motivation battery, the standard combination with two index components is (IC, IC, X, X, X). In this place, two ICs indicates two index components which could be either

“Thrift” (V20), “Determination” (V21), “Obedience” (V22) or “Religious Faith” (V24). X simply means any other values beside the index components in the same battery. In this place, we will not list all the possible combinations for Xs since these values are not the focus of this consistency test.

As I already listed the 12 possible combinations of WVS 95 respondents’ selections from V25 and V26, these combinations need to be differentiated further for our analysis. We can find some of these combinations indicate the same values but with a different order such as “thrift, determination” and “determination, thrift”. The difference between these two combinations comes from which value do the WVS 95 respondents select first from V25 and V26. I will treat these combinations as a single combination and examine the correlation between WVS 95 respondents’ selections from the Achievement Motivation battery and their selections from V25 and V26. So 12 possible combinations will become 6 combinations.

Table 3-17 shows the cross-tabulations between WVS 95 respondents’ selections from the Achievement Motivation list and V25 and V26. For those WVS 95 respondents select “Thrift” and “Determination” from the Achievement Motivation battery, 74% of these respondents also select “Thrift” and “Determination” from V25 and V26. For those WVS 95 respondents selecting “Thrift” and “Religious faith” from the Achievement Motivation battery, only 35% of them select the same values from V25 and V26. For those WVS 95 respondents selecting “Thrift” and “Obedience” but not “Determination” and “Religious Faith” from the Achievement Motivation list, 63% of them select the same values from V25 and V26.

For those WVS 95 respondents who select “Determination” and “Religious Faith” from the Achievement Motivation battery, 52% of them select the same values from V25

and V26. For those WVS 95 respondents select “Determination” and “Obedience” from the Achievement Motivation battery, 55% of them select the same values from V25 and V26. For those WVS 95 respondents who select “Religious faith” and “Obedience” from the Achievement Motivation battery, 56% of them select the same values from V25 and V26. The next step is to compute the correlation among these selection combinations. In this place, I will compute the Pearson product-moment correlation coefficient to indicate the degree to which the selection combinations are linearly related in the World Values Survey 1995. According to outputs not shown here, we find the correlation between WVS respondents’ selections from the Achievement Motivation battery and V25, V26 is statistically significant.

3.6. Consistency Test 2 and A Proxy Measurement of Postmaterialism:

This consistency test also focuses on WVS 95 respondents only. However, this test is more complicated than the previous tests since I want to employ two questions of WVS 95 to re-measure Postmaterialism. In the previous analysis, we found respondents basically make consistent selections from similar questions, therefore the materialist-postmaterialist value dimension is still valid. In WVS 95, there are two questions not included in the previous surveys.

V41: Here are two statements people sometimes make when discussing the environment and economic growth. Which of them comes closer to your own point of view?

- 1. Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs.*
- 2. Economic growth and creating jobs should be the top priority, even if the environment*

suffers to some extent.²⁶

V159: If you had to choose, which would you say is the most important responsibility of government:

1. To maintain order in society or 2. To respect the freedom of individual.

We can find that each question consists of one materialist value and one postmaterialist value. In V41, environmental protection taps the postmaterialist value and economic growth taps the materialist value. In V159, maintaining order taps the materialist value and individual freedom taps the postmaterialist value. Then a materialist or a postmaterialist respondent should have no reason to make different selections. A materialist respondent should prefer economic growth to environmental protection and prefer maintaining order to individual freedom protection. On the other hand, a postmaterialist respondent should prefer environmental protection to economic growth and prefer individual freedom to maintaining order. So we need to observe how materialists and postmaterialists select from V41 and V159.

Table 3-18. WVS 95 Respondents' Selections from V41 and V159

	<u>V41</u>				<u>V159</u>			
	Environmental Protection	Economic Growth	Total	N	Maintaining Order	Individual Freedom	Total	N
WVS 95								
Materialist	48%	46%	94%	21023	68%	32%	100%	20991
Postmaterialist	59%	32%	91%	7922	30%	70%	100%	7756

Source: World Values Survey 1995.

Note: When WVS 95 respondents answer V41, they can volunteer other answers. The percentages are not listed in this table but we can find that 6% of WVS 95 materialists and 9% of WVS 95 respondents volunteer other answers when answering V41.

²⁶ The respondents can also volunteer for other answers.

According to Table 3-18, we can observe how materialists and postmaterialists select from V41 and V159. In WVS 95, 48% of materialist respondents prefer “environmental protection” to “economic growth” while 46% of them hold the opposite value preference. In this place, we can find WVS 95 materialist respondents slightly prefer a postmaterialist value to a materialist value and the percentage difference is trivial. On the other hand, 59% of WVS 95 postmaterialist respondents prefer “environmental protection” to “economic growth” and 32% of them hold the opposite value preference. We can find that WVS 95 postmaterialist respondents are more likely to select environmental protection than the WVS 95 materialist respondents are.

As to V159, we can find from Table 3-18 that 68% of WVS 95 materialist respondents prefer “maintaining order” to “individual freedom” while 32% of them hold the opposite value preference. On the other hand, 70% of WVS 95 postmaterialist respondents prefer “individual freedom” to “maintaining order” while 30% of them hold the opposite value preference. Until now, we find WVS 95 respondents basically follow their value preferences when answering V41 and V159. The only anomaly is that WVS 95 materialist respondents do not specifically emphasize the importance of economic growth. When answering V159, 30% of WVS 95 materialists and postmaterialists change their value preferences. However, this might be caused by measurement error and we need to proceed with the consistency test further to examine how WVS 95 mixed respondents select from V41 and V159.

As we know, V41 and V159 represent two compressed materialist-postmaterialist batteries. V41 taps the original four-item battery and V159 taps the second four-item battery. Instead of two selections from a four-item battery, the respondents are asked to make one selection from a two-item battery. In this place, I will first utilize V104 and

V105 to differentiate materialist and postmaterialist respondents. This procedure is to examine the consistency between the respondents' value priorities and their selections more precisely. If respondents are identified as materialists or postmaterialists according to their selections from V104 and V105, their selections from V41 can further confirm whether the respondents acknowledge the materialist-postmaterialist value dimension. According to the compiled data, V104 and V105 ask the respondents to make two selections from four options.

1. A high level of economic growth

2. Making sure this country has strong defense forces

3. Seeing that people have more say about how things are done at their jobs and in their communities

4. Trying to make our cities and countryside more beautiful

If we differentiate respondents according to this four-item battery, a respondent is identified as a materialist if one selects "Economic growth" and "Strong defense" from this battery. To be identified as a postmaterialist according to V104 and V105, one needs to select "More say" and "More beautiful cities" from this battery. To be identified as a "mixed" respondent in this battery, one has to select the combination of one materialist and one postmaterialist value. In this four-item battery, there are four possible selection combinations for a mixed respondent. These combinations are (Economic growth, More say), (Economic growth, More beautiful cities), (Strong defense, More say) and (Strong defense, More beautiful cities). In this place, we will specifically focus on two selection combinations: (Economic growth, More say) and (Strong defense, More beautiful cities).

Since V41 represents a compressed four-item battery and consists of a materialist value and a postmaterialist value, we should expect the "mixed" respondents also make

consistent selections across V41 and V104 and V105. In this place, consistency needs a specific definition.

When the “mixed” respondents select (Economic growth, More say) from V104 and V105, “More beautiful cities” is excluded from their selections. So for these respondents, the probability for them to select “Economic growth” from V41 should be higher than the probability by chance which is 0.5. If these respondents do make consistent selections across different questions, we should observe over half of them select “economic growth” from V41. On the other hand, if WVS 95 respondents select (Strong defense, More beautiful cities) from V104 and V105, the probability for them to select “Environmental protection” from V41 should be higher than 0.5.

Table 3-19 shows four types of WVS 95 mixed respondents’ selections from V41 and these respondents are identified according to their selections from V104 and V105. As I mentioned earlier that we need focus on two types of mixed respondents. The first type of mixed respondents select “Economic growth” and “More say” from V104 and V105. According to Table 3-19, 49% of them prefer “Environmental protection” to “Economic growth” from V41. In this place, we can find these respondents do not make consistent selections. The second type of mixed respondents select “Strong defense” and “More beautiful cities” from V104 and V105. Table 3-19 shows that 54% of them prefer “Environmental protection” to “Economic growth” from V41. In this place, we can find the second type mixed respondents make consistent selections across V41 and V104, V105.

Table 3-19. WVS 95 Mixed Respondents’ Selections from V41 (Respondents are Identified by Their Selections from V104 and V105)

Table 3-19 (cont'd)

Four Types of Mixed Respondents Identified by V104 & V105, WVS 95	V41			N
	Environmental Protection	Economic Growth	Other	
Economic Growth & More Say	49%	43%	8%	
Economic Growth & More Beautiful Cities	53%	40%	7%	
Strong Defense & More Say	51%	44%	5%	
Strong Defense & More Beautiful Cities	54%	42%	4%	

Source: The World Values Survey 1995.

Note: The first type of mixed respondents identified by V104 and V105 are those WVS 95 respondents who select "economic growth" and "more say" from V104, V105 (V1=3 & V104=1 & V105=3) or (V1=3 & V104=3 & V105=1). The second type of mixed respondents identified by V104 and V105 are those WVS 95 respondents who select "economic growth" and "more beautiful cities" for V104, V105 (V1=3 & V104=1 & V105=4) or (V1=3 & V104=4 & V105=1). The third type of mixed respondents identified by V104 and V105 are those WVS 95 respondents who select "strong defense" and "more say" for V104, V105. (V1=3 & v104=2 & v105=3) or (V1=3 & V104=3 & V105=2). The fourth type of mixed respondents identified by V104 and V105 are those WVS 95 respondents who select "strong defense" and "beautiful cities" for V104, V105 (V1=3 & V104=2 & V105=4) or (V1=3 & V104=4 & V105=2).

Since V159 taps the original materialist-postmaterialist battery, we also need to examine the selections of the "mixed" respondents identified by the original battery. Table 3-20 also shows how four types of WVS 95 mixed respondents select from V159. For those mixed respondents select who "Maintaining order" and "More say" from V106 and V107, 60% of them select "Maintaining order" and 40% of them select "Individual freedom" from V159. For those mixed respondents who select "Fighting prices" and "Freedom of Speech" from V106 and V107, 42% of them select "Maintaining order" and 58% of them select "Individual freedom" from V159. Basically, WVS 95 mixed respondents make consistent selections across the original battery and V159.

Table 3-20. WVS 95 Respondents' Selections from V159 (Respondents are Identified by the Original Four-Item Battery).

Four Types of Mixed Respondents Identified by V106 and V107, WVS 95	V159		N
	Maintaining Order	Individual Freedom	
Maintaining Order & More Say	60%	40%	
Fighting Prices & Freedom of Speech	42%	58%	
Maintaining Order & Freedom of Speech	55%	45%	
More Say & Fighting Prices	47%	53%	

Source: The World Values Survey 1995.

Note: The first type of mixed respondents are those WVS 95 respondents who select "maintaining order" and "more say" from V106 and V107 (V1=3 & V106=1 & V107=3) or (V1=3 & V106=3 & V107=1). The second type of mixed respondents are those WVS 95 respondents who select "fighting prices" and "freedom of speech" from V106 and V107 (V1=3 & V106=3 & V107=4) or (V1=3 & V106=4 & V107=3). The third type of mixed respondents are those WVS 95 respondents who select "maintaining order" and "freedom of speech" from V106 and V107 (V1=3 & V106=1 & V107=4) or (V1=3 & V106=4 & V107=1). The fourth type of mixed respondents are those WVS 95 respondents who select "more say" and "fighting prices" from V106 and V107 (V1=3 & V106=2 & V107=3) or (V1=3 & V106=3 & V107=2).

3.6.1. A Proxy Measurement of Postmaterialism:

After examining WVS 95 respondents' selections from V41 and V159, we still cannot fully falsify the validity of the materialist-postmaterialist value dimension. The individual level analysis basically confirmed that most WVS 95 respondents make consistent selections across similar questions. So we should proceed in our analysis from the system-level. The first step is to examine how respondents of WVS 95 cases select from V41 and V159. The next step is to observe value distributions across nations according to this proxy measurement. If the value dimension of the Postmaterialism is valid, we should find a similar distribution of different types of respondents across nations. In other words, the percentages of materialists and postmaterialists of a state should be correlated

with the percentages of proxy materialists and proxy postmaterialists.

Appendix 5 shows how respondents select from V41 across nations in WVS 95. Since V41 asks the respondent to prioritize environmental protection and economic growth, we would expect states with a higher percentage of Postmaterialist respondents would also show more concern about their environment. However, the descriptive analysis is far different from our expectation. In WVS 95, West Germany has the highest percentage of Postmaterialist respondents (44%) and 45% of West Germany respondents also select “Environmental Protection” from V41. But other states show a totally different distribution. Finland is an exception among the Nordic states in that respondents slightly prefer “Economic Growth” to environment protection.

Mexico, South Korea, Puerto Rico, China, Taiwan and Philippines have a high percentage of respondents who care about the environment more than economic growth. These states do not show a significant shift toward postmaterialist values in WVS 95 but their respondents show a different value priority in comparison with Inglehart’s measurement. On the other hand, the former communist states also show a different value distribution since their respondents care more about their environment. So in this place, we have to examine whether respondents’ selections are correlated with the percentage of postmaterialists of their nations.

Table 3-21. Correlations of Percentages of Materialists and Postmaterialists of 47 WVS 95 Cases with Their Selections from V41 and V159

	WVS 95P	WVS 95M	V41P	V41M	V159P	V159M
WVS 95P						
Pearson Correlation		-.849**	.062	-.230	.411**	-.430**
Sig. (2-tailed)		.000	.678	.120	.004	.003
WVS 95M						

Table 3–21 (cont'd)

Pearson Correlation	-.849**		-.138	.292*	-.422**	.444**
Sig. (2-tailed)	.000		.353	.046	.003	.002
V41P						
Pearson Correlation	.062	-.138		-.891**	.206	-.197
Sig. (2-tailed)	.678	.353		.000	.164	.183
V41M						
Pearson Correlation	-.230	.292*	-.891**		-.270	.264
Sig. (2-tailed)	.120	.046	.000		.067	.073
V159P						
Pearson Correlation	.411**	-.422**	.206	-.270		-.994**
Sig. (2-tailed)	.004	.003	.164	.067		.000
V159M						
Pearson Correlation	-.430**	.444**	-.197	.264	-.944**	
Sig. (2-tailed)	.003	.002	.183	.073	.000	

Source: Appendix 1, 5 and 6.

