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Research Article

Dependencies between work ethic and economic growth: A global perspective

Marc Weniger[1], Joel Bigley[2]

[1]Dependencies between work ethic and economic growth: A global perspective

[2]California Baptist University

Abstract: This study looks at the relationship between work ethic and economic growth across cultures. The findings indicated substantively significant results based on the question sets found in the GLOBE survey. Work priorities have shifted based on human need. In this study multiple waves of the GLOBE survey are used to determine socio-economic trends. The results indicated that work ethic grows as a countries' priorities change from having higher motivation to work in poorer economies, to having lower motivation to work in wealthier economies. In fact, work priorities have shifted from working for material security/necessity in poorer economies to working for intrinsic needs in wealthier countries. This study supported aspects of modernization theory, cultural determinism (primacy), and that culture, specifically work ethic, does have a substantively significant effect on GNI per capita and GDP per capita. The ideas of achievement motivation theory and that cultural values only change generationally were challenged.

Key Words: work ethic, economic growth, World Values study, motivation theory, generational values, cultural determinism.

Introduction

Culture and economic growth research has produced mixed results. Culture has been challenging to define, measure, and understand. Neoclassical economists have given primacy to economic factors for economic growth, whereas sociologists and anthropologists have often given primacy to cultural factors in combination with economic factors as the reason for economic growth. As in many fields, these kinds of philosophical differences have caused contention among researchers for decades. As the field has progressed, research investigating both cultural and economic factors for economic growth has become more widely accepted.

The World Values Survey might answer how work values differed between countries, but it did not answer why work values shift. After investigating literature it became clear that researchers have done relatively little work in the area of work ethic as a value, and the research that has been done has been inconclusive. Corneo and Jeanne (2010) found that work ethic has a symbolic value, which pushes parents to encourage children to get higher paying jobs, thus increasing economic growth. Furnham, Kirkcaldy, and Lynn (1994) determined that work ethic was not a predictor of economic growth; however, they admitted the conclusion might have been a result of measurement error. Pryor (2005) included work ethic as part of other variables measuring values and economic growth; however, the study resulted in a negative causal relationship between economic growth and work values. Determining correlation in social science research is difficult: Determining causality was a far stretch for Pryor's inquiry.

Results from global studies showed that culture and economic growth have some causal effects in the cultural dimensions of uncertainty avoidance and performance orientation, and clearly, a relationship exists between work ethic and economic growth. The finding that performance orientation has some relationship to economic growth was promising, suggesting that looking at work ethic through an in-depth study might be prudent and could yield significant results.

The World Values Survey

Researchers have conducted the WVS in three waves over the past three decades. It is the only longitudinal survey measuring human beliefs and cultural values in 80 societies around the world. The WVS measures topics including economics, politics, religion, ethics, civic duty, family values, gender roles, and sexual behavior in a broad array of different economic and political societies (Inglehart, Basanez, Diez-Medrano, Halman, & Luijkx, 2004). The WVS has clearly shown that cultural values influence economic growth. Inglehart et al. (2004) showed that two value dimensions, survival/self-expression values and traditional/secular-rational values, clearly had a relationship with gross national product per capita (see Figure 2). Inglehart et al. (2004) stated, "One rarely finds such striking and consistent correspondence between an objective independent variable such as GNP per capita and subjective values and attitudes" (p. 13), as found in this comparison.

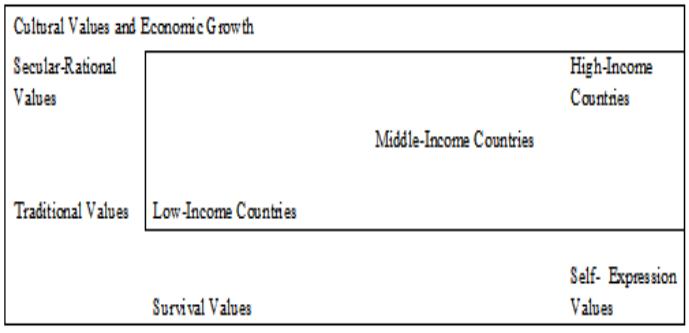

Figure 2. Values and economic growth comparison. Adapted from *Human Beliefs and Values* (p. 12), by R. Inglehart, M.

Basanez, J. Diez-Medrano, L. Halman, & R. Luijkx, 2004. In L. Halman & O. Riis (Eds.), *Religion in Secularizing Society: The Europeans' Religion at the End of the 20th Century*. Leiden, The Netherlands: Brill. Copyright 2004 by Siglo XXI Editores.

Work Values and Economic Growth

The connection between work ethic and economic growth began with Weber (1930). Weber made the case that the Protestant work ethic ideology influenced economic success in Protestant societies; however, this theory draws controversy in the literature and seems to no longer be as relevant as it once was. McClelland and Winter (1969) added the idea of achievement motivation theory, suggesting those societies with a culture of strong work motivation are more likely to be economically successful. Results of a study by Inglehart (1997) showed achievement motivation was closely linked to economic growth rates. Inglehart et al. (1997) found that achievement motivation had a major impact on gross domestic investment and economic growth and stated, "The direct path from Achievement Motivation to growth probably reflects the effect of motivational factors on entrepreneurship and [work] effort" (pp. 233-234).

As previously discussed, modernization theory postulates that certain cultural values or cultural dimensions are predictors of economic growth (Granato, Inglehart, & Leblang, 1996; Inglehart, 1997; Inglehart et al., 2004; Nadler & Zemanek, 2006). Postmodernization theory indicates that once a society has overcome scarcity issues, cultural values shift towards quality of life aspects and economic growth rates decline, illustrating that culture has an impact on economic growth as work becomes less important (Inglehart, 1997; Inglehart et al., 2004). Researchers have shown the previously mentioned cultural dimensions to relate culture to economic growth, and two cultural dimensions have more specifically related work values to economic growth (Hofstede, 2001; House, Hanges, Javidan, Dorfman, & Gupta, 2004; Schwartz, 1994). The cultural dimensions of uncertainty avoidance and performance orientation both relate the work values of a society; however, only the cultural dimension of performance orientation related the work values to economic growth.

Vecernik (2003) suggested four reasons why human values relating to the economic behavior of individuals and work have not been studied closely:

> (1) values are taken for granted and have no standing in neoclassical economics; (2) measuring human values is rather problematic because one has to rely on subjective data; (3) there are no time series; (4) there is no research tradition…that would facilitate this type of inquiry. (p. 445)

In addition, Vecernik (2003, p. 446) pointed out that the existence of methodological problems when analyzing work values; specifically, work values (or any values in general), can be researched only by indirect means, typically through opinion surveys. These factors have made the study of work values and economic growth particularly scarce.

World Values Survey Waves

The 1990 wave (WVS, 2011) consisted of 43 countries and regions. The majority of these countries were surveyed in 1990, with the exception of Argentina, Brazil, Hungary, and Malta, which were surveyed in 1991, and Romania, which was surveyed in 1993 but included in this wave. Switzerland was surveyed in 1989.

The 1995 wave was primarily conducted over 3 years, from 1995-1998, and was composed of 54 countries and regions. The data for El Salvador were collected after this date range, in 1999, and data for Taiwan were collected before this date range, in 1994.

The 2000 wave (WVS, 2011) was composed of 70 countries and regions. The 2000 survey was primarily conducted over a 3-year period from 1999 to 2001; however, three countries were surveyed after this date range. Saudi Arabia and Kyrgyzstan were surveyed in 2003 and Iraq was surveyed in 2004.

The 2005 wave (WVS, 2011) was primarily conducted from 2005 to 2007 and was composed of 57 countries and regions. The data for Guatemala and New Zealand were collected before this date range, in 2004, and the data for Egypt and Georgia were collected after this date range, in 2008 and 2009, respectively.

Methods

This section details and offers rationale for the selection of the WVS items chosen for this research, followed by a discussion of the dependent and independent variables and the challenges posed by selecting this particular dataset for analysis. To answer the following research questions, an investigation into the availability of WVS items and World Bank data took place.

1. Does work ethic change with economic growth? Specifically, do the WVS items for work have a relationship with GDP per capita and GNI per capita?
2. Can work ethic predict economic growth?

