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ATTITUDINAL CORRELATES OF NATIONAL WEALTH

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Summary—Over 14,000 young people from 42 countries on all five continents completed validated questionnaires measuring the work ethic, achievement motivation, competitiveness and attitudes toward money and saving. The data was collected by Lynn in the late 1980s and these sources were related on a country basis to recent economic figures. Attitudes regarding competitiveness, money and savings were clearly and logically related to Gross Domestic Product (GDP) showing that subjects from poorer countries were more competitive, more concerned about money and more concerned about saving for the future. Cooperativeness alone accounted for nearly 40% of the variance in predicting the Human Development Index (HDI) which is regarded as a better measure than the Gross Domestic Product (GDP). A cluster analysis based on the attitudinal measures revealed two clusters, one of 20 countries high on achievement, mastery, money attitudes and saving and the other of 21 countries lower on these variables. The two clusters were compared on other economic variables, the cluster scoring lower on these attitudinal variables had a higher GDP per head, a higher HDI, fewer people per household and a higher cost of living. Copyright © 1996 Elsevier Science Ltd.

INTRODUCTION

Since Adam Smith, social scientists from various disciplines have speculated on the cause of the wealth of nations. A number of works this century have attempted to offer single variable explanations for the national economic development such as the Protestant Work Ethic (Weber, 1905; Furnham, 1990) or the Need for Achievement (McClelland, 1976).

There have also been empirical attempts to examine the effect of culture on beliefs and behaviours and hence on economic success. These studies have been of three types. An extensive effort has been made to discover the basic independent dimensions underlying nations (Cattell, 1949, 1950; Cattell, Graham & Woliver, 1979). Woliver and Cattell (1981) argued from their factor-analytic work that about eight factors seem replicable in studies of this sort. Recently Griffeth, De Nisi and Kirchner (1985) clustered the responses of 1768 managers from 15 Western nations in terms of their attitudes and beliefs. Different methods produced rather different clusters and all seemed interpretable even without an agreed method of categorizing countries.

Hofstede (1984) used a relatively short (33 items) value survey on 117,000 persons from 66 countries to determine four quite distinct and orthogonal dimensions:

(1) Power Distance. The extent to which the less powerful members of institutions and organisations accept that power is distributed unequally.
(2) Uncertainty Avoidance. The extent to which people feel threatened by ambiguous situations, and have created beliefs and institutions that try to avoid these.
(3) Individualism/Collectivism. Individualism reflects the belief that people are supposed to look after themselves and their immediate family while collectivism maintains people belong to in-groups or collectivities, which are supposed to look after them in exchange for loyalty.
(4) Masculinity/Femininity. A situation in which the dominant values in society are success, money and things vs a situation in which the dominant values in society are caring for others and the quality of life.

A second type of study has attempted to classify different types of capitalism. Hampden-Turner and Trompenaars (1993) set out, through an analysis of 15,000 questionnaires to managers from many countries, to describe different paths to wealth creation. They found different ways (and managerial attitudes and beliefs) that lead to economic success.

Many problems are associated with research of this kind: having arbitrarily chosen subjects from

different countries; too few or non-equivalent subjects/respondents; too unreliable measures or more frequently, no theoretically based hypothesis as to why people from different countries might hold different opinions. More importantly, there is rarely a discussion about how these attitudes develop, how they are maintained and how they come to shape the countries' development.

A third approach has been that of pure empiricism, which attempts to relate attitudes to crude economic variables. Lynn (1991) tested a number of specific hypotheses using psychometrically validated questionnaires in 41 countries. Included were measures of the work ethic, achievement motivation, mastery, competitiveness, achievement conformity, money beliefs, and attitudes toward saving. He was less interested in the categorization of countries than in the psychological correlates of economic development. The countries were divided into developed and developing by using above and below 3000 US dollar GDP (in the late 1980s) and only competitiveness was found to be a significant determinant of growth in both groups. Further analysis showed that European nations had lower scores on these measures than the non-Europeans nations. Countries for North and South America scored highest on the work ethic and mastery while for far and middle eastern countries young people reported highest competitiveness and acquisitiveness for money (Furnham, Kirkcaldy & Lynn, 1994).