Note: 1. WVS 95P indicates the percentage of postmaterialists of a certain state in WVS 95. WVS 95M indicates the percentage of materialists of a certain state in WVS 95. V41 P indicates a WVS 95 case's percentage of respondents who select "Environmental Protection" from V41. V41M indicates a WVS 95 case's percentage of respondents who select "Economic Growth" from V41. V159P indicates a WVS 95 case's percentage of respondents who select "Individual Freedom" from V159. V159M indicates a WVS 95 case's percentage of respondents who select "Maintaining Order" from V159.

2. * stands for statistically significant and $p \leq .05$, ** stands for statistically significant and $p \leq .01$.

According to Appendix 6, the WVS 95 respondents of most states are divided equally on V159. In other words, respondents seem to have no specific preferences when considering the most important responsibility of a government. For those stable democracies, the respondents have no specific preference for individual freedom or maintaining order. In the case of West Germany, we can observe an equal value distribution on this question. Norway and Japan are two distinguished exceptions of the stable democracies since their respondents clearly prefer order to freedom. As to other new democracies, we can find some of them slightly prefer freedom to order. In fact,

there is not much difference between stable democracies and other states on this issue. Again, the value dimension of the Postmaterialism theory is in question. In this place, we also need to examine whether the percentage of postmaterialists in one state is correlated with the respondents' selections for V159.

Table 3-21 shows the correlation between the percentages of materialists and postmaterialists of 47 states and their selections from V41 and V159. According to Table 3-21, we find the percentage of WVS 95 materialists in one state is positively correlated with the percentages of respondents who select materialist values from V41 and V159. Also, the correlation is statistically significant.

On the other hand, the percentage of WVS 95 postmaterialists in one state is positively correlated with the percentage of respondents who select postmaterialist values from V41 and v159. However, we find the correlation between P95 and V41P is not statistically significant. As we found earlier that WVS 95 materialists prefer "Environmental Protection" to "Economic Growth" when selecting from V41, it seems WVS 95 respondents do not acknowledge their value preferences when answering V41.

This consistency test can go further if we run a cross-tabulation between V41 and V159 and this process can be used as a proxy measurement of Postmaterialism. If the materialist-postmaterialist value dimension is valid, we should expect that respondents answer V41 and V159 according to their value preferences. If a WVS 95 respondent prefers "Environmental Protection" to "Economic Growth" when answering V41 and prefers "Individual Freedom" to "Maintaining Order" when answering V159, this WVS 95 respondent should be classified as a postmaterialist.

On the other hand, if a WVS 95 respondent prefers "Economic Growth" to "Environmental Protection" when answering V41 and prefers "Maintaining Order" to

“Individual Freedom” when answering V159, this WVS 95 respondent should be classified as a materialist. To be classified as a “mixed” respondent, one has to select “Economic Growth” from V41 and “Individual Freedom” from V159 or select “Environmental Protection” from V41 and “Maintaining Order” from V159.

In this place, we will utilize WVS 95 respondents’ selections from V41 and V159 to run a proxy measurement of Postmaterialism. From the aggregate level, we first need to find how different types of respondents are distributed according to these proxy indicators.

Table 3-22. The Cross-Tabulations between V41 and V159 (WVS 95 only)

WVS 95 Respondents’ Selections from V41			
WVS 95 Respondents’ Selections From V159	Environmental Protection	Economic Growth	N
Maintaining Order	26%	25%	31130
Respect Individual Freedom	24%	18%	25218

Source: The World Values Survey 1995.

Table 3-22 shows the cross-tabulations between WVS 95 respondents’ selections from V41 and V159. According to our earlier definitions of proxy materialists and proxy postmaterialists, we can observe that 25% of WVS 95 respondents can be classified as proxy materialists. In other words, 25% of WVS 95 respondents select “Economic Growth” from V41 and “Maintaining Order” from V159. On the other hand, 24% of WVS 95 respondents can be classified as proxy postmaterialists. In other words, 24% of WVS 95 respondents select “Environmental Protection” from V41 and select “Individual Freedom” from V159. Furthermore, 44% of WVS 95 respondents can be classified as proxy “mixed” respondents since these respondents select one materialist value and one

postmaterialist value from V41 and V159.

So according to the Table 3-22, we can find the percentage difference between proxy WVS 95 materialists and proxy WVS 95 postmaterialists is 1%. In other words, the chance to be classified as a proxym95 or proxyp95 respondent is almost equal. In fact, the value distribution from Table 3-22 is almost a distribution by chance. When respondents make two selections from V41 and V159, .25 is the probability that respondents can be classified as proxy materialists or proxy postmaterialists by chance. Table 3-22 clearly shows that randomness is still a potential problem for the Postmaterialism theory since this distribution echoes the argument of Davis and Davenport.

Table 3-23 shows the distribution of Proxy WVS 95 materialists and Proxy WVS 95 postmaterialists in 47 cases. We can easily find the value distribution is quite different in comparison with the original value distribution measured by the materialist-postmaterialist battery. West Germany, Finland and Brazil are three cases that have an almost equal percentage of each type of respondent. As we know, West Germany is a distinguished case for its rising postmaterialism in recent years. But from this proxy measurement, it seems as if the shift never occurred.

The contrast between East Asian states and Latin American states still exists and is even more evident. Japan and Taiwan have only 7% and 4% respectively of proxy postmaterialists but Latin American states got an even higher percentage in this category. In the case of Uruguay, 40% of their respondents can be classified as proxy postmaterialists and this percentage is higher than any other of the developed democratic states. Let us bear in mind that proxy WVS 95 postmaterialists care more about environment than economic growth and care more about individual freedom than order.

Belarus, Moldova, Russia, Philippines and Mexico are distinguished for their high percentage of materialist respondents in WVS 95. However, the proxy measurement tells a different story since their respondents seem care more about their environment than their economic growth.

Table 3-23. The Distribution of Proxy 95M, Proxy 95P Respondents in 47 WVS 95

Country	Proxy 95M	Proxy 95P	Country	Proxy 95M	Proxy 95P
W. Germany	23%	24%	Turkey	32%	14%
Spain	18%	29%	Lithuania	25%	18%
USA	20%	26%	Latvia	13%	25%
Japan	28%	7%	Estonia	22%	20%
Mexico	14%	28%	Ukraine	16%	24%
S Africa	47%	8%	Russia	17%	30%
Australia	18%	28%	Peru	20%	24%
Norway	24%	18%	Venezuela	19%	23%
Sweden	13%	33%	Uruguay	10%	40%
Tambov	17%	23%	Philippines	15%	38%
Argentina	19%	28%	Moldova	16%	33%
Finland	25%	23%	Georgia	21%	27%
Poland	35%	11%	Armenia	26%	23%
Switzerland	19%	21%	Azerbaijan	38%	4%
Puerto Rico	12%	35%	Dominic Rep	11%	38%
Brazil	23%	24%	Bangladesh	44%	6%
Nigeria	36%	7%	Basque	13%	34%
Chile	17%	29%	Andalusia	18%	25%
Belarus	13%	29%	Galicia	16%	36%
India	41%	6%	Valencia	20%	25%
E. Germany	39%	10%	Serbia	27%	15%
Slovenia	27%	22%	Montenegro	30%	13%
Bulgaria	30%	10%	Macedonia	28%	14%
Taiwan	13%	4%			

Source: The World Values Survey 1995.

Furthermore, we need to examine whether percentages of WVS 95 materialists and WVS 95 postmaterialists of a state can be good predictors to predict the percentages of proxy WVS 95 materialists and WVS 95 postmaterialists of a state. In other words, we

need to run two regressions and use the percentages of materialists and postmaterialists of a state as the independent variables.

Table 3-24. Linear Regression between the Percentage of WVS 95 Materialists and Percentage of Proxy WVS 95 Materialists in 47 Cases.

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	.162*	.029	5.652	.000
Percentage of WVS 95 Materialists	.197*	.078	2.515	.016
Adjusted R Square	.10			
SEE	.09			

Source: The World Values Survey 1995.

Note: 1. The dependent variable is the percentage of proxy WVS 95 materialists in a state.

2. * stands for statistically significant and $p \leq .05$.

Table 3-24 shows the linear regression between the percentage of WVS 95 materialists and the percentage of proxy WVS 95 materialists. In other words, the independent variable in this regression is the percentage of materialists of a WVS 95 case and the dependent variable is the percentage of proxy materialists of a WVS 95 case. The estimations show the coefficient of the percentage of WVS 95 materialists is positive and statistically significant. This implies the percentage of materialists of a WVS 95 case can pose positive effects on its own percentage of proxy WVS 95 materialists.

Table 3-25. Linear Regression between the Percentage of WVS 95 Postmaterialists and the Percentage of Proxy WVS 95 Postmaterialists in 47 Cases.

Unstandardized Coefficients				
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Table 3-25 (cont'd)

Model Variable	b	Std. Error	t	Sig.
Constant	.259*	.021	12.352	.000
Percentage of WVS 95 Postmaterialists	-.239	.123	-1.934	.059
Adjusted R Square	.06			
SEE	.09			

Source: The World Values Survey 1995.

Note: 1. The dependent variable is the percentage of proxy WVS 95 postmaterialists in a state.

2. * stands for statistically significant and $p \leq .05$.

Table 3-25 is a regression analysis between a WVS 95 case's percentages of postmaterialists and proxy postmaterialists. In this regression, the independent variable is a WVS 95 case's percentage of postmaterialists. Unlike the regression between the percentages of WVS 95 materialists and WVS 95 proxy materialists, we do not find a WVS 95 case's percentage of postmaterialists can pose positive effects on its percentage of proxy postmaterialists. On the contrary, the coefficient of the percentage of postmaterialists is negative though not statistically significant. This estimation again challenged the theoretical validity of Postmaterialism. If the materialist-postmaterialist value dimension is valid, the WVS respondents should make similar selections from either two-item or four-item batteries.

From the analysis above, we find the WVS 95 respondents' value preferences are not stable when answering V41 and V159. Though our consistency tests fail to falsify the Postmaterialism theory, our proxy measurement reveals a potential drawback of Postmaterialism.

3.7. Who Changes Their Value Preferences?

In the beginning, we mentioned the correlation between respondents' levels of education and whether they can make consistent selections. In this section, we will continue to focus on how WVS 95 respondents select from V41 and V159. As we know, 30% of both WVS 95 materialist and postmaterialist respondents change their value preferences and make different selections from V41, V159. The proxy measurement confirms the respondents' value preferences are not stable. So who changes their minds? If Inglehart is correct, we should observe these respondents are less educated. In this place, we will isolate four groups of WVS 95 respondents and examine their levels of education.

Two groups are composed of WVS 95 materialists and two groups are composed of WVS 95 postmaterialists. For the materialists groups, one group consists of the WVS 95 materialists who select "Environmental Protection" from V41 and the other group consists of the WVS 95 materialists who select "Individual Freedom" from V159. For the postmaterialist groups, one group consists of the WVS 95 postmaterialists who select "Economic Growth" from V41 and the other group consists of WVS 95 postmaterialists who select "Maintaining Order" from V159.

Table 3-26. Cross-Tabulations between Four Groups of WVS 95 Respondents and Their Levels of Education

	V217 Education Level								
	1	2	3	4	5	6	7	8	9
WVS 95 Materialists "Environmental Protection"(V41)	10%	10%	10%	10%	12%	9%	12%	7%	10%
WVS 95 Materialists "Individual Freedom" (V159)	3%	3%	3%	3%	4%	3%	4%	2%	2%

Table 3-26 (cont'd)

WVS 95 Postmaterialists "Economic Growth" (V41)	2%	2%	2%	3%	2%	2%	2%	3%	3%
WVS 95 Postmaterialists "Maintaining Order" (V159)	0.4%	0.6%	1%	1%	0.8%	2%	0.19%	1.7%	1.5%

Source: The World Values Survey 1995.

Note: For those WVS 95 materialists who select "Environmental Protection" from V41 (V1=3 & V106=1 & V107=3 & V41=1) or (V1=3 & V106=3 & V1-7=1 & V41=1). For those WVS 95 materialists select "Individual Freedom " from V159 (V1=3 & V106=1 & V107=3 & V159=2) or (V1=3 & V106=3 & V1-7=1 & V159=2). For those WVS 95 postmaterialists who select "Economic Growth" from V41 (V1=3 & V106=2 & V107=4 & V41=2) or ((V1=3 & V106=4 & V107=2 & V41=2). For those WVS 95 postmaterialists who select "Maintaining Order" from V159 (V1=3 & V106=2 & V107=4 & V159=1) or (V1=3 & V106=4 & V107=2 & V159=1).

Table 3-26 shows the cross-tabulations between the respondents' levels of education and the four groups of respondents. From the compiled data, V 217 asks the WVS 95 respondents to indicate their highest education level from ten options. The lowest level is "No formal education" and the highest level is "University-level education, with degree".

Table 3-26 shows the cross-tabulations between the percentage of the respondents who shift their value preferences and their education level.²⁷ We can find less educated respondents are not more likely to shift there value priority than those with higher education. On the contrary, WVS 95 postmaterialist respondents with higher education are more likely to shift than their less educated counterparts. In this place, we can argue Inglehart is incorrect to correlate respondents' preferences change with their education levels.

3.8. Aspects of Achievement Motivation:

After examining the theoretical validity of Postmaterialism and observe the WVS

²⁷ For WVS 95 respondents, there are nine levels to rate their education. "1" indicates the lowest level and "9" indicates the highest level.

respondents' selections across similar questions, we begin our analysis of the Achievement Motivation argument. The first step is to examine how different states score on the Achievement Motivation Index in each wave. Appendix 4 shows the scores of states on the index across WVS 81, WVS 90 and WVS 95. The next step is to compare how East Asian states and the former socialist states score on the Achievement Motivation index in each wave. We need to find whether East Asian states still score high on the Achievement Motivation index and whether the former socialist states can score as high as usual.