World Values Survey Items

Only the last four of the WVS survey waves were used in this study. Each wave had over 200 items categorized in seven major sections: Perceptions of life, environment, work, family, politics and society, religion and morale, and national identity, with two additional sections for research data: structure and metadata, and socio-demographics. All items in the WVS indicating some aspect of work values were considered for inclusion in the study. A total of 10 items were selected included some mention of work or aspects related to work, such as income, business management authority, work motivation or ideology, or employment fairness. The questions selected are in Appendix A.

Dependent Variables

These 10 items were then each individually reviewed to discover exactly what the item was measuring. The work ethic themes was selected based on the answers to each item. For example, work ethic items were categorized according to answers that indicated high work motivation or low work

motivation. Each item became the dependent variables in the study.

Each item included in the study was coded by category (theme) to define the Likert-type scale answers. The category of work ethic was coded into three outcomes of high work motivation, neutral, and low work motivation. The work motivations category was coded into two outcomes: work for material security/necessity and work for intrinsic needs. Appendix A contains the categories, Likert-type scale ranges, and coding definitions for each item. The countries having survey outcomes of autocracy, low work motivation, and work for material security/necessity would be expected to be consistent with traditional/survival values and hence low-income countries, according to Figure 2. The countries having survey outcomes of autonomy, high work motivation, and work for intrinsic needs would be expected to be consistent with secular-rational/self-expression values.

As economic growth increases according to Inglehart et al. (2004), one would expect that work ethic values would move from high work motivation (score of 1) to low work motivation (score of 3) as the need for work shifts from an activity workers must do to survive to seeing more free time and other types of personal edification. See Figure 3 for a relationship of how the proposed work value categories should align with Inglehart et al.'s (2004) findings on cultural values and economic growth (see Figure 2).

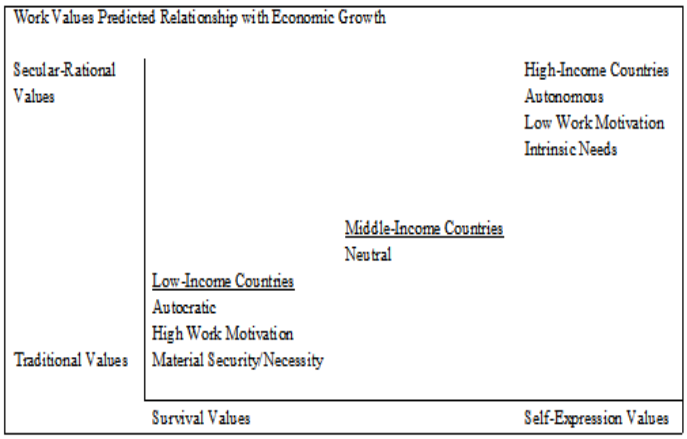

Figure 3. **Work values predicted relationship with economic growth**.

Independent Variables

The items selected were compared to economic measures to determine whether a relationship existed between work ethic and economic growth. The World Bank provides publically available economic data for all countries included in the WVS. Economic data were collected from the World Bank for all the previously mentioned major cultural studies by Hofstede (2001), Inglehart et al. (1997, 2003), Inglehart and Welzel (2005), and the GLOBE Study (Chhokar, Brodbeck, & House, 2007; House et al., 1999).

Two economic measures are available for measuring economic growth: gross domestic product (GDP), and gross national income (GNI). Gross domestic product was defined by the World Bank:

> The sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. (World Bank, 2011b, p. 1)

GDP is the primary economic measure used to compare economic growth of a single country year by year. GDP data alone are not utilized when comparing economic growth between countries. When comparing economic growth between countries, GDP per capita is utilized. GDP per capita is calculated by dividing a country's gross domestic product by the midyear population of the country (World Bank, 2011c). Countries with larger populations will most likely have larger GDP numbers. GDP per capita allows more nearly equal comparison of GDP data.

Gross national income is a less well-utilized economic measure, replacing gross national product, an older statistical measure no longer collected by the World Bank.

GNI (formerly GNP) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. (World Bank, 2011d, para. 1)

GNI is considered the best indicator of economic capacity and progress, because it includes product taxes and income from outside the country (World Bank, 2011e). GNI and GDP numbers, when compared side-by-side, tend to be similar and do not typically vary greatly from one another. As with GDP, GNI is not used to compare countries. GNI per capita is used instead, for the same reasons as GDP per capita is utilized.

GDP per capita as a measure has become the standard when comparing countries economically. All three previously mentioned major studies utilized GDP per capita. GDP and GNI per capita were utilized as independent variables in the present study. GNI per capita is used to categorize countries by income. Countries in this study were grouped according to four World Bank income categories: low income, lower-middle income, upper-middle income, and high income. These income categories were derived by GNI per capita. The World Bank classifies low income as a GNI per capita of $1,005 or less, lower-middle income with a GNI per capita of $1,006-$3,975, upper-middle income with a GNI per capita of $3,976 to $12,275, and high income with a GNI per capita of $12,276 and greater (World Bank, 2011a).

Four waves were utilized in this study. The year a country was surveyed in each WVS wave was the year for which GNI per capita and GDP per capita values were selected from the World Bank data. For example, Germany was surveyed in 1990, 1997, 1999, and 2006 in the 1990, 1995, 2000, and 2005 WVS waves, respectively. GNI per capita and GDP per capita data from 1990, 1997, 1999, and 2006 were utilized in the present study.

The Data

The large sample size in the WVS can result in statistically significant differences which are not necessarily substantively significant. Statistical significance reflects the improbability of

findings based on the research data as related to the assumptions in the null hypothesis (Ellis, 2010). Statistical significance simply confirms or rejects the null hypotheses, however practical meaning is not assigned to this finding. In contrast, substantive significance assigns meaning to the statistics (Ellis, 2010). In addition, the statistical tests such as ANOVA and ANCOVA only illustrate overall significance for the data presented in the table and do not indicate trends. Although substantively significant evidence was found in the analysis to support the hypothesis that work values contribute to economic growth, we cannot definitely assume one-directional causality with the methodology that was employed.

Questions 5, 6, and 7 assessed whether there were differences by World Bank category for work ethic in a year using the work ethic data for the previous year as a covariate. Question Set C tested whether work ethic were substantively significant predictors of GNI per capita and GDP per capita for each wave of data collection. Questions 8, 9, and 10 were analyzed using multiple regression.

Question Set A

Research questions 1-4 asked if there were differences for each wave on work ethic by World Bank category.

Research question 1. For countries participating in the 1990 Work Values Study are there differences in work ethic compared by World Bank income categories of low, lower-middle, upper-middle, and high levels?

$H1_0$: There is no difference in work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels for the 1990 WVS.

$H1_a$: There is a difference in work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels for the 1990 WVS.

Question 1 tested whether there were substantively significant differences in work values categorized by work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high income using one-way ANOVA for each WVS wave. ANOVA procedures tested for the differences between work values and World Bank income categories for each wave. The probability level of $p = .05$ was used for accepting or rejecting the null hypothesis, and the assumptions of ANOVA were assessed prior to analysis. Mean survey scores (see Appendix A for scores) for work ethic were calculated and used in further analysis. Scores for work ethic were 1 = *high work motivation*, 2 = *neutral*, and 3 = *low work motivation*.

Table 1 shows the data for the analysis of work ethic for the 1990 wave. There were substantively significant differences between the World Bank income categories for work ethic, F (3, 24550) = 49,983, p =< .001. The null hypothesis was rejected for work ethic for the 1990 wave. As seen in Table 1, high income had the highest mean score for work ethic. The scores on average tended to be towards the midpoint.