The present study is concerned with relating Lynn's measure to a wider variety of up-to-date economic indicators (Economist, 1993). Specifically, the study aims to examine the relationship between attitudes and a greater variety of up-to-date economic measures, by replicating Lynn's findings on a different set of economic measures (Lynn, 1991; Furnham *et al.*, 1994) and by determining whether countries clustered by attitudinal variables differed in terms of economic variables, that is obverse of the method used by Lynn (1991).

METHOD

Subjects

14,188 students *Ss* from 42 countries took part in this study. Lynn (1991) contacted lecturers who had worked in this area in various countries asking for help on a large international study. Further details are available from Lynn (1991) who attempted some analysis of this data. The number of subjects obtained in each country are shown in Table 1.

The questionnaires

The questionnaires used in this study were derived from the literature (see below). In English speaking countries the questionnaires could be used as they stood, but in non-English speaking countries, they required translation into the indigenous language. Every effort was made to ensure in non-English speaking countries that all subjects understood the items. It was important to ensure that the translations were accurate and for this purpose the method of 'back translation' was employed.

Ss were requested to complete (anonymously) questionnaires designed to measure an array of personality and motivational traits associated with work-related attitudes and ratings on various occupational preferences:

(1) Work ethic. Weber's classic concept of a moral commitment to work e.g. "I like hard work" and "Part of my enjoyment in doing things is improving my past performance".
(2) Achievement motivation. McClelland's concept of a need for excellence, although this measure may not be completely in accord with McClelland's definition, e.g. "Are you an ambitious person?" and "Do you tend to plan ahead for your job or career?"
(3) Mastery. The need for mastery over problems and events, e.g. "If I am not good at something, I would rather keep struggling to master it than move on to something I may be good at" and "I more often attempt tasks that I am not sure I can do than tasks that I believe I can do".
(4) Competitiveness. The motive to outperform others, e.g. "I enjoy working in situations involving competition with others" and "I feel that winning is important in both work and games".
(5) Achievement through conformity. Identification with the organization and its success, e.g. "I liked school", "There is something wrong with a person who cannot take orders without getting angry or resentful" and "I like to plan out my activities in advance".

Table 1. National rates of economic growth and per capita incomes for the nations participating in the study

Country	Number	(1980–1991)	(1991)
Argentina	200	−0.2	2794
Australia	297	2.8	16,595
Bangladesh	378	4.2	216
Belgium	300	2.2	19,295
Brazil	306	2.5	2921
Bulgaria	291	N/A	N/A
Canada	164	3.1	21,254
Chile	265	3.4	2163
China	334	9.4	369
Colombia	300	3.2	1275
Egypt	324	4.5	623
France	697	2.3	20,603
Germany	306	2.3	21,248
Greece	311	1.6	6498
Hong Kong	306	6.9	13,192
Iceland	320	N/A	22,362
India	388	5.5	329
Iraq	435	−14.4	691
Ireland	300	2.4	10,782
Israel	131	3.7	12,092
Japan	403	4.3	26,919
Jordan	300	N/A	N/A
Korea	317	10.0	6356
Mexico	417	1.5	2874
New Zealand	373	1.0	12,136
Norway	126	2.5	24,151
Poland	300	1.2	1843
Portugal	145	3.2	5626
Rumania	300	0.3	N/A
Singapore	458	7.1	12,869
South Africa	898	1.7	2474
Spain	375	3.2	12,461
Sweden	114	2.0	25,487
Switzerland	237	2.2	33,515
Syria	300	3.5	N/A
Taiwan	321	7.6	8546
Turkey	309	5.4	1815
UAE	250	−1.8	20,131
UK	596	2.8	16,748
USA	684	3.1	22,660
Venezuela	278	1.1	2614
Yugoslavia	334	−0.7	2956

Sources: United Nations National Accounts Statistics and Statistical Yearbooks

N/A, Information not available.

(6) Money beliefs. The importance attached to money e.g. "I firmly believe money can solve all my problems" and "I would do practically anything legal for money if it were enough".
(7) Attitudes towards saving. The value attached to saving, e.g. "I do financial planning for the future" and "I follow a careful financial budget".