According to Table 3-27, the index scores of Japan and South Korea are getting higher in comparison with their previous scores. In WVS 90, Japan scores .82 on the Achievement Motivation index and scores .93 on the same index in WVS 95. South Korea scores .47 on the Achievement Motivation index in WVS 90 and scores .71 on the same index in WVS 95. In comparison with Japan and South Korea, China shows a decline on the index score in WVS 95. China scores .91 on the index in WVS 90 but only scores .66 in WVS 95. Taiwan only appears in WVS 95 and scores .41 on the Achievement Motivation index and the score of Taiwan is the lowest among the four East Asian states.

Table 3-27. The Scores of East Asian States and the Former Communist States on the Achievement Motivation Index in WVS 81, WVS 90 and WVS 95. (28 Cases)

	Achievement Motivation Index Score		
	WVS81	WVS90	WVS 95
East Asian States			
Japan	44	82	93
South Korea	34	47	71
China		91	66
Taiwan			41

Table 3-27 (cont'd)

The former Socialist states

Hungary	11	-8	
Tambov			46
Belarus		65	44
Czech		58	
East Germany		72	90
Slovenia		39	42
Bulgaria		50	51
Romania		15	
Moscow		54	
Lithuania		22	30
Latvia		62	56
Estonia		64	47
Russia		67	53
Slovakia		25	
Ukraine			33
Moldova			4
Georgia			17
Armenia			65
Azerbaijan			75
Serbia			
Montenegro			13
Macedonia			51
Croatia			33
Bosnia			23

Source: The World Values Survey 1981, 1990 and 1995.

As to the former socialist states, most of them still score high from the Achievement Motivation battery. East Germany is a distinguished case since it scores .90 on the index in WVS 95. In comparison with other socialist states, the public of East Germany shows a very different value preference. Moldova, Georgia and Montenegro score less than .20 on the index in WVS 95. Furthermore, there is not much change between WVS 90 scores and WVS 95 scores of these former socialist states. During the survey period, these

former socialist states already experienced economic and political transitions. It appears that these transitions did not have an effect on the respondents' selections from the Achievement Motivation battery and their scores on the index. However, their economic performance is still lagging.

African states still score low on the Achievement Motivation index. South Africa scores $-.39$ on the Achievement Motivation index in WVS 90 and scores $-.51$ on the same index in WVS 95. Nigeria scores -1.16 on the Achievement Motivation index in WVS 90 and scores $-.93$ on the same index in WVS 95. The low score of Nigeria comes from their emphasis of "Religious Faith" and "Obedience". On the other hand, Puerto Rico and Dominican Republic are two cases that score very low on the index in WVS 95. Puerto Rico scores $-.80$ and Dominican Republic scores $-.72$ on the Achievement Motivation index in WVS 95.

3.8.1. Descriptive Analysis of Achievement Motivation Index Components: "Thrift" and Religious Faith"

As I argued earlier that Granato, Inglehart and Leblang cannot validate why certain values are selected to construct the Achievement Motivation index. This section will deal with the validity of two index components: "Thrift" and "Religious Faith". Granato, Inglehart and Leblang do not believe the causal relationship between economic growth and "Thrift" can go either direction. They argue that economic growth is unlikely to pose effects on people's saving. In WVS 81, 31% of Japan and 34% of Korean respondents select "Thrift" from the list. On the other hand, Belgium, Hungary and Tambov have the a similar percentage of respondents who emphasize this value too. In WVS 90, Japan, South Korea and China still have a high percentage of respondents stress the importance

of “Thrift”. However, the level of the emphasis of “Thrift” is the same or even higher in other states especially the former communist states²⁸. The value structure does not change much in WVS 95 and we have to question the argument of Granato, Inglehart and Leblang about the effect of “Thrift” on economic growth.

In an earlier part of this analysis, we notice the former communist states posed a challenge to the Achievement Motivation argument.²⁹ We already found that their value preference on “Thrift” is stable even after their political change. However, their economic performance is still lagging. Furthermore, the respondents of these states care less about their religious faith due to the ideology of atheism. Apparently, Achievement Motivation cannot be applied to these states and their scores from the index are dubious.

As to East Asian states, we doubt their high interest in “Thrift” comes from the lasting economic growth in recent years. In this place, I will use a simple regression model to examine this argument. The independent variable is the mean economic growth rate 1960-89 and the dependent variable is the percentage of respondents of a state select “Thrift” from the Achievement Motivation battery in WVS 90.

Table 3-28 shows the linear regression between economic growth 1960-89 and the percentage of respondents of a state who select “Thrift” from the Achievement Motivation battery. The results show the economic growth 1960-89 poses positive effects on a state’s emphasis of “Thrift” and these effects are statistically significant. Under such a situation, we cannot rule out the possible causal direction between economic growth and “Thrift” which means people’s emphasis on “Thrift” is basically a product of lasting economic growth. In this place, we find the explanatory power of the Achievement

²⁸ In fact, Iceland has the highest percentage since 69% of its respondents select “Thrift” from the list.

²⁹ From the table, Poland seems to be an exception since only 10% of its respondents select “Thrift”. However, the data only reports their first selections from the Achievement Motivation battery.

Motivation index is weakened since the effect of the main index component is indecisive.

Table 3-28. OLS Estimations of Model 1(N=25)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	0.158*	0.054	2.951	0.007
Growth 1960-89	0.055*	0.016	3.406	0.002
Adjusted R Square	0.306			
SEE	0.103			

Source: Data I

Note: 1. The dependent variable is the percentage of WVS 90 respondents who select “thrift” from the Achievement Motivation battery in each state.

2. * stands for statistically significant and $p \leq .05$, 2-tailed test.

On the other hand, whether respondents with different religious backgrounds would have different value preferences? If we take religious domination as an analytic unit, we will find the Achievement Motivation is more confusing. According to the Table 3-29, we would find Protestant respondents do not specifically select “Thrift” and “Determination” from the battery. The differences between the selections of Protestant and Catholic respondent are not significant and Orthodox respondents are more likely to select “Thrift” and “Determination” than Protestant respondents are in WVS 95.

Buddhist and Jewish respondents are two groups that need more attention. Statistically speaking, members of the Jewish religion have experienced significant success in the field of business. However, we do not find Jewish respondents specifically emphasize “Thrift” from the Achievement Motivation. On the contrary, Jewish respondents prefer “Religious Faith” and “Obedience” to “Thrift” and “Determination”. In WVS 81, 24% of Jewish respondents emphasize “Religious Faith” while 33% of them emphasize “Obedience”. In the same survey, 16% of Jewish respondents emphasize “Thrift” and

14% of them emphasize “Determination”.

Table 3-29. The Scores of Respondents of 7 Religious Denominations on the Achievement Motivation Index

Religious Denomination	Thrift	Determination	Religious Faith	Obedience	AM Index	N
WVS 81						
Catholic	18%	14%	25%	29%	-0.22	13436
Protestant	18%	16%	14%	24%	-0.04	6615
Orthodox	19%	19%	36%	37%	-0.35	1004
Jews	16%	14%	24%	33%	-0.27	230
Muslim	10%	16%	33%	27%	-0.34	129
Hindu	12%	16%	33%	38%	-0.43	374
Buddhist	32%	24%	10%	12%	0.34	978
WVS 90						
Catholic	34%	29%	35%	38%	-0.10	22823
Protestant	36%	37%	26%	33%	0.14	8966
Orthodox	22%	30%	59%	43%	-0.50	2550
Jews	29%	35%	39%	20%	-0.05	143
Muslim	33%	28%	51%	42%	-0.32	1583
Hindu	25%	27%	29%	56%	-0.33	2321
Buddhist	56%	36%	10%	20%	0.62	399
WVS 95						
Catholic	30%	30%	42%	41%	-0.23	27185
Protestant	31%	36%	35%	34%	-0.02	8684
Orthodox	41%	39%	26%	35%	0.19	10615
Jews	26%	39%	54%	51%	-0.50	937
Muslim	43%	35%	34%	33%	0.11	4836
Hindu	40%	29%	34%	64%	-0.29	2221
Buddhist	54%	48%	11%	13%	0.78	759

Source: The World Values Survey 1981, 1990 and 1995.

Note: From the compiled data, V179 asks the respondents to identify their religious denomination.

The situation is more notable in WVS 95 since 54% of Jewish respondents select “Religious Faith” and 51% of them select “Obedience” from the Achievement Motivation battery. On the other hand, 26% of Jewish respondents select “Thrift” and 39% of them select “Determination” from the battery in the same survey.

The value preferences of WVS Buddhist respondents become a distinguished peculiarity in comparison with other respondents of different religious denomination. In WVS 81, 32% of Buddhist respondents emphasize “Thrift” and 24% of them emphasize “Determination”. On the other hand, 10% of WVS 81 Buddhist respondents emphasize “Religious Faith” and 12% of them emphasize “Obedience”. In this place, we find

Buddhist respondents substantially prefer “Thrift” and “Determination” to “Religious Faith” and “Obedience”. We can find that few Buddhist respondents would encourage their children to learn “Religious Faith” and “Obedience” at home. However, this situation is not an anomaly since Buddhist respondents still keep this peculiar value preference in WVS 90 and WVS 95.

In WVS 90, 56% of Buddhist respondents select “Thrift” and 36% of them select “Determination” from the Achievement Motivation. On the other hand, 10% of WVS 90 Buddhist respondents select “Religious Faith” and 20% of them select “Obedience” from the same battery. In WVS 95, 54% of Buddhist respondents select “Thrift” and 48% of them select “Determination” from the Achievement Motivation battery. On the other hand, 11% of WVS 95 Buddhist respondents select “Religious Faith” and 13% of them select “Obedience” from the battery. Again, we find Buddhist respondents keep this unique value preference across the three waves of surveys. Under such a situation, we can expect that Buddhist respondents would score high on the Achievement Motivation index.

If we take religious denomination as an analytic unit, we can compare how respondents of different religious denominations would score on the Achievement Motivation index. According to Table 3-29, Buddhist respondents is the only group that score positively on the Achievement Motivation index in WVS 81. Buddhist respondents score .34 on the index in WVS 81 while other groups score negatively on the same index. In WVS 91, Buddhist and Protestant respondents are the only two groups that score positively on the Achievement Motivation index. Protestant respondents score .14 while Buddhist respondents score .62 on the Achievement Motivation index in WVS 90.

In WVS 95, Orthodox, Muslim and Buddhist respondents score positively on the

Achievement Motivation index while other groups score negatively on the same index. According to Table 3-29, Orthodox respondents score .19, Muslim respondents score .11 and Buddhist respondents score .78 on the index in WVS 95. In this place, the specific value preference of Buddhist respondents has been confirmed across the three different surveys. In WVS 81, WVS 90 and WVS 95, we find Buddhist respondents score much higher than other respondents of different religious denominations on the Achievement Motivation index. In other words, WVS Buddhists emphasize “Thrift” and “Determination” and care less about “Religious Faith” and “Obedience”. On the other hand, Jewish respondents show an opposite value preference and place more emphasis on “Religious Faith” and “Obedience”.

Jewish respondents score negatively on the index in the three surveys, especially the low score -.50 in WVS 95. If “Religious Faith” should pose negative effects on economic growth, we cannot explain why Jewish respondents are distinguished for their relative economic success. Furthermore, if the validity of the index is solid, Buddhist respondents should be more successful in terms of economic success. If Buddhism is the dominant religion of a certain nation, we should observe impressive economic growth. Under such a situation, the effects of “Religious Faith” on economic growth should be reconsidered.

3.8.2. OLS Estimations of Model 2 (N=25)

Model 2 estimates the effect of the alternative Achievement Motivation index on economic growth 1960-89. This model is basically following the lead of Granato, Inglehart and Leblang by providing a preliminary analysis of the effects of the cultural factors. In this place, we need to clarify first that Model 2 follows the causal direction of Granato, Inglehart and Leblang and that the cultural factors are measured from WVS 90.

In Model 2, the independent variables are WVS 90 Postmaterialism and alternative WVS 95 Achievement Motivation while the dependent variable is the mean economic growth 1960-89. We follow section 2.2.4 to construct the alternative Achievement Motivation index by replacing “Thrift”, “Determination” with “Independence” and “Feeling of Responsibility”.

Table 3-30. OLS Estimations of Model 2 (N=25)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	6.572*	1.567	4.193	.000
Postmaterialism	-2.340*	.818	-2.860	.009
Alternative Achievement Motivation	1.687*	.324	5.212	.000
Adjusted R Square	.55			
SEE	.89			

Source: Alternative Achievement Motivation is comprised of (Independence + Feeling of Responsibility) - (Obedience + Religious Faith).

Note: 1. The Dependent Variable is economic growth 1960-89.

2. * stands for statistically significant and $p \leq .05$

According to Table 3-30, Postmaterialism still poses negative while alternative Achievement Motivation index poses positive effects on subsequent economic growth and both effects are statistically significant. In other words, both alternative Achievement Motivation and Postmaterialism are significant predictors of economic growth and have the expected sign. In this place, we can find the alternative index is as influential as the original index if we follow the causal direction of Granato, Inglehart, Leblang. However, we have to bear in mind that Model 2 also supports the arguments of the classic Achievement Motivation studies since the effects of “Independence” and “Feeling of

Responsibility” are confirmed by the results of Model 2.

3.8.3. OLS Estimations of Model 3 (N=25)

The next step is to estimate the baseline endogenous growth model of Levine and Renelt with Postmaterialism and alternative Achievement Motivation as new independent variables. Model 3 indicates the modified endogenous model with cultural and economic factors as the independent variables and the dependent variable is still the mean economic growth 1960-89. Table 3-31 shows the estimations of Model 3. We can find the initial level of per capita income is still posing significant negative effects on economic growth. As to human capital variables, the coefficient of primary education is still positive and significant but the coefficient of secondary education is not significant though positive.