Table 1 : ***World Bank Category for 1990 Wave, Individual Level Data***

	work ethic			
Income	*N*	*%*	*M*	*SD*
Low	4501	18.3	1.573	.306
Lower-middle	13883	56.5	1.635	.331
Upper-middle	2252	9.2	1.689	.356
High	3918	16.0	1.824	.360

1990 country-level data. Due to the high number of individuals in the first analysis, a second data analysis was conducted using only the aggregate means of each country, as opposed to the individual-level means of each survey, thereby reducing the sample size. Table 2 shows the data for the analysis of work ethic for the 1990 wave. There were substantively significant differences between the World Bank income categories for work ethic F (3, 10) = 3.255, p < .068. The null hypothesis was not rejected for work ethic for the 1990 wave and the alternative hypothesis was rejected. As seen in Table 2, lower-middle income had the highest mean score for work ethic. The scores on average tended to be towards the midpoint.

Table 2 ***: World Bank Category for 1990 Wave, Country-Level Data***

	work ethic			
Income	*N*	*%*	*M*	*SD*
Low	3	21.4	1.55	.050
Lower-middle	6	42.9	1.69	.058
Upper-middle	2	14.3	1.74	.111
High	3	21.4	1.75	.135

1990 individual work ethic items. Table 3 shows the data for the analysis of work ethic for the 1990 wave. There were substantively significant differences between the World Bank income categories for C006, F (3,24203) = 323.530, p =< .001; C059, F (3,19785) = 68.915, p =< .001; E035, F (3,22211) = 132.345, p =< .001; and E040, F (3,22366) = 115.169, p =< .001. Item A005 was omitted as no variance was found in the groups. The null hypothesis was rejected for items C006, C059, E035, and E040 for the 1990 wave and the alternative hypothesis was accepted. As seen in Table 3, high income had the highest mean score for C006, C059, E035, and E040. The scores tended to be towards the midpoint for items C059, E035, and E040; however, for C006 the scores tended to be above 2.0.

Table 3 :***World Bank Category for 1990 Wave, Individual work ethic Items***

	Item C006				Item C059			
Income	*N*	*%*	*M*	*SD*	*N*	*%*	*M*	*SD*
Low	4456	18.4	2.299	.716	4346	22.0	1.354	.764
Lower-middle	13734	56.7	2.100	.778	9697	49.0	1.459	.841
Upper-middle	2223	9.2	2.181	.738	2192	11.1	1.450	.835
High	3794	15.7	2.506	.640	3554	18.0	1.626	.928
	Item E035				Item E040			
Low	4352	19.6	1.558	.759	4369	19.5	1.628	.773
Lower-middle	13381	60.2	1.672	.832	13556	60.6	1.809	.852
Upper-middle	2206	9.9	1.782	.863	2168	9.7	1.675	.806
High	2276	10.2	1.960	.781	2277	10.2	1.990	.795

Research question 2. For countries participating in the 1995 Work Values Study, what are the differences in work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels?

$H2_0$: There is no difference in work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels for the 1995 WVS.

$H2_a$: There is a difference in work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels for the 1995 WVS.

Question 2 tested whether there were substantively significant differences in work values categorized by work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high income using one-way ANOVA for the 1995 WVS wave.

1995 individual-level data. The initial data analysis was conducted using the means of all surveys. Table 5 shows the data for the analysis of work ethic for the 1995 wave. There were substantively significant differences between the World Bank income categories for work ethic, F (3, 82824) = 3007.713, p =< .001. The null hypothesis was rejected for work ethic for the 1995 wave and the alternate hypothesis was accepted. As seen in Table 5, high income had the highest mean score for work ethic. The scores on average tended to be towards the midpoint.

Table 5 :*World Bank Category for 1995 Wave, Individual Level Data*

	work ethic			
Income	*N*	*%*	*M*	*SD*
Low	19485	23.6	1.526	.301
Lower-middle	29120	35.3	1.535	.341
Upper-middle	12887	15.6	1.682	.304
High	20976	25.4	1.782	.360

1995 country-level data. Table 6 shows the data for the analysis of work ethic for the 1995 wave. There were substantively significant differences between the World Bank income categories for work ethic, F (3, 49) = 17.429, p =< .001. The null hypothesis was rejected for work ethic for the 1995 wave and the alternate hypothesis was accepted. As seen in Table 6, high income had the highest mean score for work ethic. The scores on average tended to be towards the midpoint.

Table 6 : ***World Bank Category for 1995 Wave, Country-Level Data***

	work ethic			
Income	*N*	*%*	*M*	*SD*
Low	11	20.8	1.512	.069
Lower-middle	19	35.8	1.577	.101
Upper-middle	12	22.6	1.706	.107
High	11	20.8	1.777	.112

1995 individual work ethic items. Table 7 shows the data for the analysis of work ethic for the 1995 wave. There were substantively significant differences between the World Bank income categories for A005, F (3,80790) = 54.287, p =< .001; C006, F (3,77865) = 1355.468, p =< .001; C008, F (3,74668) = 1323.762, p =< .001; C059, F (3,71860) = 62.899, p =< .001; E035, F (3,77079) = 210.134, p =< .001; and E040, F (3,73454) = 313.239, p =< .001. The null hypothesis was rejected for item A005, C006, C008, C059, E035, and E040 for the 1995 wave and the alternative hypothesis was accepted. As seen in Table 7, high income had the highest mean score for item A005, C006, C008, C059, and E035 whereas upper-middle income had the highest mean score for E040. The scores tended to be towards the midpoint for item A005, C008, C059, E035, and E040 although the items did range between 1.0 and 1.9. For question C006, the scores tended to be above 2.0.

Table 7 : ***World Bank Category for 1995 Wave, Individual work ethic Items***

	Item A005				Item C006			
Income	*N*	*%*	*M*	*SD*	*N*	*%*	*M*	*SD*
Low	19581	24.2	1.101	.376	19432	25.0	1.880	.795
Lower-middle	28755	35.6	1.080	.330	25901	33.3	1.986	.810
Upper-middle	12794	15.8	1.087	.339	12792	16.4	2.098	.752
High	19664	24.3	1.121	.403	19744	25.4	2.349	.710
	Item C008				Item C059			
Low	18435	24.7	1.533	.702	17955	25.0	1.256	.668
Lower-middle	25339	33.9	1.560	.700	24787	34.5	1.392	.794
Upper-middle	11538	15.5	1.692	.705	10151	14.1	1.357	.766
High	19360	25.9	1.936	.750	18971	26.4	1.481	.855
	Item E035				Item E040			
Low	18644	24.2	1.710	.824	1950	3.5	1.678	.811
Lower-middle	25341	32.9	1.795	.818	22419	39.8	1.762	.817
Upper-middle	12654	16.4	1.847	.843	12655	22.5	1.954	.834
High	20444	26.5	1.913	.806	19324	34.3	1.825	.794

Research question 3. For countries participating in the 2000 Work Values Study, what are the differences in work ethic when compared to World Bank income categories of low, lower-middle, upper-middle, and high levels?

$H3_0$: There is no difference in work ethic values when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels for the 2000 WVS.

$H3_a$: There is a difference in work ethic values when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels for the 2000 WVS.

Question 3 tested whether there were substantively significant differences in work values categorized by work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high income using one-way ANOVA for the 2000 WVS wave. The ANOVA procedure tests for the differences between work values and World Bank income categories for each wave. Prior to testing the null hypothesis, mean scores for work ethic were calculated and used in further analysis.

2000 individual level data. The initial data analysis was

conducted using the means of all surveys. Table 8 shows the data for the analysis of work ethic for the 2000 wave. There were substantively significant differences between the World Bank income categories for work ethic, F (3, 59987) = 689.630, p =< .001. The null hypothesis was rejected for work ethic for the 2000 wave and the alternate hypothesis was accepted. As seen in Table 8, high income had the highest mean score for work ethic. The scores on average tended to be towards the midpoint.

Table 8: ***World Bank Category for 2000 Wave, Individual-Level Data***

	work ethic			
Income	*N*	%	*M*	*SD*
Low	18220	30.4	1.509	.323
Lower-middle	21603	36.0	1.502	.318
Upper-middle	8637	14.4	1.594	.305
High	11531	19.2	1.650	.329

2000 country-level data. Table 9 shows the data for the analysis of work ethic for the 2000 wave. There were substantively significant differences between the World Bank income categories for work ethic, F (3, 35) = 9.288, p =< .001 and WP, F (3, 25) = 8.831, p =< .001. The null hypothesis was rejected for work ethic for the 2000 wave and the alternate hypothesis was accepted. As seen in Table 9, high income had the highest mean score for work ethic. The scores on average tended to be towards the midpoint.