The three scales: work ethic (based on Weber's classical concept of moral commitment to work), mastery (Spence–Helmreich's construct of mastery), and competitiveness (motive to outperform others) were assessed by a 19-item inventory constructed by Spence and Helmreich (1983). They were rated along a five-point "strongly agree–strongly disagree" scale (high values indicate agreement). The Savings Scale (Yamauchi & Templer, 1982) represents the importance attached to savings, and was used in conjunction with the Money Belief Scale, which assesses the valuation of money (Furnham, 1984), both of which are short scales that have been shown to have good reliability. Both required a response on a seven-point rating scale ranging from "never" or "not-at-all" to "very much". Achievement motivation (McClelland's construct of a need for excellence) was evaluated using the Ray–Lynn scale (Lynn, 1969; Ray, 1979) comprising 14 items rated on a three point "Yes–?–No" scale. The scale for Achievement through conformity had 10 items and was devised by Gough (1969). As with the Ray–Lynn scale it asked for ratings on a three-point scale (Yes–?–Not at all). It referred to an identification with an organisation and its success.

PROCEDURE

Administrators were contacted in 1988 and 1989 and tested their *Ss* in their own countries. The results were posted to Professor Lynn in the United Kingdom and analysed appropriately.

RESULTS

It may be considered that students do not constitute adequately representative samples particularly in under-developed countries but the use of students is defensible. It should be acknowledged though that in some developed countries students are not yet employed in the labour force and their attitudes towards work may possibly be superficial and 'ideal' instead of practical and empirical, especially in Asia where students do not join the labour force until graduation. Yet, if there are national differences in work motivations they should be present throughout the population and detectable in any sample though education may moderate them (Lynn, 1991). Other investigators have employed the same methodology of taking measures of national psychological differences from population subsamples rather then representative samples. For instance, McClelland (1976) obtained his measures of national levels of achievement motivation from a content analysis of the themes in children's reading books used in schools. These will reflect the value systems of the educational officials and head-teachers who are responsible for selecting these reading books, but the value system of the educational officials and head-teachers should reflect those of the nation as a whole. However, it should be pointed out that school-books represented, through the school system, a nationwide influence while students cannot be assumed always to represent a nation particularly where they are an elite. Similarly, Hofstede (1984) used questionnaire results obtained from managers in a multinational corporation to provide measures of national differences in attitudes and values. It is considered that these are legitimate procedures and the use of student samples is not ideal but able to produce reliable results.

Inter-relationships between the variables

The unit of analysis in these studies was the country-by-country scores. The mean response rate for each country was compared (for full details see Lynn, 1991).

Table 1 shows the *N* per country and the more recent economic data available (Economist, 1993).

Table 2 shows intercorrelations between the two economic (determined from data published in 1994) and seven attitudinal variables gathered from data gathered 6 years earlier. The correlation between variables is a partial correlation with the economic variables partialled out. Nearly all seven attitudinal variables were positively intercorrelated particularly need for achievement, but less clearly conformity. Secondly, nearly all the correlates of GDP were negative, which suggests that competitiveness, mastery and attitudes to money are negatively related to gross domestic product. None of the variables correlate significantly with growth over the period specified here. These results are similar to those reported by Lynn (1991) but with one major exception. He found competitiveness and GDP positively correlated, but here the correlation was negative suggesting co-operativeness, not competitiveness as a salient predictor. These results could be seen to suggest that, whereas some beliefs (i.e. competitiveness) may lead to economic growth the same belief changes once economic

Table 2. Partial correlations between the economic and psychological variables ($N = 40$)

	GDP	Growth	WE	A	M	C	CM	MON
Gross domestic product (GDP)								
Growth (G)	0.05							
Work ethic (WE)	−0.34*	−0.11						
Achievement (A)	−0.23	0.14	0.46**					
Mastery (M)	−0.33*	0.04	0.77***	0.46**				
Competitiveness (C)	0.42**	0.03	0.02	0.27	−0.06			
Conformity (CM)	−0.09	−0.22	0.68***	0.43*	0.61***	0.01		
Money (MON)	−0.57**	−0.02	−0.12	0.25	0.09	0.64***	−0.10	
Savings (SAV)	−0.47**	0.00	0.33*	0.63***	0.48**	0.20	0.23	0.41**

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

Table 3. Means for the difference category of nations classified according to their GDP/head