Table 3-31. OLS Estimations of Model 3 (N=25)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	2.621	1.788	1.466	.160
GDP 1960	-0.524*	.130	-4.015	.001
Primary education in 1960	2.479*	.992	2.500	.022
Second education in 1960	1.270	.982	1.294	.212
Investment	-.487	4.462	-.109	.914
Postmaterialism	-.753	.991	-.760	.457
Alternative Achievement Motivation	1.402*	.397	3.529	.002
Adjusted R Square	.73			
SEE	.68			

Source: Data I

Note: 1. The Dependent Variable is economic growth 1960-89.

2. * stands for statistically significant and $p \leq .05$, 2-tailed test.

However, the coefficient of investment becomes negative though not significant in this model and this is a unique result of my estimation. When Granato, Inglehart and Leblang integrate cultural factors into the endogenous growth model, the coefficient of investment declines from 8.69 to 3.09. They argue this decline comes from the high correlation between Achievement Motivation and investment. In Model 3, the alternative Achievement Motivation should be the main reason that investment becomes a negative explanatory variable.

As to the cultural factors, Postmaterialism and alternative Achievement Motivation still keep their sign and the coefficient of alternative Achievement Motivation is positive and significant while the coefficient of Postmaterialism is not significant. This result is similar to the estimation of Granato, Inglehart and Leblang but the adjusted R square of Model 3 implies alternative Achievement Motivation is a more influential factor than the original index. The adjusted R square of Model 3 is .73 which is higher than .69 in the model of Granato, Inglehart and Leblang. In other words, bringing the alternative Achievement Motivation into the endogenous model can account for 73 percent of the variation cross-national growth rates.

3.8.4. OLS Estimations of Model 4 (N=25)

We already argue the ambiguity of the construction of the Achievement Motivation index. In Model 4, we will unpack the index and employ four index components as independent variables in the model of Levine and Renelt to test their effects on subsequent economic growth. Table 3-32 shows the results of Model 4. We can find economic variables are basically keeping their signs. In Model 4, the coefficient of the initial level of per capita income is still negative and significant. The coefficient of

investment is positive but not significant. As to the human capital factor, the coefficients of primary and secondary education are positive but the coefficient of secondary education is not significant. On the other hand, we find “Thrift” is the only index component with a positive coefficient while the coefficients of “Determination”, “Religious Faith” and “Obedience” are negative. However, only the coefficient of “Obedience” is statistically significant. The coefficient of Postmaterialism is still negative but not statistically significant. In this place, we can find that index components do not necessarily show the assumed sign when we unpack the index and test the effects of the index components separately.

Table 3-32. Estimations of Model 4 (N=25)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	4.913	2.477	1.983	.067
GDP 1960	-.539*	.194	-2.783	.015
Investment 1960-89	.889	5.684	.156	.878
Primary Education in 1960	2.836*	1.124	2.524	.024
Second Education in 1960	2.187	1.376	1.59	.134
Thrift WVS 90	.955	2.071	.461	.652
Determination WVS 90	-1.701	2.563	-.664	.518
Religious Faith WVS 90	-.407	1.224	-.332	.744
Obedience WVS 90	-4.280*	1.801	-2.376	.032
Postmaterialism WVS 90	-1.113	1.081	-1.029	.321
Adjusted R Square	.70			
SEE	.71			

Source: Data I

Note: 1. The dependent variable is mean economic growth 1960-89

2. * stands for statistically significant and $p \leq .05$

3.8.5. OLS Estimations of Model 5 (N=23)

In the previous models, we basically follow the causal direction of Granato, Inglehart and Leblang to test the effects of cultural factors on subsequent economic growth. However, we already argued the dubious causal direction since these cultural factors are measured from WVS 90. If we want to use the WVS 90 cultural factors as the independent variables, the dependent variable should be measured after not before 1990. We employ Model 5 to modified the causal direction of Granato, Inglehart and Leblang and take the mean economic growth 1990-99 as the dependent variable. Since we do not have the data of economic variables in 1990, Model 5 simply tests the effects of WVS 90 Postmaterialism and WVS 90 Achievement Motivation on subsequent economic growth.

Table 3-33 shows the results of Model 5. The coefficient of WVS 90 Postmaterialism is negative and significant while the coefficient of WVS 90 Achievement Motivation is positive but not significant. In this place, we can find WVS 90 Postmaterialism still pose negative effects on the subsequent economic growth but the effects of Achievement Motivation are diminishing.

Table 3-33. OLS Estimations of Model 5 (N=23)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	15.940*	3.514	4.536	.000
WVS 90 Achievement Motivation	1.001	.888	1.128	.273
WVS 90 Postmaterialism	-6.782*	1.829	-3.708	.001
Adjusted R Square	.37			
SEE	1.89			

Source: Data II

Note: 1. The dependent variable is the mean economic growth 1990-99.

2. * stands for statistically significant and $p \leq .05$

3.8.6. OLS Estimations of Model 6 (N=23)

Model 6 is a variation of Model 5 and the main difference is we unpack the Achievement Motivation index to test the effects of the index components on subsequent economic growth. Table 3-34 shows the results of Model 6. Again, the coefficient of WVS 90 Postmaterialism is negative and statistically significant. As to the four index components, none of their coefficient is statistically significant. Furthermore, only the coefficient of “Thrift” is positive and the coefficients of “Determination”, “Religious Faith” and “Obedience” are negative.

No matter what the direction of the causal relation between Achievement Motivation index components and subsequent economic growth, the coefficient of “Determination” is negative in Model 4 and Model 6. As we can recall that Granato, Inglehart and Leblang never explain why “Determination” should be selected as an index component. The results of Model 4 and Model 6 makes “Determination” become a doubtful index component.

Table 3-34. OLS Estimations of Model 6 (N=23)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	19.190*	5.165	3.716	.002
WVS 90 Postmaterialism	-6.681*	1.840	-3.631	.002
WVS 90 Thrift	3.722	4.350	.856	.404
WVS 90 Determination	-8.671	5.830	-1.487	.155
WVS 90 Religious Faith	-0.05	2.915	-.017	.987
WVS 90 Obedience	-5.098	3.968	-1.285	.216
Adjusted R Square	.39			
SEE	1.85			

Source: Data II

Note: 1. The dependent variable is the mean economic growth 1990-99.

2. * stands for statistically significant and $p \leq .05$

3.8.7. OLS Estimations of Model 7 (N=23)

Model 7 is a simple regression between WVS 90 Postmaterialism, WVS 90 alternative Achievement Motivation and economic growth 1990-99. Table 3-35 shows the results of Model 7. The coefficient of WVS 90 Postmaterialism is still negative and statistically significant while the coefficient of WVS 90 alternative Achievement Motivation is positive and not statistically significant.

Table 3-35. OLS Estimations of Model 7 (N=23)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	15.829*	3.442	4.599	.000
WVS 90 Postmaterialism	-7.007*	1.804	-3.885	.001
WVS 90 Alternative Achievement Motivation	1.025	.7	1.464	.159
Adjusted R Square	.39			
SEE	1.85			

Source: Data II

Note: 1. The dependent variable is the mean economic growth 1990-99.

2. * stands for statistically significant and $p \leq .05$.

3.8.8. OLS Estimations of Model 8 (N=21)

In the previous models, the cultural factors are measured from WVS 90. In the following models, we will measure the cultural factors from WVS 81 and test their effects on subsequent economic growth. Model 8 is a simple regression between WVS 81 Achievement Motivation and economic growth 1980-90. In the later sections, there will be models with a longer time period of economic growth. In the following four models, the dependent variable will be the mean economic growth 1980-90. Table 3-36 shows the

results of Model 8 and we can find the coefficient of WVS 81 Achievement Motivation is positive but not statistically significant.

Table 3-36. OLS Estimations of Model 8 (N=21)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	2.899*	.395	7.312	.000
WVS 81 ACHIEVEMENT MOTIVATION	2.006	1.396	1.437	.167
Adjusted R Square	.051			
SEE	1.77			

Source: Data III

Note: 1. The dependent variable is economic growth 1980-99.

2. * stands for statistically significant and $p \leq .05$

3.8.9. OLS Estimations of Model 9 (N=21)

Table 3-37. OLS Estimations of Model 9 (N=21)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	1.417	2.353	.602	.556
WVS 81 Thrift	-1.911	6.128	-.312	.759
WVS 81 Determination	14.151	10.908	1.297	.213
WVS 81 Religious Faith	.775	5.072	.153	.880
WVS 81 Obedience	-3.496	5.544	-.631	.537
Adjusted R Square	-.011			
SEE	1.83			

Source: Data III

Note: The dependent variable is the mean economic growth 1980-90.

In Model 9, we unpack the WVS 81 Achievement Motivation index and employ the

index components as the independent variables. Table 3-37 shows the results of Model 9. The coefficients of these index components changed dramatically in Model 9. First, the coefficient of WVS 81 “Thrift” is not positive but negative though not statistically significant. WVS 81 “Religious Faith” becomes a positive explanatory but the coefficient is not statistically significant. The coefficient of WVS 81 “Determination” is positive and the coefficient of WVS 81 “Obedience” is negative but both are not statistically significant.

3.8.10. OLS Estimations of Model 10 (N=21)

So what is the effects of WVS 81 alternative Achievement Motivation on the economic growth 1980-90? Table 3-38 shows the result of Model 10 and we can find the coefficient of WVS 81 alternative Achievement Motivation is positive but not statistically significant.

Table 3-38. OLS Estimations of Model 10 (N=21)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	2.429*	.577	4.210	.000
WVS 81 Alternative Achievement Motivation	.886	1.058	.837	.413
Adjusted R Square	-.015			
SEE	1.84			

Source: Data III

Note: 1. The dependent variable is the mean economic growth 1980-90.

2. * stands statistically significant and $p \leq .05$

3.8.11. OLS Estimations of Model 11 (N=21)

In Model 11, we first test the effects of “Interpersonal Trust” and Confucian Values on subsequent economic growth. Both cultural factors are measured from WVS 81. Table 3-39 shows the results of Model 11 and we can find the coefficients of both variables are positive and statistically significant. In other words, WVS 81 “Interpersonal Trust” and WVS 81 Confucian Values pose positive effects on the mean economic growth 1980-90. Since Confucian Values also include “Thrift” as Achievement Motivation does, Confucian Values and Achievement Motivation are somewhat correlated and cannot be independent variables in the same model. How WVS 81 states score on the Confucian Values index will be in a latter section.

Table 3-39. OLS Estimations of Model 11 (N=21)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	-6.348	3.159	-2.01	.060
WVS 81 Interpersonal Trust	9.320*	3.674	2.537	.021
WVS 81 Confucian Values	5.637*	2.210	2.551	.020
Adjusted R Square	.25			
SEE	1.58			

Source: Data III

Note: 1. The dependent variable is the economic growth 1980-90.

2. * stands for statistically significant and $p \leq .05$

3.8.12. OLS Estimations of Model 12 (N=19)

In the following models, the dependent variable will be the mean economic growth

1980-97. We will test the effects of WVS 81 cultural factors on a longer time period of economic growth. Model 12 will first test the effects of WVS 81 Achievement Motivation on the mean economic growth 1980-97. From Table 3-40, we can find the coefficient of WVS 81 Achievement Motivation is positive but not statistically significant.

Table 3-40. OLS Estimations of Model 12 (N=19)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	2.653*	.417	6.363	.000
WVS 81 Achievement Motivation	.585	1.433	.408	.688
Adjusted R Square	-.05			
SEE	1.75			

Source: Data IV

Note: 1. The dependent variable is economic growth 1980-97.

2. * stands for statistically significant and $p \leq .05$

3.8.13. OLS Estimations of Model 13 (N=19)

In Model 13, we unpack WVS 81 Achievement Motivation index and employ the index components as the independent variables. Table 3-41 shows the results of Model 13. When we unpack the index and employ the index components as independent variables in Model 9, the dependent variable is the mean economic growth 1980-90. Model 13 a similar model with a longer time period of economic growth as the dependent variable. In this place, we find the coefficient of WVS 81 “Thrift” is still negative though not statistically significant. On the other hand, the coefficient of WVS 81 “Religious

Faith” is still positive but not statistically significant. As we know, these cultural factors are measured from WVS 81 and we test their effects on two different time periods of economic growth. Model 9 and Model 13 demonstrate that effects of “Thrift” and “Religious Faith” on subsequent economic growth are not the same as Granato, Inglehart and Leblang assumed in their analysis. Under such a situation, the theoretical validity of the Achievement Motivation index has been challenged by Model 9 and Model 13.

Table 3-41. OLS Estimations of Model 13 (N=19)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	1.271	2.547	.499	.626
WVS 81 Thrift	-3.602	5.801	-.621	.545
WVS 81 Determination	14.890	11.392	1.307	.212
WVS 81 Religious Faith	5.789	4.817	1.202	.249
WVS 81 Obedience	-6.198	5.294	-1.171	.261
Adjusted R Square	.021			
SEE	1.69			

Source: Data IV

Note: The dependent variable is the economic growth 1980-97.

3.8.14. OLS Estimations of Model 14 (N=19)

If we use the mean economic growth 1980-97 as the dependent variable, what would be the effects of the WVS 81 alternative Achievement Motivation? Model 14 is a simple regression between WVS 81 alternative Achievement Motivation and the mean economic growth 1980-97. Table 3-42 shows the result and the coefficients of WVS 81 alternative Achievement Motivation is positive but not statistically significant.

Table 3-42. OLS Estimations of Model 14 (N=19)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	2.454*	.54	4.546	.000
WVS 81 Alternative Achievement Motivation	.447	1.041	.429	.673
Adjusted R Square	-.05			
SEE	1.75			

Source: Data IV

Note: 1. The dependent variable is economic growth 1980-97.