Table 9: ***World Bank Category for 2000 Wave, Country Level Data***

	work ethic			
Income	*N*	%	*M*	*SD*
Low	12	30.8	1.468	.092
Lower-middle	12	30.8	1.496	.124
Upper-middle	7	17.9	1.594	.069
High	8	20.5	1.684	.084

2000 individual work ethic items. Table 10 and 11 show the data for the analysis of work ethic for the 2000 wave. There were substantively significant differences between the World Bank income categories for A005, F (3,58128) = 137.173, p =< .001; C006, F (3,56992) = 869.167, p =< .001; C008, F (3,51921) = 991.062, p =< .001; C036, F (3,36455) = 168.510, p =< .001; C037A, F (3,36780) = 250.948, p =< .001; C038A, F (3,36864) = 119.255, p =< .001; C039A, F (3,36466) = 327.952, p =< .001; C059, F (3,51069) = 143.320, p =< .001; and E035, F (3,56283) = 189.603, p =< .001. The null hypothesis was rejected for items A005, C006, C008, C036, C037A, C038A C039A C059, and E035 for the 2000 wave and the alternative hypothesis was accepted. As seen in Table 10, high income had the highest mean score for item A005, C008, C0036, C037A, C038A, C039A, and E035, whereas upper-middle income had the highest mean score for C006 and C059. The scores tended to be towards the midpoint for items A005, C008, C036, C037A, C038A, C039A, C059, and E035. For item C006, the mean scores tended to be above 2.0.

Table 10 : ***World Bank Category for 2000 Wave, Individual work ethic Items***

	Item A005				Item C006			
Income	*N*	%	*M*	*SD*	*N*	%	*M*	*SD*
Low	17956	30.9	1.054	.271	17774	31.2	2.000	.773
Lower-middle	21420	36.8	1.105	.389	21512	37.7	1.979	.780
Upper-middle	8559	14.7	1.071	.311	8536	15.0	2.347	.733
High	10197	17.5	1.133	.422	9174	16.1	2.335	.730
	Item C008				Item C036			
Low	13440	25.9	1.378	.667	10343	28.4	1.290	.656
Lower-middle	19724	38.8	1.496	.703	8922	24.5	1.390	.718
Upper-middle	8455	16.3	1.478	.687	5829	16.0	1.410	.757
High	10306	19.8	1.861	.773	11365	31.2	1.512	.781
	Item C037A				Item C038A			
Low	10571	28.7	1.460	.795	10591	28.7	1.418	.756
Lower-middle	9027	24.5	1.498	.775	9041	24.5	1.408	.727
Upper-middle	5812	15.8	1.612	.843	5831	15.8	1.364	.714
High	11374	30.9	1.737	.843	11405	30.9	1.560	.809

Table 11 (Contd.). ***World Bank Category for 2000 Wave, Individual work ethic Items***

	Item C039A				Item C059			
Low	10417	28.6	1.233	.565	13170	25.8	1.456	.839
Lower-middle	8932	24.5	1.394	.688	20856	40.8	1.343	.753
Upper-middle	5755	15.8	1.407	.722	7177	14.1	1.533	.885
High	11366	31.2	1.525	.769	9870	19.3	1.342	.753
	Item E035							
Low	16864	30.0	1.792	.848				
Lower-middle	20720	36.8	1.677	.817				
Upper-middle	8432	15.0	1.855	.856				
High	10271	18.2	1.890	.810				

Research question 4. For countries participating in the 2005 Work Values Study, what are the differences in work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels?

$H4_0$: There is no difference in work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels for the 2005 WVS.

$H4_a$: There is a difference in work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high levels for the 2005 WVS.

Question 4 tested whether there were substantively significant differences in work values categorized by work ethic when compared by World Bank income categories of low, lower-middle, upper-middle, and high income using one-way ANOVA for the 2005 WVS wave. The ANOVA procedure tests for the differences between work values and World Bank income categories for each wave. Prior to testing the null hypothesis, mean scores for work ethic were calculated and used in further analysis.

2005 individual level data. The initial data analysis was conducted using the means of all surveys. Table 12 shows the

data for the analysis of work ethic for the 2005 wave. There were substantively significant differences between the World Bank income categories for work ethic, F (3, 67248) = 2713.343, p =< .001. The null hypothesis was rejected for work ethic for the 2005 wave and the alternate hypothesis was accepted. As seen in Table 12, high income had the highest mean score for work ethic. The scores on average tended to be towards the midpoint.

Table 12 : ***World Bank Category for 2005 Wave, Individual-Level Data***

	work ethic			
Income	*N*	*%*	*M*	*SD*
Low	12603	18.7	1.460	.275
Lower-middle	20043	29.8	1.470	.278
Upper-middle	13598	20.2	1.581	.283
High	21008	31.2	1.700	.324

2005 country-level data. Table 13 shows the data for the analysis of work ethic for the 2005 wave. There were substantively significant differences between the World Bank income categories for work ethic F (3, 43) = 19.810, p =< .001. The null hypothesis was rejected for work ethic for the 2005 wave and the alternate hypothesis was accepted. As seen in Table 13, high income had the highest mean score for work ethic. The scores on average tended to be towards the midpoint.

Table 13: ***World Bank Category for 2005 Wave, Country-Level Data***

	work ethic			
Income	*N*	*%*	*M*	*SD*
Low	8	17.0	1.459	.096
Lower-middle	13	27.7	1.490	.088
Upper-middle	10	21.3	1.580	.065
High	16	34.0	1.703	.097

2005 individual work ethic items. Table 14 shows the data for the analysis of work ethic for the 2005 wave. There were substantively significant differences between the World Bank income categories for, A005, F (3,62270) = 211.280, p =< .001; C006, F (3,66349) = 971.915, p =< .001; C036, F (3,64459) = 617.311, p =< .001; C037A, F (3,64686) = 646.653, p =< .001; C038A, F (3,64809) = 679.626, p =< .001; C039A, F (3,64190) = 572.921, p =< .001; C059, F (3,63794) = 421.599, p =< .001; E035, F (3,64858) = 336.655, p =< .001; E040, F (3,64305) = 90.086, p =< .001. The null hypothesis was rejected for items A005, C006, C036, C037A, C038A, C039A, C059, E035, and E040 for the 2005 wave and the alternate was accepted. As seen in Table 14 and 15, high income had the highest mean score for item A005, C006, C036, C037A, C038A, and C039A, whereas upper-middle income had the highest mean score for C059, E035, and E040. The scores tended to be towards the midpoint for items A005, C006, C036, C037A, C038A, C039A, C059, E035, and E040, although the items ranged between 1.0 and 1.9. For item C006, the scores were above 2.0.

Table 14: ***World Bank Category for 2005 Wave, Individual work ethic Items***

	Item A005				Item C006			
Income	*N*	*%*	*M*	*SD*	*N*	*%*	*M*	*SD*
Low	12416	18.7	1.045	.239	12304	18.5	2.057	.750
Lower-middle	19790	29.9	1.119	.389	19783	29.8	2.094	.773
Upper-middle	13438	20.3	1.099	.378	13469	20.3	2.277	.757
High	20630	31.1	1.153	.454	20797	31.3	2.429	.686
	Item C036				Item C037A			
Low	12277	19.0	1.288	.640	12405	19.2	1.518	.804
Lower-middle	19263	29.9	1.315	.653	19463	30.1	1.508	.783
Upper-middle	13363	20.7	1.326	.680	13331	20.6	1.579	.819
High	19560	30.3	1.570	.807	19491	30.1	1.835	.861
	Item C038A				Item C039A			
Low	12429	19.2	1.289	.631	12173	19.0	1.169	.476
Lower-middle	19597	30.2	1.306	.648	19193	29.9	1.337	.654
Upper-middle	13329	20.6	1.416	.740	13333	20.8	1.335	.657
High	19458	30.0	1.5940	.820	19495	30.4	1.481	.745

Table 15 (contd.). ***World Bank Category for 2005 Wave, Individual work ethic Items***

Income	Item C059				Item E035			
Low	11739	18.4	1.559	.897	11897	18.3	1.642	.804
Lower-middle	18975	29.7	1.338	.750	19106	29.5	1.624	.788
Upper-middle	12844	20.1	1.628	.928	13275	20.5	1.833	.838
High	20240	31.7	1.385	.788	20584	31.7	1.830	.802
	Item E040							
Low	12085	18.8	1.714	.807				
Lower-middle	18254	28.4	1.701	.803				
Upper-middle	13313	20.7	1.810	.822				
High	20657	32.1	1.810	.784				

Question Set B

Questions 5 to 7 test whether there are differences between the 1990, 1995, 2000, and 2005 WVS waves. Are there differences by wave on work ethic when compared by World Bank income groups of low income, lower-middle income, upper-middle income, and high income using the previous wave work ethic scores as covariates? The independent variable for questions 5-7 are the same: income category of low, lower-middle, upper-middle, or high. All analysis was conducted on an individual basis for Question Set B.