Variable	Low M	GDP SD	Mid M	GDP SD	High M	GDP SD	Overall *F*
Work ethic (WE)	19.26	1.52	20.12	1.18	19.18	1.08	1.86
Achievement (A)	32.87	2.21	33.55	2.01	32.32	1.77	1.26
Mastery (M)	18.87	1.38	19.55	1.60	18.74	1.12	1.13
Competitiveness (C)	13.26	1.29	11.78	1.47	11.08	1.71	4.23*
Conformity (CM)	22.90	1.13	23.84	1.07	23.40	0.96	2.20
Money (MON)	11.94	2.04	10.69	2.17	7.71	2.42	9.46***
Savings (SAV)	20.52	3.26	20.96	3.96	16.88	2.98	4.24*

The multivariate statistical tests using all seven work attitude scales simultaneously was statistically significant Wilks's lambda = 0.39, $F(14,54) = 2.33$, $P < 0.001$.

wealth has 'been secured'. Insufficient data is actually available to test for non-linear trends and this suggestion remains a hypothesis.

Table 3 shows more clearly the determinants of GDP. The various countries were divided into three groups according to their GDP per head. The cut-off point was GDP/head of 1500 U.S.$ and below (poorer or third world countries), 1500–15,000 U.S.$ (mid- or second world countries and above 15,000 U.S.$ (first world or rich — defined in terms of per capita for the nations). The mean GDP was U.S.$ 1179.8 (SD 840.2) for the Third World nations (Bangladesh, Chile, China, Columbia, Egypt, India, Iraq, Poland, South Africa and Turkey); the mean of 7647.8 (SD 4266.3) for Second World nations (Argentina, Brazil, Greece, Hong Kong, Ireland, Israel, Korea, Mexico, New Zealand, Portugal, Singapore, Spain, Tiawan and Venezuela) and mean GDP of 22,374.5 (SD 4498.9) for the First World countries (Australia, Belgium, Canada, France, Germany, Iceland, Japan, Norway, Sweden, Switzerland, U.A.E., United Kingdom and U.S.A.).

Three of the seven attitudinal variables showed significant differences. High competitiveness was characteristic of the low GDP group only. There was a gradual reduction in money beliefs across the three groups: the richer the country, the less young people are interested in money. Finally low and mid GDP groups had comparatively high concerns about saving compared with the high income nations.

A step-wise multiple regression showed only money beliefs predicted GDP per head $F(2,34) = 12.63$, $P < 0.001$; beta = 0.61, $t = -4.66$, $R^2 = 0.39$, $R^2 = 0.39$.

Table 4 shows correlations between the seven attitudinal measures and four recent economic measures. In the step-wise regression using economic growth (annual growth in real GDP for the period 1980–1991) as the dependent variables, the regression was not statistically significant, $F(7,29) = 1.27$, $P > 20.05$, none of the work attitude scales emerging as significant predictors. There was no evidence of 'competitiveness' emerging as a significant determinant of growth as it had done in Lynn (1991).

However, we used the Human Development Index (HDI) which is regarded as a better measure than GDP or GDP per head, because the latter, though frequently used as indicators of how developed a nation is, are limited to economic welfare. The decision of the UN development programme to publish estimates of the HDI in 1990 was an attempt at yielding a combined statistic that incorporates life expectancy and adult literacy as well as the more traditional measure of income levels. (In 1991, schooling was combined with literacy). The step-wise regression analyses revealed

Table 4. Correlations between the attitudinal and economic variables

Variable	Consumer price inflation	Average annual growth in real GDP	GDP per head	HDI
Work ethic	0.01	−0.06	0.40*	0.23
Achievement	0.24	0.02	−0.19	0.08
Mastery	0.06	0.04	0.34*	0.16
Competitiveness	−0.18	−0.02	−0.13	−0.45**
Ach. conformity	0.20	0.31*	−0.21	0.23
Money beliefs	0.23	0.15	−0.36*	−0.14
Savings	0.30	0.13	−0.38*	0.11

* $P < 0.05$; ** $P < 0.01$.