2. * stands for statistically significant and $p \leq .05$

3.8.15. OLS Estimations of Model 15 (N=18)

In the following three models, the dependent variable is still the mean economic growth 1980-97. I will test the effects of WVS 81 PDI, WVS 81 Interpersonal Trust, WVS 81 Achievement Motivation, WVS 81 alternative Achievement Motivation and WVS 81 Confucian Values on the subsequent economic growth. However, these factors cannot be in the same model due to the correlation problem. Model 15 will first employ WVS 81 PDI, WVS 81 Interpersonal Trust and WVS 81 Achievement Motivation as the independent variables. Table 3-43 shows the results of Model 15. In this model, WVS 81 PDI is used to indicate Postmaterialism and the coefficient of WVS 81 PDI is negative but not statistically significant. On the other hand, the coefficients of WVS 81 Achievement Motivation and WVS 81 Interpersonal Trust are positive but not statistically significant.

Table 3-43. OLS Estimations of Model 15 (N=18)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	.892	1.822	.489	.632
WVS 81 PDI	-1.621	3.084	-.525	.608
WVS 81 Achievement Motivation	.372	1.590	.234	.819
WVS 81 Interpersonal Trust	3.495	3.949	.885	.391
Adjusted R Square	-.12			
SEE	1.85			

Source: Data V

Note: The dependent variable is the economic growth 1980-97.

3.8.16. OLS Estimations of Model 16 (N=18)

Table. 3.44 OLS Estimations of Table 16(N=18)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	.768	1.774	.433	.672
WVS 81 PDI	-1.688	3.084	-.547	.593
WVS 81 Alternative Achievement Motivation	0.012	1.302	.009	.993
WVS 81 Interpersonal Trust	3.706	4.338	.854	.407
Adjusted R Square	-.12			
SEE	1.85			

Source: Data V.

Note: The dependent variable is the economic growth 1980-97.

In Model 16, WVS 81 PDI, WVS 81 alternative Achievement Motivation and WVS 81 Interpersonal Trust are employed as the independent variables. Table 3-44 shows the results of Model 16. The coefficient of WVS 81 PDI is still negative but not statistically significant. The coefficients of WVS 81 alternative Achievement Motivation and WVS 81 Interpersonal Trust are positive but not statistically significant. In this place, we can find WVS 81 alternative Achievement Motivation can only account for 1% of the variance of the economic growth.

3.8.17. OLS Estimations of Model 17 (N=18)

Model 17 employ WVS 81 PDI, WVS 81 Interpersonal Trust and WVS 81 Confucian Values as the independent variables. According to Table 3-45, we find the coefficients of WVS 81 PDI becomes positive but not statistically significant. The coefficients of WVS 81 Interpersonal Trust and WVS 81 Confucian Values are positive but not statistically significant.

Table 3-45. OLS Estimations of Model 17 (N=18)

Model Variable	Unstandardized Coefficients			
	b	Std. Error	t	Sig.
Constant	-5.833	3.502	-1.666	.118
WVS 81 PDI	2.317	3.298	.703	.494
WVS 81 Interpersonal Trust	8.531	4.058	2.102	.054
WVS 81 Confucian Values	5.556	2.656	2.092	.055
Adjusted R Square	.14			
SEE	1.62			

Source: Data V

Note: The dependent variable is economic growth 1980-97.

3.9. Half Postmaterialist? Half Entrepreneur?

Until now, we already demonstrated the fragility of the Achievement Motivation argument by unpacking the index and develop an alternative index according to the classic Achievement Motivation studies. We also find the new index has more explanatory power than the original Achievement Motivation index developed by Inglehart. The next step is to analyze the contradiction between Postmaterialism and Achievement Motivation. This contradiction can be shown if we examine how different types of respondents select from the achievement motivation battery. In this place, I will take group identity as an analytic unit to compare the selections of different groups. In other words, we will examine how materialists and postmaterialists would score on the achievement motivation index. Furthermore, how would materialists and postmaterialists score on my new index. Six groups will be classified according to their value preferences and the wave of surveys. These groups are M81, P81, M90, P90, M95 and P95. M and P indicate the respondents' value preferences, M taps materialists and P taps postmaterialists. The numerical symbols indicate each wave of the World Values Survey.

Table 3-46. Materialists and Postmaterialists' Selections from the Achievement Motivation Battery and their Scores on the Achievement Motivation Index.

	<u>V20</u> Thrift	<u>V21</u> Determination	<u>V22</u> Religious Faith	<u>V24</u> Obedience	AM Score	Total
WVS 81						
Materialists	24%	14%	21%	31%	-0.14	7518
Postmaterialists	11%	22%	10%	12%	0.11	2818
WVS 90						
Materialists	42%	29%	31%	40%	0	15239
Postmaterialists	23%	42%	20%	23%	0.22	8907
WVS 95						
Materialists	44%	35%	31%	40%	0.08	28482
Postmaterialists	23%	39%	25%	26%	0.11	8795

Source: The World Values Survey 1981, 1990 and 1995.

Note: AM score indicates how each type of respondents score on the Achievement Motivation index.

According to the Table 3-46, we can find materialist respondents are more likely to select “Thrift” than postmaterialist respondents are. In WVS 81, 24% of materialists and 11% of postmaterialists regard “Thrift” as an important value for their children to learn at home. In WVS 90 and WVS 95, 42% and 44% of materialist respondents select “Thrift” from the Achievement Motivation battery. On the other hand, 23% of WVS 90 and WVS 95 postmaterialist respondents select “Thrift” from the same battery.

On the other hand, postmaterialist respondents are more likely to select “Determination” than materialists are. In WVS 81, 14% of materialists and 22% of postmaterialists regard “Determination” as an important value that their children should learn at home. In WVS 90 and WVS 95, 29% and 35% of materialists select “Determination” from the Achievement Motivation battery while 42% and 39% of postmaterialists make the same selections. According to Inglehart, “Thrift” and “Determination” are two values that should have positive effects on economic growth. In this place, we can find materialists and postmaterialists have different preferences on these two values.

As to “Religious Faith” and “Obedience”, we can observe that postmaterialists do not value “Religious Faith” and “Obedience” as much as materialists do. In WVS 81, 21% of materialists and 10% of postmaterialists regard “Religious Faith” as an important value for their children to learn at home. In WVS 90 and WVS 95, 31% of materialists select “Religious Faith” from the Achievement Motivation battery while 20% and 25% of postmaterialists make the same selections. In WVS 81, 31% of materialists and 12% of postmaterialists regard “Obedience” as an important value for their children to learn at home. In WVS 90 and WVS 95, 40% of materialists select “Obedience” from the Achievement Motivation index while 23% and 26% of postmaterialists make the same

selections.

If we take group identity as an analytic unit, we would find that postmaterialist score higher than materialists from the Achievement Motivation index in each wave. In WVS 81, postmaterialists score 0.11 while materialists score -0.14 from the Achievement Motivation index. In WVS 90, postmaterialists score 0.22 while materialists score 0 from the index. In WVS 95, postmaterialists score 0.11 while materialists score 0.08 from the index. From the analysis above, we find the reason postmaterialists score higher than materialists is because postmaterialists do not emphasize “Religious Faith” and “Obedience” as much as materialists do. Under such a situation, the selection of index components does have an influence on the respondents’ index scores.

For WVS 95 respondents, we can go further to examine how they select from V25 and V26 since they only can make two selections from four index components. In this place, I will first examine how WVS 95 respondents made their first selections from the four index components. Furthermore, we should also examine these respondents’ selection combinations from V25 and V26. In this place, we will focus on two selection combinations: (Thrift, Determination) and (Religious Faith, Obedience).

Table 3-47. WVS 95 Respondents’ Selections from V25

	V25					
	Thrift	Obedience	Determination	Religious Faith	Total	N
WVS 95						
Materialists	29%	28%	30%	13%	100%	22013
WVS 95						
Postmaterialists	14%	22%	52%	11%	99%	7897

Source: The World Values Survey 1995.

According to Table 3-47, we find 29% of WVS 95 materialists select “Thrift” as their first selections from V25 while 14% of WVS 95 postmaterialists make the same

selections. Again, we find that materialist respondents are more likely to select “Thrift” than postmaterialist respondents are. In WVS 95, 52% of postmaterialists select “determination” as their first selections from V25 while 30% of WVS 95 materialists make the same selections. So postmaterialists do prefer “Determination” than materialists do. As to “Religious Faith” and “Obedience”, materialists are still more likely to select these values than postmaterialists are. In WVS 95, 28% and 13% of materialists select “Obedience” and “Religious Faith” as their first selections from V25 while 22% and 11% of postmaterialists make the same selections.

As we know, V25 and V26 ask the WVS 95 respondents to make two selections from the Achievement Motivation index components. If we use the respondents’ first selections from V25 to calculate how materialists and postmaterialists score on the index, we still find the postmaterialists score higher than the materialists do. If we calculate according to Table 3-47 and based on WVS 95 respondents’ first selection from the index component list, WVS 95 materialists score 0.18 on the Achievement Motivation index while WVS 95 postmaterialists score 0.33 on the same index. Again, we find postmaterialists are more likely to score higher than materialists do.

On the other hand, we can also examine the WVS 95 respondents’ selection combinations from V25 and V26.

Table 3-48. WVS 95 Respondents’ Selection Combinations from V25 and V26

	Selections from V25 & V26	
	Thrift & Determination	Religious Faith & Obedience
WVS 95 Materialists	29%	13%
WVS 95 Postmaterialists	34%	10%

Source: The World Values Survey 1995.

According to Table 3-48, we can find that 34% of WVS 95 postmaterialists select “Thrift” and “Determination” from V25 and V26 while 29% of materialists make the same selections. On the other hand, 13% of WVS 95 materialists select “Religious Faith” and “Obedience” from V25 and V26 while 10% of WVS 95 postmaterialists make the same selections. Though the percentage differences of the selection combinations between materialists and postmaterialists are not huge, we still can confirm that materialists and postmaterialists have different value preferences when selecting from the Achievement Motivation battery or index components. If we use group identity as an analytic unit, we do not find any evidence to indicate the negative effects of postmaterialist values on economic growth.

We already find that postmaterialists are more likely to score higher on the Achievement Motivation index than materialists are. In this place, let us recall how Inglehart measure Postmaterialism. PDI (percentage difference index) is measured by subtracting the percentage of materialists from the percentage of postmaterialists of a state. Furthermore, Inglehart argued “..The wealthier societies are least likely to produce Materialist publics, but Materialist publics seem to produce high economic growth rates.” (1990, p.57). Since postmaterialists seem to score higher from the Achievement Motivation index, we find Inglehart’s argument ambiguous and we have no reason to believe that Postmaterialism would pose a negative effect on economic growth. On the contrary, if a state has a higher percentage of postmaterialists, this state should score higher on the Achievement Motivation index in comparison with other states with lower percentages of postmaterialists. In this place, we find that Postmaterialism and Achievement Motivation do not pose opposite effects on economic growth.

On the other hand, we also need to examine how materialist and postmaterialist

respondents score on my alternative Achievement Motivation index. As we know, the alternative index employs “Independence”(V15) and “Feeling of Responsibility” (V17) and replace “Thrift” and “Determination” as the positive index components. Let us recall these two values are core values of classic Achievement Motivation studies which could lead to entrepreneurship. Furthermore, the alternative index is also an influential explanatory factor to pose positive effects on subsequent economic growth if we follow the causal direction of Granato, Inglehart and Leblang in Model 2. So who prefer “Independence” and “Feeling of Responsibility” to other values from the Achievement Motivation battery? And whether WVS 95 materialists or WVS 95 postmaterialists would score higher on the alternative index?

Table 3-49. Materialists and Postmaterialists’ Selections from V15, V17 and their Scores on the New Achievement Motivation Index.

	<u>V15</u> Independence	<u>V17</u> Feeling of Responsibility	<u>V22</u> Religious Faith	<u>V24</u> Obedience	AM Score	Total
WVS 81						
Materialists	26%	47%	21%	31%	0.21	7518
Postmaterialists	51%	57%	10%	12%	0.86	2518
WVS 90						
Materialists	35%	67%	31%	40%	0.31	15239
Postmaterialists	56%	79%	20%	23%	0.92	8907
WVS 95						
Materialists	37%	63%	31%	40%	0.29	28482
Postmaterialists	53%	79%	25%	26%	0.81	8795

Source: The World Values Survey 1981, 1990 and 1995.

Note: In this table, Achievement Motivation score is comprised of (Independence + Feeling of responsibility)-(Religious faith + Obedience)

According to Table 3-49, the contradiction between Achievement and Postmaterialism is more evident. In WVS 81, 26% of materialists regard “Independence” as an important value that their children should learn at home while 51% of postmaterialists have the same opinion. In WVS 90, 35% of materialists selected “Independence” from the Achievement Motivation battery while 56% of postmaterialists made the same selections. In WVS 95, 37% of materialists selected “Independence” from the battery while 53% of postmaterialists made the same selections.

As to “Feeling of Responsibility”, 47% of WVS 81 materialists regarded “Feeling of Responsibility” as an important value for their children to learn at home while 57% of WVS 81 postmaterialists had the same opinion. In WVS 90, 67% of materialists selected “Feeling of Responsibility” from the Achievement Motivation battery while 79% of postmaterialists made the same selections. In WVS 95, 63% of materialists selected “Feeling of Responsibility” from the battery while 79% of postmaterialists made the same selections. Again, we find postmaterialist respondents are more likely to select “Independence” and “Responsibility” from the Achievement Motivation battery.

Since “Independence” and “Feeling of Responsibility” become the positive index components of my new index, we could expect postmaterialists would score higher than materialists do on this new index. So let us take group identity as an analytic unit again. In WVS 81, materialists score 0.21 and postmaterialists score 0.86 on this new index. In WVS 90, materialists score 0.31 and postmaterialists score 0.92 on the new index. In WVS 95, materialists score 0.29 and postmaterialists score 0.81 on the new index. We can find postmaterialists score much higher than materialists do on this new index.

This contradiction comes from the co-existence of two value dimensions of the survey

data. For those states with a low percentage of postmaterialists, they might score high or low on the Achievement Motivation index. As we know, East Asian states and African states score differently on this index and these states also have different economic performance. If we simply use Achievement Motivation to explain the various economic performances of East Asian states and African states, we cannot explain why the materialist publics of African states do not motivate their economic growth rates. As to the former communist states, we find the cultural factors just cannot be applied to explain the economic situations of these states since these score high on the Achievement Motivation index and these states also has huge materialist publics.