Research question 5. For countries participating in the 1990 and 1995 WVS survey, what are the differences in 1995 work ethic when compared by World Bank income categories, low, lower-middle, upper-middle, and high, using the 1990 WVS work ethic values as covariates? The dependent variable for question 5 was the 1995 WVS wave scores for work ethic and covariates was the 1990 WVS wave of work ethic scores.

$H5_0$: There is no difference in 1995 work ethic when

compared to World Bank income categories of low, lower-middle, upper-middle, and high levels, using the 1990 WVS work ethic values as covariates.

$H5_a$: There is a difference in 1995 work ethic when compared to World Bank income categories of low, lower-middle, upper-middle, and high levels, using the 1990 WVS work ethic values as covariates.

The independent variable was World Bank (WB) category (1-4), the dependent variables were 1995 work ethic means, and the covariates were 1990 work ethic values. Findings indicated there were no substantively significant differences in work ethic when compared by WB category using the 1990 work ethic scores as covariates, F (3, 11) = .067, p = .976, the null hypothesis was not rejected and the alternate hypothesis was rejected. The adjusted and unadjusted means are in Table 16.

Table 16 ; *Adjusted and Unadjusted Means for work ethic 1995*

Income	Adjusted Means	Unadjusted Means
Low	1.647	1.574
Lower-middle	1.669	1.651
Upper-middle	1.661	1.663
High	1.683	1.781

Research question 6. For countries participating in the 1995 and 2000 WVS survey, are there differences in 2000 work ethic scores when compared to World Bank income categories of low, lower-middle, upper-middle, and high, using the 1995 WVS work ethic values as covariates? The dependent variable for question 6 was the 2000 WVS wave of work ethic and the covariate was the 1995 WVS wave of work ethic values.

$H6_0$: There is no difference in 2000 work ethic when compared to World Bank income categories of low, lower-middle, upper-middle, and high levels, using the 1995 WVS work ethic values as covariates.

$H6_a$: There is a difference in 2000 work ethic values when compared to World Bank income categories of low, lower-middle, upper-middle, and high levels, using the 1995 WVS work ethic values as covariates.

The independent variable was World Bank (WB) category (1-4), the dependent variables were 2000 work ethic means, and the covariates were 1995 work ethic. Findings indicated there were no substantively significant differences in work ethic when compared by WB category using the 1995 work ethic scores as covariates, F (3, 17) = .483, p = .698; hence, the null hypothesis was not rejected and the alternate hypothesis was rejected. The adjusted and unadjusted means are in Table 17.

Table 17 : *Adjusted and Unadjusted Means for work ethic 2000*

Income	Adjusted Means	Unadjusted Means
Low	1.527	1.485
Lower-middle	1.541	1.504
Upper-middle	1.552	1.589
High	1.606	1.663

Research question 7. For countries participating in the 2000 and 2005 WVS survey, what are the differences in 2005 work ethic values when compared to World Bank income categories, low, lower-middle, upper-middle, and high using the 2000 WVS work ethic values as covariates? The dependent variable for question 7 was the 2005 WVS wave of work ethic and the covariate was the 2000 WVS wave of work ethic values.

$H7_0$: There is no difference in 2005 work ethic when compared to World Bank income categories of low, lower-middle, upper-middle, and high levels, using the 2000 WVS work ethic values as covariates.

$H7_a$: There is a difference in 2005 work ethic when compared to World Bank income categories of low, lower-middle, upper-middle, and high levels, using the 2000 WVS work ethic values as covariates.

The independent variable was World Bank (WB) category (1-4), the dependent variable was 2005 work ethic means, and the covariates were 2000 work ethic values. Findings indicated there were no substantively significant differences in work ethic when compared by WB category using the 2000 work ethic scores as covariates, F (3, 9) = 1.228, p = .355, the null hypothesis was not rejected and the alternate hypothesis was rejected. The adjusted and unadjusted means are in Table 18.

Table 18: *Adjusted and Unadjusted Means for work ethic 2005*

Income	Adjusted Means	Unadjusted Means
Low	1.547	1.449
Lower-middle	1.612	1.542
Upper-middle	1.590	1.607
High	1.582	1.677

Question Set C

Questions 8-11 ask whether work ethics serves as substantively significant predictor of GNI per capita and GDP per capita in the 1990, 1995, 2000, and 2005 WVS waves. For questions 8-11, the dependent variables were the same, GNI per capita and GDP per capita. The three independent variables for questions 8-11 were the same using work ethic scores. Multiple linear regression was used to answer questions 8-11. All analysis was conducted on an individual basis for Question Set C.

Research question 8. For countries participating in the 1990 WVS, is work ethic a predictor of GNI per capita or GDP per capita?

$H8_0$: work ethic has no substantively significant predicting ability concerning GNI per capita and GDP per capita for WVS 1990.

$H8_a$: work ethic has substantively significant predicting ability concerning GNI per capita and GDP per capita for WVS 1990.

Work ethic is the independent predictor variables and GNI per capita or GDP per capita served as the dependent or predicted variable. Multiple regression was used to test the hypothesis with a probability level of p = .05 for accepting or rejecting the null hypothesis. Multi-colinearity was not a problem in the analysis and the tolerances and variance inflation factors were well within limits. The regression results indicated there was a

substantively significant model for GNI per capita, R = .768, R^2= .590, R^2_{adj} = .515, F (2, 11) = 10.780, p = .007. The null hypothesis was rejected and the alternate hypothesis was accepted. The work ethic score was a substantively significant predictor and accounted for 59.0% of the variance in GNI per capita. Table 19 shows the regression coefficients for this analysis.

Table 19 : *Regression Coefficients for GNI per Capita 1990 Wave*

	B	b	t	p	Correlation	Partial
work ethic	67515.921	.676	3.499	.005	.726	.676

Multiple regression was also used to determine whether there were substantively significant predictors of GDP per capita using work ethic scores as predictors. Findings indicated there was a significant model predicting GDP per capita using work ethic, R = .768, R^2 = .590, R^2_{adj} = .535, F (2, 15) = 7.903, p = .001; hence, the null hypothesis was rejected, and the alternate hypothesis was accepted. Work ethic was a substantively significant predictor variable and accounted for 59.0% of the variance in GNI per capita. Table 20 shows the regression coefficients for GDP per capita.

Table 20 : *Regression Coefficients for GDP Per Capita 1990 Wave*

	B	b	t	p.	Correlation	Partial
work ethic	53155.066	.720	4.335	.001	.746	.717

Research question 9. For countries participating in the 1995 WVS, does work ethics serve as substantively significant predictors of GNI per capita and GDP per capita?

$H9_0$: work ethic has no substantively significant predicting ability concerning GNI per capita and GDP per capita for WVS 1995.

$H9_a$: work ethic has substantively significant predicting ability concerning GNI per capita and GDP per capita for WVS 1995.