Table 5. Results of the factor analysis

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Work ethic		0.83		
Achievement		0.62		
Mastery		0.82		
Competitiveness				0.87
Comformity		0.88		
Money beliefs				0.79
Savings attitudes		0.66		
GDP/head	0.59			−0.63
Ann. growth			0.82	
Human dev. index				−0.70
No. Ss. in household	−0.56		0.59	
Density/km^2			0.83	
Divorce/1000	0.81			
Cost of living		−0.53		
Energy consumption	0.86			
%popn employed			0.53	−0.63
eigenvalue	2.60	3.72	1.86	3.75
% var.	16.25	23.23	11.63	23.45

that only one significant predictor of HDI emerged (namely competitiveness), $F = 25.29$, $P < 0.001$; beta = 0.64, $t = 5.03$, R^2 2 = 0.37.

It is apparent that countries with low human development are more likely to display high competitiveness (Table 3) as well as attaching more importance to money and saving.

Normally the HDI index is such that values above 80 represent high human development, those with 50–79 moderate and under 50 are low human development. We then partitioned the sample into three roughly equivalent sized groups and thus used the split-off (<82, 82–94 and 95 and above). Less than 8% of our nations had HDI < 0.50, 23% had moderate development, and 69% were defined after UN criteria as high development. The multivariate statistical test was highly significant, Wilks's lambda = 0.27, $F(14,56) = 3.64$, $P < 0.001$ and subsequently univariate F-tests showed significant differences on competitiveness, $F(2,34) = 11.70$, $P < 0.001$ achievement motivation $F(2,34) = 3.04$, $P < 0.07$, money $F(2,34) = 16.47$, $P < 0.001$ and savings $F(2,34) = 4.15$, $P < 0.03$.

Next, a factor analysis was computed using seven attitudinal scales and nine economic variables.

Table 5 refers to the factor analysis with varimax rotation for all the work attitude scales and social and economic scales, with the exception of inflation. Loadings are provided that exceed 0.50. These factors account for approximately 75% of the variance. The first factor encompasses high income (rich), small family, high divorce rate and high energy consumption and is clearly a socio-economic factor, in contrast to factor two which is essentially to do with work attitudes (ethic, achievement, mastery, conformity, savings coupled with low cost/standard of living). The third factor corresponds to population density, economic and percentage of the population employed accounting for around 12% of the variance, followed by fourth factor combined competitiveness and money beliefs with low income, low human development index, family size (household size) and low percent labour employment.

Cluster analysis

Next we performed cluster analysis as a multivariate statistical procedure for detecting natural groups in the data (Table 6). "It resembles discriminant analysis, in which the researcher seeks to classify a set of objects into subgroups although neither the number of subgroups nor the members of the subgroups are known" (Wilkinson, 1988). In this instance, we adopted K Means clustering involving a splitting method — not necessarily hierarchical — to partition the objects (countries) into a selected number of groups (dichotomised into two groups on this occasion) by maximising between — relative to within-cluster variation, thus "... it is like doing a one-way analysis of

Table 6. Results of the cluster analysis and the differences between cluster

Case	Distance	Case	Distance
Argentina	2.47	Australia	1.00
Bangladesh	1.93	Belgium	1.17
Brazil	2.62	Canada	1.49
Bulgaria	1.48	China	1.64
Chile	2.08	France	0.69
Colombia	1.70	Germany	2.27
Egypt	2.11	Iceland	1.38
Greece	0.99	Ireland	1.25
Hong Kong	1.98	Japan	2.23
India	1.24	New Zealand	0.55
Iraq	1.39	Norway	1.76
Israel	1.02	Poland	1.11
Jordan	1.30	Romania	1.77
Korea	1.02	Spain	0.83
Mexico	1.74	Sweden	2.81
Portigal	1.63	Switzerland	1.41
Singapore	1.56	Turkey	1.62
South Africa	1.08	UAE	1.78
Taiwan	1.26	UK	1.03
USA	0.84	Venezuela	2.27
		Yugoslavia	0.89

variance where the groups are unknown and the largest F-value is sought by reassigning members of each group" (Wilkinson, 1988). The K-mean clustering implements algorithms outlined by Hartigan (1975) and with some improvements by Hartigan and Wong (1979).

"Saving attitudes" and "money beliefs" emerge as better discriminators between nations than for instance "competitiveness" or "achievement motivation". In fact, all four of these variables are significant. From the two clusters that were generated on the basis of their work attitude profile, the first cluster 1 (comprising Argentina, Bangladesh, etc.) displayed higher scores on achievement, competitiveness, saving attitudes and money beliefs, compared to the second cluster (e.g. Australia, Belgium, Canada etc.). The U.S.A. was quite atypical when compared with the other countries in their group (at face value but not in terms of work attitudes and values).