According to the earlier Achievement Motivation studies, “independence” and “responsibility” are assumed to lead to entrepreneurship. From the table above, we can find that Postmaterialist respondents are more likely to educate their children with these values. From the analysis above, we find the theoretical validity of both Postmaterialism and Achievement Motivation cannot be uphold at the same time. The fact is there might be various value dimensions and we hardly can detect one value dimension and ignore others.

3.10. Confucian Values: Are East Asian states distinguished for these values?

“Thrift”, “Good manners” and “Hard work” are three Confucian Values index components. We already examine value distribution of “Thrift” across nations. The result shows not only the respondents of East Asian states but also the former communist states emphasize this value. As to “Good Manners” and “Hard Work”, the descriptive analysis shows an interesting result. If “Good Manners” is a specific Confucian value, then most cases of the World Values Surveys are of Confucian heritage even African states.

From the study of Granato, Inglehart, Leblang, African states and East Asian states represent two opposite ends of economic growth. It is true the respondents of East Asian states emphasize this value but they are not the only ones. If the value of “Good Manners” can have an effect on a nation’s economic growth, it does not happen in African states. In WVS 90 and WVS95, 97% and 94% of Nigerian respondents select “Good Manners” from the Achievement Motivation list. In the same surveys, 74% and 86% of South African

As to “Hard Work”, the result is more ambiguous since Nigerian respondents are more likely to emphasize this value than their counterparts of East Asian states. In WVS 90 and 95, 82% and 83% of Nigerian respondents select “Hard Work” from the list. In the same surveys, only 31% and 24% of Japanese respondents made the same selections.³⁰ On the other hand, we also can find the former communist states have very high percentage of respondent select “Hard Work” from the list. It seems the cultural factors seem to have no explanatory effect on the economic performance of the former communist states at all.

3.11. Brief Discussion of Interpersonal Trust:³¹

According to Inglehart, interpersonal trust and long-term stability of democracy are strongly correlated. However, the causal relationship of these two variables can go either way. Economic development is assumed to give rise to both social structural change (rising education and occupational specialization) and cultural change (cultural of trust and mass legitimacy). Let us focus on the cultural change in this place.

So does the economic development of the East Asian states give rise of their

³⁰ According to Inglehart, respondents are less likely to select “hard work” if there is a shift toward Postmaterialism in their nation. However, the shift is not evident according to the PDI of Japan.

³¹ As an independent variable, interpersonal trust has a positive effect on economic growth.

interpersonal trust? If we compare the three different WVSs, we would find the level of interpersonal trust does not change much for each state. The level of interpersonal trust in Japan is stable across the surveys. South Korea experienced high economic growth and democratic transition in the third wave. However, its level of interpersonal trust is getting lower in each survey (38%-34%-30%). For some stable democracies, the level of interpersonal trust is also getting lower (Britain and U.S). Under such a situation, democratic institutions are not necessarily conducive to interpersonal trust.³²

According to Richard Rose (Diamond and Plattner 1996), “distrust is a pervasive legacy of communist rule”. Such distrust can be applied to person to person level and distrust toward their institutions. If this is a correct description, we should observe these former communist states with low level of interpersonal trust. Tambov is a Russian region appears in WVS 81 and WVS 95. We can observe that the level of interpersonal trust is dropping in this time period (35%-22%). Hungary appears in WVS 81 and WVS 90, its level of interpersonal trust also getting lower (34%-25%). As to the other former communist states, most of their levels of interpersonal trust do not change much between WVS 90 and WVS 95. Poland and Russia are two exceptions. In WVS 90, 35% of Polish respondents and 37% of Russian respondents believe most people can be trusted. In WVS 95, 18% of Polish respondents and 24% of Russian respondents believe most people can be trusted.

³² France is a distinguished exception for a stable democracy. Only 25% of the WVS 81 and 23% of WVS 90 French respondents believe most people can be trusted. The level of interpersonal trust is even lower than that of Italy.

CHAPTER 4 CONCLUSION

4.1 Summary of Conclusions

Based on a strong skepticism toward Inglehart's Postmaterialism theory and Achievement Motivation arguments, this research intends to point out the theoretical and methodological problems of both theories and also the conflict between Postmaterialism and Achievement Motivation. We first examine the compiled data of WVS 81, WVS 90 and WVS 95 to observe value distributions across nations in three different time points. We find "value shift" does not happen in all regions of the world. It is true that the advanced Western states are distinguished for their increasing percentages of postmaterialists but the preconditions for a societal value shift seem cannot be applied to other regions.

On the other hand, we find the contrast between Latin American states and East Asian states since their value distributions do not verify the assumptions of Postmaterialism. When Inglehart and Abramson (1997) utilize WVS 90 to analyze the states' intergenerational value differences, Argentina and Chile are "overachievers" while Japan is an "underachiever" since their cohort value differences do not fit their economic growth. However, this deviation is not a mere coincidence since this contrast is more evident since more Latin American states were surveyed in WVS 95. In WVS 95, all eight Latin American have higher percentage of postmaterialist than the East Asian states do. After experiencing lasting economic growth in the past decades, the publics of the East Asian states do not show a shift toward postmaterialist values while the publics of Latin American states prefer the postmaterialist values in spite of their economic performance.

In Section 3.2, we examine how WVS respondents select from two four-item batteries

and only can find partial evidence to support the randomness argument of Davis and Davenport. In Section 3.3 and 3.4, we question whether a postmodern shift has brought down the religious authority and an erosion of institutional authority. The results show the postmaterialists are more likely to become active members of religious organizations and their frequencies of attending religious services are not lower or even higher than that of materialists.

In section 3.5 and 3.6, we employ two consistency tests to examine the validity of materialist-postmaterialist value dimension. Though most of the tests confirm that respondents of the World Values Surveys do make consistent selections across questions. However, the WVS 95 “mixed” respondents offers us a chance to reexamine the selections of “mixed” respondents. The proxy measurement of Postmaterialism by utilizing two questions of WVS 95 poses another challenge to Postmaterialism since we find WVS 95 respondents’ value preferences are not stable when answering V41 and V159 of the questionnaire.

From the aggregate level, the distribution of proxy WVS 95 materialists and proxy WVS 95 postmaterialists is similar to a random distribution. From the national level, the percentage of postmaterialists in a WVS 95 case poses negative effect on the percentage of proxy postmaterialists. Furthermore, we find the WVS 95 respondents who change their value preferences during the survey are equally distributed across nine levels of education.

On the other hand, the effect of Achievement Motivation on economic growth is examined from theoretical and methodological perspectives. From the theoretical perspective, the research shows Granato, Inglehart and Leblang do not interpret Achievement Motivation correctly and oversimplified the relationship between economic

growth and cultural factors. This misinterpretation leads to the construction of a flawed Achievement Motivation index. In section 3.81, we first examine two index components (Thrift and Religious Faith) thoroughly and dispute the assumed effects of these two index components on economic growth. Furthermore, we also argue that “Independence” and “Feeling of Responsibility” should be selected as the index components since these values were mentioned in the classic achievement motivation studies.

From the methodological perspective, we employ three strategies to amend the dubious causal relations and measurement problem in Inglehart’s research. We first unpack the Achievement Motivation index to examine whether each index component still has the assumed effects on economic growth. Second, we developed models with logical causal relations between cultural factor and economic growth. Third, an alternative Achievement Motivation index is developed which “Independence” and “Feeling of responsibility” are selected as two index components. The result is ironical since the alternative index is more influential than the original index to explain economic growth from the modified model Inglehart. This implies “Independence” and “Feeling of responsibility” should be selected to construct the Achievement Motivation index.

Since Inglehart misinterpret Achievement Motivation argument, he does not notice the Postmaterialism theory is actually conflicting with Achievement Motivation. The conflict comes from the assumed opposite effects of these two cultural factors on economic growth. We employ group identity as an analytic unit to examine how materialists and postmaterialists would score on the original and the alternative Achievement Motivation indexes. In section 3.9, we examine how postmaterialist and materialists respondents select from the Achievement Motivation list, we find Postmaterialist values are actually coinciding with entrepreneurial behavior. In other words, Postmaterialist values should

have positive instead of negative effect on economic growth.

The effect of Confucianism on economic growth is also examined since the assumed “Confucian values” are also included in the Achievement Motivation list. Although the research shows a positive causal relationship between Confucian values and economic growth, the descriptive analysis shows states without Confucian heritage can also have high percentage of respondents possess “Confucian Values”.

This research focus on the respondents’ unstable value preferences during the survey and the contradiction between two value dimensions. The effects of cultural factors still cannot be verified since the measurement problem and dubious causal direction threaten the theoretical validity of both Postmaterialism and Achievement Motivation. The internal conflict between Postmaterialism and Achievement Motivation implies the value dimension should be multi-faceted. In other words, if we just focus on one value dimension and ignore other value dimensions, we probably would endanger the whole research. Furthermore, if we select certain values without any solid theoretical justification to explain subsequent economic growth, the results will be subjective and selective.

4.2 Suggestions for Future Research

In this dissertation, I started by reviewing Inglehart’s arguments and the development of political culture studies. Along this research line, results of this study suggest that we should reexamine current theories of political culture. Survey data can reflect the respondents’ opinions toward certain single issue, but the existence of a value dimension needs to be reconsidered. In the future, I hope the World Values Survey can continue to survey more states but with a different format of questionnaires. The major difference

will be how we present the original materialist-postmaterialist battery or the 12-item batteries. Clarke and his colleagues already begin the experimental survey with a replaced item in the original battery.

However, replacing inflation with unemployment is not the only way to reformat the battery. We can simply replace both materialist values (or both postmaterialist values) with some other unrelated values then we can observe how respondents make their selections. On the other hand, we can dissect the battery into two separate batteries to see whether respondents make consistent selections. In WVS 95, V41 and V159 are the examples of dissection. Furthermore, we should place these “truncated” batteries right after the original battery to observe whether respondents do recognize the existence of the value dimension.

Though I refute the theoretical validity of Postmaterialism and Achievement Motivation, the World Values Surveys are still useful as survey data to explore issues of democratic transitions. Democratization is a popular topic of political science in recent years. However, the relationship between democracy and political culture is still not clear.

According to Inglehart, the postmaterialist values are conducive to democratization since the postmaterialists tend to hold basic democratic norms. Gibson and Duch (1993) argue that support for democratization in the former Soviet Union is mainly from the people with postmaterialist values. The most important thing is that people will not abandon democracy when facing a deteriorating economic situation. It has been a decade since the democratization of the former communist states. Scholars use survey data to verify these arguments. Does the survey data tell us the whole story? Or the format of the questionnaires cannot fully detect the respondents' opinions?

As I mentioned earlier about the uniqueness of WVS 95, the questionnaires offer us a

chance to examine the correlation between democracy and political culture. Whether we can find the public support democratic processes and institutions from the survey data? Most scholars use surveys to examine the hypothesis of cultural prerequisites of a democracy. So they focus on the respondents' attitudes toward interpersonal trust, life satisfaction and tolerance. On the other hand, scholars are also interested in how much confidence the respondents have toward the incumbents and political institutions. In WVS 95, the respondents are asked: "Democracy may have problems but it's better than any other form of government." (V163). Russia is the only state that its respondents doubt this description (41% of Russian respondent disagree or strongly disagree with it). It seems Russia has a long way to go toward its democratic consolidation. However, can we say the respondents of other new democracies already support democracy? If we examine the rest questionnaires of WVS 95, we will find Russia is not the only state facing the problem of democratic consolidation.

In this place, I am not using the survey data to argue the necessity of a democratic culture for any new democracy. I am arguing even the respondents of a certain state support democracy when answering a survey question, it does not mean the respondents support democracy wholeheartedly. The missing linkage between survey data and the democratic consolidation literature is whether the respondents compare democracy with any alternative? When discussing the breakdown of authoritarian regimes, Przeworski (in O'Donnell, Schmitter and Whitehead 1986) argued ". A regime does not collapse unless and until some alternative is organized in such a way also present a real choice for isolated individuals." (ibid p.52). I believe the same logical reasoning can be applied to the newly democratized states. If the respondents have any alternative to consider in comparison with democracy, they may voice out another aspect of their value orientation

even they are identified as the postmaterialists.

APPENDICES

Appendix 1: Note on Weights in the Latest WVS Release (Silver, Dowley 2000)

Since so much of the comparative analysis using WVS data depends on the assumption that the survey results are representative, it is important that the surveys employ some technique to assure representativeness in the sample design or to correct the samples after the fact by the use of weights. Most users of the WVS data in the past appear to have been oblivious to the issue of representativeness, although certain peculiarities of the samples in some of the countries were clearly noted in the WVS documentation supplied by the ICPSR.

In the original ICPSR release of the 1990-93 WVS ("Second Wave"), the weight variable served two purposes. First, for several countries the survey organizations developed weights to make the samples from the given country more representative of the population of that country. Second, the WVS researchers weighted the different countries reportedly to reflect the relative size of the populations of the different countries and hence to make the pooled data set more representative of the world.

In a previous paper (Silver and Dowley 2000), we endorsed the application of internal weights (with reservations to be noted below) but we questioned the application of country weights that purported to make the pooled WVS sample representative of the world. Attempting to weight the countries as a whole was not only unsuccessful in the case of the 1990-93 WVS it was also unnecessary. It was far more important, we argued, that the countries have samples of adequate size that were representative of their own countries than that the country samples be represented in the pooled data in proportion to their share of the world's population. Furthermore, we argued that it would be highly desirable if the sample designs were to take into account the ethnic diversity of the

countries, in particular by stratifying the samples by ethnicity (or an appropriate surrogate measure), so that potentially important ethnic differences in political orientations and behavior could be studied and compared.

Furthermore, we noted that despite the application of internal weights in the 1990-93 WVS, the samples of certain of the countries were so unrepresentative even after the weights were applied that it was misleading at best to treat the results as representative of the country as a whole. We noted in particular the unrepresentativeness of samples from China, India, and Nigeria, which consisted essentially of respondents from the urban populations.