Work ethic was the independent variable and GNI per capita or GDP per capita served as the dependent or predicted variable. Multi-colinearity was not a concern in the analysis and the tolerances and variance inflation factors were well within limits. The regression results indicated there was a substantively significant model for GDP per capita, R = .811, R^2 = .658, R^2_{adj} = .636, F (3, 46) = 29.554, p =< .001, the null hypothesis was rejected, and the alternative hypothesis was accepted. Work ethic scores were substantively significant and accounted for 65.8% of the variance in GDP per capita. Table 21 shows the regression coefficients for this analysis.

Table 21 : *Regression Coefficients for GDP per Capita 1995 Wave*

	B	b	t	p.	Correlation	Partial
work ethic	40750.375	.472	4.424	<.001	.546	.381

Multiple regression was also used to determine whether there were substantively significant predictors of the 1995 GNI per capita using work ethic scores as predictors. Findings indicated there was a significant model predicting GNI per capita using work ethic, R = .801, R^2 = .642, R^2_{adj} = .619, F (3, 46) = 27.512, p =< .001, the null hypothesis was rejected and the alternative hypothesis was accepted. Work ethic scores were significant predictor variables and accounted for 64.2 % of the variance in GNI per capita. Table 22 shows the regression coefficients for GNI per capita.

Table 22 : *Regression Coefficients for GNI per Capita 1995 Wave*

	B	b	t	p	Correlation	Partial
work ethic	40167.148	.468	4.281	<.001	.534	.378

Research question 10. For countries participating in the 2000 WVS, do work ethics serve as substantively significant predictors of GNI per capita and GDP per capita?

$H10_0$: work ethic has no substantively significant predicting ability concerning GNI per capita and GDP per capita for WVS 2000.

$H10_a$: work ethic has substantively significant predicting ability concerning GNI per capita and GDP per capita for WVS 2000.

Work ethic was the independent variables and GNI per capita or GDP per capita served as the dependent or predicted variable. Multi-colinearity was not a concern in the analysis and the tolerances and variance inflation factors were well within limits. The regression results indicated there was a substantively significant model for the 2000 GDP per capita, R = .837, R^2 = .700, R^2_{adj} = .663, F (3, 24) = 18.689, p =< .001, the null hypothesis was rejected, and the alternate hypothesis was accepted. Work ethic scores accounted for 70.0% of the variance in GDP per capita. Table 23 shows the regression coefficients for this analysis.

Table 23 : R*egression Coefficients for GDP per Capita 2000 Wave*

	B	b	t	p.	Correlation	Partial
work ethic	24741.108	.317	2.305	.030	.426	.258

Multiple regression was also used to determine whether there were substantively significant predictors of 2000 GNI per capita using work ethic scores as predictors. Findings indicated there was a significant model predicting GNI per capita using work ethic, R = .806, R^2 = .650, R^2_{adj} = .608, F *(3, 25) = 15.491, p* =< .001; hence, the null hypothesis was rejected, and the alternate hypothesis was accepted. Work ethic scores accounted for 65.0% of the variance in GNI per capita. Table 24 shows the regression coefficients for GNI per capita.

Table 24: *Regression Coefficients for GNI per Capita 2000 Wave*

	B	b	t	p	Correlation	Partial
work ethic	28144.989	.340	2.350	.027	.425	.278

Research question 11. For countries participating in the 2005 WVS, does work ethic serve as substantively significant predictors of GNI per capita and GDP per capita?

$H11_0$: work ethic has no substantively significant predicting

ability concerning GNI per capita and GDP per capita for WVS 2005.

$H11_a$: work ethic has substantively significant predicting ability concerning GNI per capita and GDP per capita for WVS 2005.

Work ethic was the independent variable and GNI per capita or GDP per capita served as the dependent or predicted variable. Multi-colinearity was not a concern in the analysis and tolerance and variance inflation factor were well within limits. The regression results indicated there was a substantively significant model for GDP per capita, R = .828, R^2 = .686, R^2_{adj} = .663, F (3, 42) = 30.574, p =< .001, the null hypothesis was rejected, and the alternate hypothesis was accepted. Work ethic scores accounted for 68.6% of the variance in GDP per capita. Table 25 shows the regression coefficients for this analysis.

Table 25: ***Regression Coefficients for GDP per Capita 2005 Wave***

	B	*b*	*t*	*p*	*Correlation*	*Partial*
work ethic	59116.581	.444	3.585	.001	.484	.310

Multiple regression was used to determine whether there were substantively significant predictors of GNI per capita using work ethic as a predictor. Findings indicated there was a significant model predicting GNI per capita using work ethic, R = .819, R^2 = .671, R^2_{adj} = .647, F (3, 42) = 28.491, p =< .001, hence, the null hypothesis was rejected, and the alternate hypothesis was accepted. Work ethic accounted for 67.1% of the variance in GNI per capita. Table 26 shows the regression coefficients for GNI per capita.

Table 26 : ***Regression Coefficients for GNI per Capita 2005 Wave***

	B	*b*	*t*	*p*	*Correlation*	*Partial*
work ethic	61956.375	.457	3.602	.001	.486	.319

Summary

The results from this study indicated substantively significant findings that work ethic changed as economic growth increased. Question Set A illustrated this relationship. Questions 1-4 on the individual-level data all showed a substantive relationship between work values and economic growth for work ethic. As this relationship was investigated further in the country-level data, work ethic was found substantively significant. On the individual item level work ethic was found to be substantively significant for questions 1-4.

The results for Question Set B, questions 5-7, indicated no substantively significant differences between successive work ethic scores when compared to the World Bank income groups in the 1990/1995, 1995/2000, and 2000/2005 World Values Survey waves. This indicates that no anomalies between waves were present. Question Set C results indicated that work ethic was a substantively significant predictor of GNI per capita and GDP per capita. After the data analysis was conducted, the data were not found to be as robust as needed to make predictive assertions, hence this research can only state that Question Set C found that work ethic contributed to not predict GNI/GDP per capita.

Findings

The findings of this study have meaningful application to the field of cultural studies. The questions posed for this study were, "Does work ethic change with economic growth?" Specifically, "Do the WVS questions for work ethic have a relationship with GDP per capita and GNI per capita?" Results from the analysis found substantively significant evidence of a relationship between work ethic and economic growth. There was also substantively significant evidence to support the hypothesis that work ethic contributes to economic growth, with the caveat that we cannot definitely assume one-directional causality with the methodology that was employed.

This section contains discussion of the implications of each question set and explanations of how they supported the two primary questions posed in this study. Question Set A reviews the significance of how work ethic is related to GNI per capita and GDP per capita growth through World Bank income categories. Question Set B reviews whether there are substantive differences between the WVS waves. Question Set C discusses how work ethic is related to GNI per capita and GDP per capita. Work ethic categories were useful to show how work cultures adapted as countries grew economically. Each applicable question set showed how culture moved in work ethic (high work motivation to low work motivation categories.

Each section discussed the significance of the results, including the contribution of each question set to the literature: specifically, to the ideas of modernization theory, achievement motivation theory, and the relationship between cultural values on economic growth. The section discussions included how work ethic is subject to more than just generational change and that cultural primacy has a place in the inputs to GNI per capita and GDP per capita. This section challenges the assertions of Pryor (2005) and Furnham et al. (1994) concerning the connection between work ethic and economic growth.

Question Set A investigated work ethic when the scores were compared by World Bank income categories (low, lower-middle, upper-middle, and high levels) for each of the WVS waves. Questions 1-4 looked at the 1990, 1995, 2000, and 2005 WVS waves, respectively. These findings were analyzed using the means of individual level data for all four WVS waves. Substantively significant results were found for work ethic (p =< .001) for all waves. Substantively significant differences were evident among the work ethic values and the World Bank income categories.

The relationship between work ethic and the World Bank income categories is what would be expected according to modernization theory (Allen, Ng, & Leiser, 2004; Bell, 1973; Inglehart, 1997; Weber, 1930). The findings support the findings of Inglehart et al. (2004), in that cultural values share a relationship with economic growth. Inglehart et al. (2004) showed that two value dimensions, survival/self-expression values and traditional/secular-rational values, were related to GDP per capita (see Figure 2). The findings of Question Set A

are also consistent with Snir and Harpaz's (2009) findings, indicating individuals work harder where survival values are important, as opposed to where self-expression values take precedence. The literature supported the finding in the current study of work ethic changing from high work motivation to low work motivation. The responses for work ethic items were recoded into three responses as 1 = *high work motivation*, 2 = *neutral*, and 3 = *low work motivation*.

As economic growth increases, according to Inglehart et al. (2004), one would expect that work ethic values move from (1) high work motivation to (3) low work motivation, the need for work shifts from an activity workers must do to survive to having free time and other types of personal edification. The mean scores for this analysis indicated they were in alignment with predictions. The relationship above relates to the suggestions in Figure 3. Autocratic, high work motivation, and material security/necessity were related to traditional/survival values and low-income countries. Autonomous, low work motivation, and intrinsic needs were related to secular-rational/self-expression values and high-income countries.

A shift was present in the results for Question Set A for work ethic. The mean shift was relatively slight, which may have been due to the number of individuals in sample of the survey. Small changes in the mean scores with large sample sizes can indicate significant relationships (StatSoft, 2011). As sample sizes increase, the probability of finding substantively significant results increases. Although work authority had substantively significant results, the mean scores did not trend as expected (means getting larger as income grows) and additional investigations were conducted.

Country-level data. To investigate the initial findings further, two more analyses were completed. First, mean scores were averaged by country to reduce the sample size and each item used in the study was tested individually. Results indicated significant differences by World Bank category for work ethic across all of the waves.

Individual work ethic items. The second additional analysis took place to understand the role of each individual item in the aggregate results for work ethic. For question 1, which looked at the 1990 WVS wave, only work ethic items were available. The work ethic items trended somewhat as expected; however, items C060 and C061 means decreased between upper-middle and high income. Overall, the individual analysis results for Question 1 supported the relationship between work ethic and economic growth.

Question 2, using the 1995 WVS data, found that nearly all the work ethic items trended as expected, with the exception of item C059. The mean decreased between lower-middle and upper-middle income categories. All work priorities items for 1995 trended as expected. Question 2 results supported work ethic as it related to economic growth.

Question 3, investigating the 2000 WVS wave, indicated that work ethic items provided mixed results. Although the overall aggregate trend was as expected, items C059 returned erratic trends, while items A005, C006, C008, C038A, and E035 all had at least one of the four income categories trending lower. This indicates either some items might be better indicators of the values/economic growth relationship or values change may be more pronounced between some income categories. All work ethic items for 2000 trended as expected. Overall, however, question 3 results supported the relationship between work ethic and economic growth.

Question 4, investigating the 2005 WVS wave, also indicated that work ethic for question 4 provided mixed results, but less so than question 3. Again, the overall aggregate trend was as expected. Item C059 returned erratic trends, while in items C038A and C039A, at least one of the four income categories trended lower. All work priorities items for 2005 trended as expected. Overall, question 4 results supported a relationship between work ethic and work priorities and economic growth.

Summary of Question Set A. The overall results for Question Set A showed the null hypothesis was rejected for all four hypotheses (questions 1-4) and the alternative hypotheses were not rejected. Work ethic showed a substantive significance, demonstrating a relationship between work ethic values and economic growth. The work ethic values were in alignment with the predictions of Inglehart et al. (2004), adding support to the argument suggesting cultural values and economic growth are related. The country-level means did not shift in line with predictions in any of the analyses for Question Set A.

Question Set B

Question Set B, questions 5 to 7, tested whether there are differences between the 1990, 1995, 2000, and 2005 WVS waves. Are there differences by wave on work ethic when compared by World Bank income groups of low income, lower-middle income, upper-middle income, and high income, using the scores of the previous wave for work ethic as covariates? Question 5 investigated the relationship between the 1990 and 1995 WVS waves, question 6 investigated the relationship between the 1995 and 2000 WVS waves, and question 7 investigated the relationship between the 2000 and 2005 WVS waves.

The findings for questions 5, 6, and 7 indicated there were no substantively significant differences by World Bank category for work ethic using the values of the previous wave as a covariate, as illustrated in Table 27. The overall results for Question Set B indicated the null hypothesis was not rejected for questions 5, 6, and 7. Finding no substantively significant differences between WVS indicated there are no anomalies with a particular WVS wave. If a substantive difference had been found for a particular WVS wave, further investigation would have been prudent to uncover the source of the anomaly. The results of Question Set B further supported the findings in Question Sets A and C.

Table 27 : ***Data Set B–p Value Scores between WVS Waves***

	1990/1995	*1995/2000*	*2000/2005*
work ethic	0.976	0.698	0.355

Question Set C

Question Set C investigated whether the cultural values of work ethic were substantively significant predictors of GNI per capita or GDP per capita for the 1990, 1995, 2000, and 2005

WVS waves. Questions 1-4 looked at the 1990, 1995, 2000, and 2005 WVS waves respectively. Table 28 illustrates the results for both GNI per capita and GDP per capita over the four waves. The regression for GNI per capita over the four waves showed a substantively significant model for each wave. After the data analysis was conducted, the data were not found to be as robust as needed to make predictive assertions, hence this research can only state that Question Set C found that work ethic contribute to but do not predict GNI/GDP per capita. In addition, the data presented in this study cannot predict whether the reverse association of GNI per capita or GDP per capita might have been substantively significant predictors of work ethic. Absent a more robust lagged time-series analysis, the direction of the association cannot be determined.

In the 1990 WVS, work ethic accounted for 59.0% of the variance in GNI per capita. Work ethic accounted for 59.0% of the variance in GDP per capita. In the 1995 WVS, work ethic was a substantial contributor, accounting for 64.2% of GNI per capita. Work ethic was also substantively significant contributor to GDP per capita and accounted for 65.8% of the variance in GDP per capita. Work ethic was significant contributors of the 2000 GNI per capita, accounting for 65.0% of the variance, and work ethic was a contributor to the 2000 GDP per capita, accounting for 70.0 % of the variance. In the 2005 WVS survey data, work ethic was a significant contributor to GNI per capita in the 2005 WVS data and accounted for 67.1% of the variance. Work ethic was a substantively significant contributor to the 2005 GDP per capita, accounting for 68.6% of the variance in GDP per capita. The relationship of cultural values as contributors of economic growth can be expected, according to Inglehart (1997) and Inkeles and Smith (1974), who suggested varying economic and cultural values could be contributors of GDP per capita growth (see Figure 3). This result also supported findings of Inglehart et al. (2004) that cultural values, such as work ethic, may be related to economic growth. The subset of work values and the relationship to economic growth was unknown. The significance of work ethic, accounting for an average of 65.9% of GDP per capita, was a significant finding. The relationship of work values on GNI per capita was neither known nor predicted by the literature; however, it is not surprising that work ethic accounted for an average of 63.8% of GNI per capita, because GNI per capita and GDP per capita statistics are closely related. These findings give credence to cultural primacy theorists. Culture has a significant impact on GDP per capita and GNI per capita growth. To what degree is still in question, although the notion that culture does not have an impact or has little impact on economic growth from economic primacy theorists is not accurate.

The work ethic relationship to GNI per capita and GDP per capita was substantively significant throughout all 1990, 1995, 2000, and 2005 WVS waves (see Tables 42 and 43). Work ethic is correlated to GNI/GDP per capita, however causation cannot be determined. This also supported the conclusions of Question Set A. work ethic showed a substantive significance, demonstrating a relationship to economic growth. In addition, the work ethic values shifted according to the predictions of Inglehart et al. (2004), further adding support to the argument of a relationship between work ethic and economic growth.

Table 28 : *R^2 Value for GDP Per Capita and GNI Per Capita 1990-2005*

	1990	1995	2000	2005
NI per capita	0.535 (p = .001)	0.658 (p =< .001)	0.700 (p =< .001)	0.686 (p =< .001)
DP per capita	0.515 (p = .007)	0.642 (p =< .001)	0.650 (p =< .001)	0.671 (p =< .001)

Table 29 : *p Value for GDP Per Capita by Work Values Category and Year*

	1990	1995	2000	2005
work ethic	0.001	<.001	0.03	0.001

Table 30: *p Value Scores for GNI Per Capita by Work Values Category and Year*

	1990	1995	2000	2005
work ethic	0.005	<.001	0.027	0.001

The theories and studies presented in the literature review have been upheld in some instances by the findings of this study. However, others have been brought into question.