In the newly released WVS, the WVS researchers have taken a new approach. First, they encouraged the survey organizations to provide weights that would make their samples more representative of the country as a whole. Second, they created weights for China, India, and Nigeria to “correct” for the serious urban oversample.³³ These corrections are applied in the new data to both the Second Wave (1990-93) and Third Wave (1995-97) data. As a result, use of weighted data for these three countries will produce different results both for the Second Wave and the Third Wave surveys than if only the uncorrected (unweighted) data were employed.

Third, the researchers abandoned their previous practice of weighing the *countries* differently in a putative effort to make the WVS representative of the world. Instead, they applied a weighting factor that makes the samples from all of the countries nearly equal

³³ In actuality, the researchers created weights for these three countries based on the *educational levels* of the respondents, not place of residence. So the corrections should have the effect of reducing the serious overestimate of the educational levels that we found in the 1990-93 WVS for Nigeria, but it does not actually reconstitute or add in the missing rural respondents from these three countries – it only applies a weight to adjust the educational levels of the weighted respondents to fit the aggregate educational level of the country’s population as a whole.

to one another in size – about 1, 500 respondents. For most countries this involves inflating the apparent sample size from its actual number. This weighting also may affect certain statistics that depend on the number of cases (the N). In the data set distributed by the ICPSR, use of this weight also raises the N 's from the 1981 and 1990-93 (first and second waves) for each country to approximately 1,500 respondents.³⁴

Accordingly, for the third wave (1995-97) cases, we initially use the weight variable V236, in which the number of respondents in the weighted data equals the *actual* number of respondents in each country. As before, we accept and apply the intra-country weights provided by the survey research organizations in each country or by the WVS researchers for China, India, and Nigeria. We do not, however, apply the additional weight that would make all of the country N 's approximately equals to one another (at ca. 1,500). However, because V236 in the new ICPSR release still contains the unequal weighting of *countries* (one that, for example, weighs the actual ca. 1,000 respondents from France by a factor of 2.8 and thus yields 2,800 respondents in the weighted data for 1990-93), it is necessary to correct the weights for the second year to remove the unjustified unequal weighting of the countries. We do this following methods described previously (Silver and Dowley 2000). The same must be done for the data from the first wave (1981). Following a similar procedure, we remove any unequal weighting by country (while maintaining any internal weights – that is, weights designed to make the sample from a given country representative of that country – that were developed by the research organizations).

³⁴ However there are few unaccountable exceptions. For Montenegro, Ghana, Northern Ireland, Taiwan and Moscow the N 's for at least one of the waves is only about 500 – this occurs after applying the weight the brings all other country's to an N of approximately 1,500. It seems likely this is a computational error by those who prepared the data for submission to the ICPSR.

Appendix 2: PDI (Percentage Difference Index) of each State in WVS 81, WVS 90 and WVS 95

	1981M	1990M	1995M	1981P	1990P	1995P	PDI81	PDI90	PDI95
France	32%	20%		19%	25%		-13	5	
Britain	23%	20%	15%	14%	11%	24%	-9	-9	9
W. Germany	23%	14%	15%	20%	28%	44%	-3 ³⁵	14	29
Italy	45%	24%		10%	24%		-35	0	
Netherlands	24%	11%		19%	34%		-5	23	
Denmark	14%	16%		27%	15%		13	-1	
Belgium	31%	21%		12%	23%		-19	2	
Spain	49%	24%	27%	10%	20%	15%	-39	-4	-12
Ireland	39%	23%		9%	19%		-30	-4	
Northern Ireland	47%	22%		4%	15%		-43	-7	
USA		17%	13%		23%	24%	-24 ³⁶	6	11
Canada	22%	12%		16%	25%		-6	13	
Japan	36%	28%	28%	5%	9%	10%	-31	-19	-18
Mexico	27%	24%	20%	9%	11%	17%	-18	-13	-3
South Africa	32%	40%	45%	7%	7%	7%	-25	-33	-38
Hungary	52%	47%		2%	4%		-50	-43	
Australia			8%			35%			27
Norway	29%	29%	14%	9%	10%	11%	-20	-19	-3
Sweden	34%	14%	10%	12%	23%	21%	-22	9	11
Tambov			64%			1%			-63
Iceland	26%	26%		17%	11%		-9	-15	
Argentina	33%	26%	17%	12%	20%	29%	-21	-6	12
Finland	9%	7%	11%	30%	34%	30%	21	24	19
S Korea	43%	46%	48%	8%	11%	7%	-35	-35	-41
Poland		31%	40%		10%	5%		-21	-35
Switzerland		14%	16%		25%	17%		11	1
Puerto Rico			11%			22%			11
Brazil		41%	31%		7%	12%		-34	-19
Nigeria		36%	41%		7%	6%		-29	-35
Chile		25%	26%		19%	14%		-6	-12
Belarus		37%	48%		7%	5%		-30	-43

³⁵ In the case of West Germany, there is a big difference between my calculation and that of Abransom and Inglehart (1995,p.135). According to them, the PDI of West Germany in WVS 81 is -11. However, -3 is what I got from the compiled data.

³⁶ In WVS81, the value questions were not asked in U.S. This PDI score comes from the 1980 National Election Study. (Abramson, Inglehart 1997.p.135)

Appendix 2 (cont'd)

India	40%	52%	6%	4%	-34	-48
Czech	24%		11%		-13	
E. Germany	12%	15%	23%	21%	11	6
Slovenia	31%	20%	7%	14%	-24	-6
Bulgaria	29%	53%	9%	4%	-20	-49
Romania	45%		7%		-38	
Pakistan		43%		3%		-40
China ⁹⁰	50%	69%	5%	?	-45	
Taiwan		46%		6%		-40
Portugal	38%		10%		-28	
Austria	14%		25%		11	
Turkey	27%	26%	21%	21%	-6	-5
Moscow	27%		13%		-14	
Lithuania	27%	44%	12%	3%	-15	-41
Latvia	26%	36%	9%	4%	-17	-32
Estonia	31%	40%	6%	5%	-25	-35
Ukraine		53%		2%		-51
Russia	42%	55%	6%	2%	-36	-53
Peru		28%		12%		-16
Venezuela		30%		12%		-18
Uruguay		17%		27%		10
Ghana		16%		13%		-3
Philippines		37%		8%		-29
Moldova		57%		3%		-54
Georgia		47%		4%		-43
Armenia		45%		5%		-40
Azerbaijan		62%		3%		-59
Dominic Rep		20%		16%		-4
Bangladesh		56%		5%		-51
Colombia		24%		14%		-10
Basque		12%		37%		25
Andalucia		29%		15%		-14
Galicia		15%		30%		15
Valencia		24%		22%		-2
Serbia		51%		6%		-45
Montenegro		53%		6%		-47
Macedonia		41%		4%		-37
Croatia		29%		15%		-14
Slovakia	30%		9%		-21	
Bosnia Herceg		33%		4%		-29

Appendix 3: Each State's Score on Achievement Motivation Index in Each Wave:³⁷

WVS 81					
	Thrift	Determination	Religious Faith	Obedience	Index Score
France	31%	18%	10%	18%	21
Britain	8%	18%	13%	36%	-23
W. Germany	29%	28%	16%	14%	27
Italy	18%	18%	20%	26%	-10
Netherlands	17%	16%	12%	23%	-2
Denmark	14%	12%	7%	13%	6
Belgium	36%	21%	16%	29%	12
Spain	11%	13%	21%	29%	-26
Ireland	14%	10%	41%	33%	-50
N. Ireland	7%	10%	33%	51%	-67
USA	10%	15%	38%	28%	-41
Canada	15%	22%	23%	21%	-7
Japan	31%	25%	6%	6%	44
Mexico	12%	10%	35%	44%	-57
S.Africa	15%	18%	35%	36%	-38
Hungary	33%	17%	8%	31%	11
Australia	15%	18%	22%	41%	-30
Norway	11%	12%	11%	26%	-4
Sweden	32%	17%	6%	13%	30
Tambov	34%	12%		5%	
Iceland	12%	12%	8%	16%	0
Argentina	16%	17%	19%	19%	-5
S. Korea	34%	27&	14%	13%	34
WVS 90					
	Thrift	Determination	Religious Faith	Obedience	Index Score
France	36%	39%	13%	53%	9
Britain	28%	29%	20%	42%	-5
W.Germany	45%	49%	19%	22%	53
Italy	27%	29%	35%	32%	-11
Netherlands	28%	31%	14%	32%	13
Denmark	19%	30%	9%	20%	20
Belgium	36%	39%	17%	36%	22
Spain	22%	22%	25%	42%	-23
Ireland	22%	26%	57%	35%	-44
N.Ireland	25%	18%	44%	56%	-57
USA	29%	35%	55%	38%	-29

³⁷ The value in each cell indicates the percentage of a nation's respondents select a certain goal from the Achievement Motivation list. Index score comes from (Thrift% + Determination%) - (Religious Faith% + Obedience%).

APPENDIX 3 (CONT'D)

Canada	21%	38%	31%	28%	0
JAPAN	40%	59%	7%	10%	82
Mexico	33%	37%	40%	45%	-15
S.Africa	19%	32%	51%	39%	-39
Hungary	49%	12%	24%	45%	-8
Norway	22%	33%	14%	31%	10
Sweden	48%	33%	6%	25%	50
Iceland	69%	75%	50%	68%	16
Argentina	15%	29%	28%	32%	-16
Finland	38%	38%	13%	25%	38
S.Korea	53%	31%	19%	18%	47
Poland	10%		16%	9%	
Switzerland	42%		24%	21%	
Brazil	30%	25%	46%	41%	-32
Nigeria	8%	21%	74%	71%	-116
Chile	29%	31%	54%	52%	-46
Belarus	53%	40%	6%	22%	65
India	24%	28%	29%	56%	-33
Czech	47%	43%	9%	23%	58
E. Germany	58%	54%	16%	24%	72
Slovenia	58%	42%	21%	40%	39
Bulgaria	39%	41%	11%	19%	50
Romania	37%	40%	43%	19%	15
China 90	56%	45%	1%	9%	91
Portugal	34%	19%	31%	49%	-27
Austria	55%	39%	23%	25%	46
Turkey	36%	20%	44%	31%	-19
Moscow	39%	44%	12%	17%	54
Lithuania	37%	31%	21%	25%	22
Latvia	46%	40%	9%	15%	62
Estonia	35%	51%	3%	19%	64
Russia	61%	40%	8%	26%	67
Slovakia	51%	40%	28%	38%	25

WVS 95

	Thrift	Determination	Religious Faith	Obedience	Index Score
Britain	29%	35%	17%	51%	-4
W. Germany	41%	37%	17%	11%	50
Spain	19%	21%	22%	44%	-26
USA	29%	41%	55%	37%	-22
Japan	44%	61%	6%	6%	93
Mexico	46%	40%	44%	50%	-8
S. Africa	28%	35%	64%	50%	-51
Australia	18%	36%	21%	29%	4
Norway	13%	35%	12%	26%	10

APPENDIX 3 (CONT'D)

Sweden	42%	31%	5%	16%	52
Tambov	62%	41%	13%	44%	45
Argentina	16%	28%	36%	32%	-24
Finland	29%	44%	11%	28%	34
S.Korea	66%	36%	17%	14%	71
Switzerland	37%	45%	21%	26%	35
Puerto Rico	23%	22%	72%	53%	-80
Brazil	39%	35%	57%	59%	-42
Nigeria	10%	40%	72%	71%	-93
Chile	30%	34%	46%	46%	-28
Belarus	53%	41%	15%	35%	44
India	42%	29%	36%	70%	-35
E.Germany	65%	45%	6%	14%	90
Slovenia	40%	49%	19%	28%	42
Bulgaria	43%	44%	16%	20%	51
Pakistan	57%	31%	81%	33%	-26
China 90	62%	36%	3%	29%	66
Taiwan	49%	34%	9%	33%	41
Turkey	29%	21%	41%	32%	-23
Lithuania	40%	36%	23%	23%	30
Latvia	41%	48%	14%	19%	56
Estonia	30%	49%	5%	27%	47
Ukraine	49%	42%	20%	38%	33
Russia	55%	41%	9%	34%	53
Peru	19%	24%	52%	50%	-59
Venezuela	45%	19%	43%	50%	-29
Uruguay	27%	44%	18%	28%	25
Philippines	30%	29%	63%	44%	-48
Moldova	42%	29%	28%	39%	4
Georgia	32%	39%	32%	22%	17
Armenia	38%	57%	12%	18%	65
Azerbaijan	59%	47%	19%	25%	62
Dominic Rep	11%	27%	59%	51%	-72
Bangladesh	51%	53%	78%	19%	7
Colombia	25%	20%	42%	43%	-40
Basque	22%	31%	22%	30%	1
Andalusia	14%	14%	27%	51%	-50
Galicia	18%	23%	18%	40%	17
Valencia	19%	15%	21%	42	-29
Serbia	30%	44%	13%	39%	22
Montenegro	25%	42%	13%	41%	13
Macedonia	44%	47%	22%	18%	51
CROATIA	29%	44%	19%	21%	33
Bosnia	41%	43%	20%	41%	23

Appendix 4: Data I – Data V

Data I comes from the index of Granato, Inglehart and Leblang (1996)

Data II:

WVS 90

Country	AM90	T90	D90	Re90	Ob90	Ind90	Res90	Eg9097	Eg9099	Man90	Work90	Conf	PD190	Trust90	Proxym
Austria	0.46	0.55	0.39	0.23	0.25	0.63	0.85	1.60	1.94	0.78	0.14	1.47	1.72	0.11	0.11
Belgium	0.22	0.36	0.39	0.17	0.36	0.36	0.71	1.20	1.46	0.72	0.34	1.42	1.78	0.02	0.02
Brazil	-0.32	0.30	0.25	0.46	0.41	0.26	0.72	3.10	2.48	0.79	0.51	1.51	1.92	-0.34	-0.34
Canada	0.0	0.21	0.38	0.31	0.28	0.44	0.75	2.10	2.38	0.75	0.35	1.31	1.59	0.13	0.13
China	0.90	0.56	0.45	0.01	0.09	0.84	0.67	11.9	11.02	0.53	0.65	1.74	1.83	-0.45	-0.45
Denmark	0.2	0.19	0.30	0.09	0.20	0.81	0.86	2.30	2.24	0.66	0.02	0.97	1.07	-0.01	-0.01
Finland	0.38	0.38	0.38	0.13	0.25	0.57	0.83	1.10	1.78	0.82	0.06	1.26	1.51	0.24	0.24
France	0.09	0.36	0.39	0.13	0.53	0.27	0.72	1.30	1.54	0.53	0.53	1.42	1.95	0.05	0.05
Great Britain	-0.05	0.28	0.29	0.20	0.42	0.41	0.46	1.90	1.92	0.90	0.28	1.46	1.88	-0.09	-0.09
India	-0.33	0.24	0.28	0.29	0.56	0.30	0.60	5.90	5.92	0.94	0.67	1.85	2.41	-0.34	-0.34
Ireland	-0.44	0.22	0.22	0.57	0.35	0.43	0.61	6.50	7.00	0.75	0.28	1.32	1.67	-0.04	-0.04
Italy	-0.11	0.27	0.29	0.35	0.32	0.34	0.83	1.10	1.08	0.78	0.24	1.29	1.61	0	0
Japan	0.82	0.40	0.59	0.07	0.10	0.64	0.84	1.40	0.92	0.83	0.31	1.54	1.64	-0.19	-0.19
Korea	0.47	0.53	0.31	0.19	0.18	0.54	0.91	7.20	6.16	0.93	0.64	2.10	2.28	-0.35	-0.35
Mexico	-0.15	0.33	0.37	0.40	0.45	0.47	0.77	1.80	2.24	0.73	0.23	1.29	1.74	-0.13	-0.13
Netherlands	0.13	0.28	0.31	0.14	0.32	0.49	0.85	2.30	2.54	0.79	0.14	1.21	1.53	0.23	0.23
Nigeria	-1.16	0.08	0.21	0.74	0.71	0.16	0.36	2.70	2.46	0.97	0.82	1.87	2.58	-0.29	-0.29
Norway	0.1	0.22	0.33	0.14	0.31	0.86	0.90	3.90	3.42	0.77	0.07	1.06	1.37	-0.19	-0.19
South Africa	-0.39	0.19	0.32	0.51	0.39	0.20	0.48	1.50	1.40	0.74	0.27	1.20	1.59	-0.33	-0.33
Spain	-0.23	0.22	0.22	0.25	0.42	0.37	0.78	1.60	2.08	0.81	0.37	1.40	1.82	-0.04	-0.04
Sweden	0.5	0.48	0.33	0.06	0.25	0.36	0.89	0.90	1.42	0.78	0.05	1.31	1.56	0.09	0.09
Turkey	-0.19	0.36	0.2	0.44	0.31	0.19	0.66	3.60	3.18	0.92	0.73	2.01	2.32	-0.06	-0.06
United States	-0.29	0.29	0.35	0.55	0.38	0.52	0.72	2.50	2.80	0.77	0.49	1.55	1.93	0.06	0.06

AM90: Achievement Motivation Index comprised of (Thrift)+(Determination)-(Obedience)-(Religious Faith). Source: WVS90

T90: The percentage of the respondents of a certain nation select “Thrift” from the list of WVS 90.

D90: The percentage of the respondents of a certain nation select “Determination” from the list of WVS 90.

Re90: The percentage of the respondents of a certain nation select “Religious Faith” from the list of WVS 90.

Ob90: The percentage of the respondents of a certain nation select “Obedience” from the list of WVS 90.

Ind90: The percentage of the respondents of a certain nation select “Independence” from the list of WVS 90.

Res90: The percentage of the respondents of a certain nation select “Responsibility” from the list of WVS 90.

Eg9097: The mean economic growth rate of a certain nation from 1990 to 1997. (World Development Report 1998/99)

Eg9099: The mean economic growth rate of a certain nation from 1990 to 1999. Source: GDP98 and GDP99 of each nation can be found at <http://www.worldbank.org/data>

Man90: The percentage of the respondents of a certain nation select “Good Manners” from the list of WVS 90

Work90: The percentage of the respondents of a certain nation select “Hard Work” from the list of WVS 90.

Conf: The score of a WVS 90 case on the Confucian Values index

PDI 90: The PDI score of a WVS 90 case

Proxyam: The score of a WVS 90 case on the alternative Achievement Motivation index

Trust 90: The level of interpersonal trust of a WVS 90 case

Data III, IV, V

WVS 81

Country	Eg8090	AM81	T81	D81	Re81	Ob81	Ind81	Res81	Trust81	Eg8097	Man81	Work81	Conf81	PDI81
France	2.40	0.21	0.31	0.18	0.10	0.18	0.18	0.40	0.25	1.85	0.21	0.33	0.85	-0.13
Britain	3.20	-0.23	0.08	0.18	0.13	0.36	0.24	0.24	0.43	2.55	0.65	0.15	0.78	-0.09
W Germany	2.20	0.27	0.29	0.28	0.16	0.14	0.50	0.62	0.32	X	0.41	0.20	0.90	X
Italy	2.40	-0.1	0.18	0.18	0.20	0.26	0.32	0.48	0.27	1.75	0.55	0.13	0.86	-0.03
Netherlands	2.30	-0.2	0.17	0.16	0.12	0.23	0.28	0.54	0.45	2.30	0.59	0.12	0.88	-0.35
Denmark	2.40	0.06	0.14	0.12	0.07	0.13	0.57	0.62	0.53	2.35	0.49	0.02	0.65	0.13
Belgium	1.90	0.12	0.36	0.21	0.16	0.29	0.20	0.37	0.29	1.55	0.47	0.32	1.15	-0.19
Spain	3.20	-0.26	0.11	0.13	0.21	0.29	0.25	0.63	0.35	2.40	0.55	0.41	1.07	-0.39
Ireland	3.20	-0.5	0.14	0.10	0.41	0.33	0.30	0.22	0.41	4.85	0.62	0.24	1.00	-0.30
U.S	2.90	-0.41	0.10	0.15	0.38	0.28	0.32	0.43	0.41	2.70	0.62	0.26	0.98	-0.24
Canada	3.40	-0.07	0.15	0.22	0.23	0.21	0.24	0.40	0.48	2.75	0.54	0.20	0.89	-0.06
Japan	4.00	0.44	0.31	0.25	0.06	0.06	0.47	0.69	0.41	2.70	0.68	0.15	1.14	-0.31
Mexico	1.10	-0.57	0.12	0.10	0.35	0.44	0.15	0.56	0.17	1.45	0.81	0.18	1.11	-0.18
S. Africa	1.20	-0.38	0.15	0.18	0.35	0.36	0.20	0.30	0.29	1.35	0.81	0.30	1.26	-0.25
Hungary	1.60	0.11	0.33	0.17	0.08	0.31	0.51	0.45	0.34	0.06	0.48	0.28	1.09	-0.50
Australia	3.40	-0.3	0.15	0.18	0.22	0.41	0.25	0.30	0.48	3.55	0.53	0.12	0.80	X
Norway	2.80	-0.14	0.11	0.12	0.11	0.26	0.54	0.63	0.61	3.35	0.60	0.04	0.75	-0.20
Sweden	2.30	0.3	0.32	0.17	0.06	0.13	0.18	0.63	0.57	1.60	0.55	0.04	0.91	-0.22
Iceland	3.20	0.0	0.12	0.12	0.08	0.16	0.39	0.49	0.40	X	0.60	0.24	0.96	X
Argentina	-0.30	-0.05	0.16	0.17	0.19	0.19	0.42	0.58	0.26	2.10	0.48	0.50	1.14	-0.21
S. Korea	9.50	0.34	0.34	0.27	0.14	0.13	0.45	0.54	0.38	8.35	0.69	0.40	1.43	-0.35

AM81: Achievement Motivation Index comprised of (Thrift)+(Determination)-(Obedience)-(Religious Faith). Source: WVS81

T81: The percentage of the respondents of a certain nation select “Thrift” from the list of WVS 81.

D81: The percentage of the respondents of a certain nation select “Determination” from the list of WVS 81.

Re81: The percentage of the respondents of a certain nation select “Religious Faith” from the list of WVS 81.

Ob81: The percentage of the respondents of a certain nation select “Obedience” from the list of WVS 81.

Ind81: The percentage of the respondents of a certain nation select “Independence” from the list of WVS 81.

Res81: The percentage of the respondents of a certain nation select “Responsibility” from the list of WVS 81.

Eg8090: The mean economic growth rate of a certain nation from 1980 to 1990. (World Development Report 1998/99)

Eg80-97: The mean economic growth rate of a certain nation from 1980 to 1997. (World Development Report 1998/99)

Man81: The percentage of the respondents of a certain nation select “Good Manners” from the list of WVS 81

Work81: The percentage of the respondents of a certain nation select “Hard Work” from the list of WVS 81.

Conf: The score of a WVS 81 case on the Confucian Values index

PDI 81: The PDI score of a WVS 81 case

Proxym 81: The score of a WVS 81 case on the alternative Achievement Motivation index

Trust 81: The level of interpersonal trust of a WVS 81 case

Appendix 5: How Respondents of WVS 95 Cases Select from V41 (N=50).

Nations	Environmental Protection	Economic Growth	Total	N	Nations	Environmental Protection	Economic Growth	Total	N
W Germany	45%	42%	87%	966	Taiwan	63%	23%	86%	1389
Spain	55%	38%	93%	1108	Turkey	54%	40%	94%	1848
USA	52%	42%	94%	1406	Lithuania	35%	62%	97%	771
Japan	46%	40%	86%	713	Latvia	45%	40%	85%	1087
Mexico	55%	32%	87%	1352	Estonia	45%	47%	92%	944
S Africa	29%	69%	98%	2703	Ukraine	57%	37%	94%	2213
Australia	61%	36%	97%	1979	Russia	56%	39%	95%	1621
Norway	63%	33%	96%	1118	Peru	45%	47%	92%	1065
Sweden	65%	29%	94%	917	Venezuela	45%	39%	84%	1073
Tambov	61%	34%	95%	387	Uruguay	64%	28%	92%	883
Argentina	44%	41%	85%	1019	Ghana	51%	48%	99%	88
Finland	43%	51%	94%	934	Philippines	69%	30%	99%	1159
S Korea	70%	20%	90%	1080	Moldova	61%	38%	99%	897
Poland	49%	47%	96%	969	Georgia	61%	38%	99%	2292
Switzerland	43%	40%	83%	1090	Armenia	44%	55%	99%	1733
Puerto Rico	67%	26%	93%	1124	Azerbaijan	50%	44%	94%	1766
Brazil	51%	49%	100%	1058	Dominic Rep	72%	20%	92%	386
Nigeria	40%	58%	98%	2592	Bangladesh	46%	50%	96%	1299
Chile	56%	33%	89%	970	Basque	45%	39%	84%	2020
Belarus	58%	36%	94%	1789	Andalusia	45%	43%	88%	1627
India	29%	63%	92%	1463	Galicia	54%	35%	89%	1122
E Germany	34%	53%	87%	970	Valencia	44%	45%	89%	448
Slovenia	47%	48%	95%	956	Serbia	46%	44%	90%	1181
Bulgaria	43%	50%	93%	764	Montenegro	44%	43%	87%	211
Pakistan	50%	50%	100%	694	Macedonia	51%	42%	93%	878
China 90	60%	29%	89%	1275	Croatia	59%	29%	88%	1075

Source: 1995 World Values Survey.

Note: V41=1 indicates respondents take environmental protection as the priority in comparison with economic growth. V41=2 indicates respondents take economic growth as the priority even if the environment suffers to some extent.

Appendix 6: How Respondents of WVS 95 Cases Select from V159 (N=52)

Nations	Maintaining Order	Individual Freedom	Total	N	Nations	Maintaining Order	Individual Freedom	Total	N
W Germany	50%	50%	100%	931	Lithuania	45%	55%	100%	964
Spain	46%	54%	100%	1132	Latvia	39%	61%	100%	1163
USA	49%	51%	100%	1467	Estonia	51%	49%	100%	1009
Japan	78%	22%	100%	896	Ukraine	44%	56%	100%	2557
Mexico	46%	54%	100%	1395	Russia	45%	55%	100%	1915
S Africa	72%	28%	100%	2851	Peru	45%	55%	100%	1137
Australia	52%	48%	100%	1961	Venezuela	48%	52%	100%	1120
Norway	72%	28%	100%	1113	Uruguay	39%	61%	100%	942
Sweden	47%	53%	100%	914	Philippines	46%	54%	100%	1189
Tambov	58%	42%	100%	476	Moldova	45%	55%	100%	972
Argentina	40%	60%	100%	1007	Georgia	55%	45%	100%	2526
Finland	49%	51%	100%	914	Armenia	48%	52%	100%	1920
Poland	77%	23%	100%	993	Azerbaijan	90%	10%	100%	1964
Switzerland	49%	51%	100%	1097	Dominic Rep	47%	53%	100%	404
Puerto Rico	47%	53%	100%	1112	Bangladesh	89%	11%	100%	1496
Brazil	49%	51%	100%	1128	Colombia	47%	53%	100%	2957
Nigeria	72%	28%	100%	1929	Basque	28%	72%	100%	2008
Chile	50%	50%	100%	968	Andalusia	43%	57%	100%	1662
Belarus	44%	56%	100%	1976	Galicia	37%	63%	100%	1143
India	74%	26%	100%	1722	Valencia	44%	56%	100%	463
E Germany	71%	29%	100%	966	Serbia	65%	35%	100%	1199
Slovenia	56%	44%	100%	944	Montenegro	70%	30%	100%	235
Bulgaria	71%	29%	100%	968	Macedonia	70%	30%	100%	910
Taiwan	90%	10%	100%	759	Croatia	47%	53%	100%	1132
Turkey	76%	24%	100%	1844	Bosnia Herceg	49%	51%	100%	1182

Source: 1995 World Values Survey.

Note: V159=1 indicates respondents take "maintaining order" as the most important responsibility of government. V159=2 indicates respondents take "respect individual freedom" as the most important responsibility of government.

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