Supported Theory

The research presented showed

- work ethic changed as economic growth increased, as the first question in the literature review asked and as was predicted by modernization theory (Allen et al., 2004; Bell, 1973; Inglehart, 1997; Weber, 1930);
- Cultural values shifted as presented in Figure 2 and Figure 3 (Inglehart et al., 2004); and
- The theory of survival values vs. self-expression values (Snir & Harpaz, 2009).

Work ethic shifted from high work motivation to lower work motivation and from material security/necessity to intrinsic needs as GNI per capita and GDP per capita increased for a country. Modernization theory links predictable changes in culture with economic growth. Work ethic has been shown to correlate with GDP/GNI per capita and may now fall within the scope of modernization theory. Second, work ethic can be a contributor to economic growth, as was predicted by Inglehart (1997) and Inkeles and Smith (1974), who surmised that cultural values could be contributors of GDP per capita growth. Work ethic has a connection with GDP per capita and GNI per capita as the data showed. These results indicated that cultural primacists have a place in the debates of inputs to GNI per capita and GDP per capita. Culture does share a relationship with economic growth to some degree. Third, the theory that work investment is greater in cultures where survival values are more highly valued as opposed to societies where self-expression values are more prevalent (Snir & Harpaz, 2009) may also be upheld with the findings in this study. As countries grew wealthier, work ethic shifted in favor of intrinsic needs.

Conclusion

The research conducted in this study has several implications for practice. The data showed that work ethic changes with economic wealth. This offers insight on how workers perceive different work values as they gain wealth. The first implication is that governments can use this information as one indicator as to how wealthy workers perceive themselves to be. This data, along with other economic data, could offer input as to policy direction for governments. As workers change their habits in favor of wealthier work values, governments may shift policy direction away from job growth to other more pressing economic issues.

Similarly, businesses might find such data useful when creating and advertising jobs at different socio-economic levels. Those in the work pool who feel more impoverished will look less to self-edification aspects of a job and more toward having a job that meets their essential needs. For higher paying jobs, more vacation and time allotment to fulfill employees' career wants may be more important.

Third, this data might be useful as one indicator in economic forecasting tools. A shift detected in work ethic may be an indication that workers are feeling more (or less) wealthy and might adjust their spending habits accordingly, thus helping to predict longer-term economic growth or decline.

Findings in the current research showed that work ethic is related to GNI per capita/GDP per capita growth. Investigating whether GNI per capita and GDP per capita growth can be affected by changing work ethic might show valuable results. If this is the case, a non-governmental organizations or governments attempting to grow GNI per capita/GDP per capita might begin to influence how workers perceive their own work ethic. As workers seek to fulfill personal edification, might GNI per capita/GDP per capita grow as a result? This might be another way to effectively stimulate economic growth.

Implications from this research both support and challenge established theory. Given the results of the findings in this study, further research on cultural values and economic growth is justified to further develop cultural theories, economic theories, and new ways to apply them to practice in meaningful ways. This research has confirmed that culture, specifically work ethic has a relationship with economic growth, adding support to some existing theory. Other findings suggested some established theory might not be as sound as once thought. Further investigation into how culture develops, and specifically, the application of achievement motivation theory to culture would be prudent.

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Appendix A: Coding Definitions

Item Number	Question	Scale	Coding Definition		
			Work and Authority		
			Autocracy	Neutral	Autonomy
C034	How free are you to make decisions in your job?	1-10 1 None at All 10 A Great Deal	1, 2, 3	4, 5, 6	7, 8, 9, 10
C060	There is a lot of discussion about how business and industry should be managed. Which of these four statements comes closest to your opinion?	1 Owners should run their business 2 Owners/Employees participate in selection of managers 3 The state should be the owner 4 Employees should own the business and elect the managers	1, 3	2	4
C061	People have different ideas about following instructions at work. Some say that one should follow one's superior's instructions even when one does not fully agree with them. Others say that one should follow one's superior's instructions only when one is convinced that they are right. With which of these two opinions do you agree?	1 Follow Directions 2 Must be Convinced First 3 Depends	1	3	2
E018	I'm going to read out a list of various changes in our way of life that might take place in the near future. Please tell me for each one, if it were to happen, whether you think it would be a good thing, a bad thing, or don't you mind? Greater respect for authority	1 Good 2 Don't Mind 3 Bad	1	2	3

Item Number	Question	Scale	Coding Definition		
			Work Ethic		
			High Work Motivation	Neutral	Low Work Motivation
A005	For each of the following aspects, indicate how important it is in your life. Would you say it is: Work is	1 Very Important 2 Rather Important 3 Not Very Important 4 Not at All Important	1, 2	3	4
C006	How satisfied are you with the financial situation of your household? If '1' means you are completely dissatisfied on this scale and '10' means you are completely satisfied, where would you put your satisfaction with your household's financial situation?	1-10 1 Completely Dissatisfied 2 Completely Satisfied	1, 2, 3	4, 5, 6	7, 8, 9, 10
C008	Which point on this scale most clearly describes how much weight you place on work (including housework and schoolwork), as compared with leisure or recreation?	1-5 1 It's leisure that makes life worth living, not work 5 Work is what makes life worth living, not leisure	4, 5	3	1, 2

C036	Do you agree or disagree with the following statement? To fully develop your talents, you need to have a job	1-5 1 Strongly Agree 5 Strongly Disagree	1, 2	3	4, 5
C037a	Do you agree or disagree with the following statement? It is humiliating to receive money without having to work for it	1-5 1 Strongly Agree 5 Strongly Disagree	1, 2	3	4, 5
C038a	Do you agree or disagree with the following statement? People who don't work turn lazy	1-5 1 Strongly Agree 5 Strongly Disagree	1, 2	3	4, 5
C039a	Do you agree or disagree with the following statement? Work is a duty towards society	1-5 1 Strongly Agree 5 Strongly Disagree	1, 2	3	4, 5
C041a	Do you agree or disagree with the following statement? Work should always come first, even if it means less spare time	1-5 1 Strongly Agree 5 Strongly Disagree	1, 2	3	4, 5

Item Number	Question	Scale	Coding Definition		
			Work Ethic		
			High Work Motivation	Neutral	Low Work Motivation
C059	Imagine two secretaries, of the same age, doing practically the same job. One finds out that the other earns considerably more than she does. The better-paid secretary, however, is quicker, more efficient, and more reliable at her job. In your opinion, is it fair or not fair that one secretary is paid more than the other?	1 Fair 2 Not Fair	1	N/A	2
E035	Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between	1-10 1 Incomes should be made more equal 10 We need larger income differences as incentives for individual effort	7, 8, 9, 10	4, 5, 6	1, 2, 3
E040	Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can chose any number in between. Agreement: Hard work brings success.	1-10 1 In the long run, hard work usually brings a better life 10 Hard work doesn't generally bring success: it is more a matter of luck and connections	1, 2, 3	4, 5, 6	7, 8, 9, 10

Item Number	Question	Scale	Coding Definition	
			Work Priorities	
			Material Security/ Necessity	Intrinsic Needs
C009	Now I would like to ask you something about the things that would seem to you, personally, most important if you were looking for a job. Here are some of the things many people take into account in relation to their work. Regardless of whether you're actually looking for a job, which one would you, personally, place first if you were looking for a job? First Choice:	1 A good income so that you do not have any worries about money 2 A safe job with no risk of closing down or unemployment 3 Working with people you like 4 Doing an important job that gives you a feeling of accomplishment	1, 2	3, 4
C010	Now I would like to ask you something about the things that would seem to you, personally, most important if you were looking for a job. Here are some of the things many people take into account in relation to their work. Regardless of whether you're actually looking for a job, which one would you, personally, place first if you were looking for a job? Second Choice:	1 A good income so that you do not have any worries about money 2 A safe job with no risk of closing down or unemployment 3 Working with people you like 4 Doing an important job that gives you a feeling of accomplishment	1, 2	3, 4

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