The second phase was to apply linear discriminant analyses to see whether the work attitude profiles were truly statistically different. This was confirmed (Wilks's lambda = 0.23, Rc = 0.88, $F(7,31) = 14.70$, $P < 0.001$: Canonical loadings were saving (0.78), money (0.46) and achievement (0.34). The above cluster analyses suggested two groups generated on the basis of their similarity of overall work attitude profiles. If this empirical dichotomisation solely on psychological variables has anything meaningful to say about economic growth and development in a country then using these groups should be useful in predicting economic variables, e.g. GDP, family size, cost of living, HDI, population density, energy consumption, divorce rate, percent labour employed and inflation rate, then differences should emerge. It is an example of an external validation significant test of the cluster solution (Aldenberger & Blashfield, 1984).

Four variables were found to differ as shown in Table 7.

Table 7. Means and F-levels examining differences between the two clusters on the seven variables

Variable	Cluster 1 Mean	Cluster 2 Mean	F-Ratio
Work ethic	19.92	19.18	3.929
Achievement	33.94	32.05	12.315***
Mastery	19.39	18.71	2.488
Competitiveness	12.92	11.28	11.904***
Conformity	23.39	23.27	0.119
Money	11.94	8.42	29.864***
Savings	22.50	16.41	81.462***

*** $P < 0.001$.

Table 8. Economic variables that differentiate between the two clusters

Variable	Cluster 1 M	SD	Cluster 2 M	SD	$F(1,36)$	F
GDP/head ($)	5783.28	6029.97	15664.20	9667.66	13.91	0.001***
HDI	73.92	22.65	89.29	11.99	7.03	0.02*
No. in house	4.43	1.05	3.26	0.89	12.47	0.001***
Cost of living	87.77	22.52	108.11	34.64	5.05	0.05*

* $P < 0.5$; *** $P < 0.001$.

DISCUSSION

Three results of this study are noteworthy. Perhaps the most important was the replicated findings that co-operativeness, money habits and savings, are predictors of the HDI.

Furnham *et al.* (1994) speculated that competitiveness, the motive to be better than others, is a powerful stimulant to economic growth. Once economic prosperity has been attained this urge may decline, hence the low score correlating with high growth domestic product. Thus 'co-operativeness' might replace competitiveness once a plateau of economic stability has been attained. Yet, first world western countries usually have lower growth rates because they are already well developed and any major increase and development would be difficult, while developing countries could easily achieve a higher rate. It is also possible that simple social desirability factors account for these differences: people from poorer, developing countries are likely to be more sensitive to desirable responses as perceived by them. Indeed the fact that, with one exception, all the scores are in the same direction suggests that there may be some merit in this explanation. Another possibly important fact is the difference between group vs individual competitiveness. In this study the competitiveness items are essentially individuals competing for superiority, which is not necessarily perceived as socially desirable while group competitiveness is.

The study failed in part to replicate previous studies, some of which were based on the same attitudinal data. Thus, with more recent figures, the best (indeed only) predictor of GDP was money beliefs (and not competitiveness), though it alone nearly accounted for 40% of the variance. Furthermore none of the seven attitudinal variables predicted 'growth' in the GDP for the decade of the 1980s. However it is impressive enough that a relatively short self-report test on students could be logically related to macro-economic variables.

This study went considerably further than did Lynn (1991) or Furnham *et al.* (1994) not only by using more and more up-to-date economic variables but also by using the cluster analysis in the second part of the data analysis. This procedure reversed the previous analyses by clustering countries by attitudinal variables and then by determining how these clusters differed in terms of economic variables. Those countries whose subjects showed lower achievement motivation, lower competitiveness, lower interest in money and less concern with savings were richer (measure by GDP and HDI) and had a higher cost of living. At first glance this finding may seem paradoxical but may illustrate the possible plateau or even U curve trend. Thus it may be that the work ethic, competitiveness and concern about money are useful to drive economic activity but decline once it has been achieved. Indeed is has been argued that the work ethic has within it seeds of its own destruction (Furnham, 1990). That is the growth of wealth (as well as the development of science and reduction in religious belief) that follows from economic development leads to an increase in leisure time and discretionary income. Having sufficient wealth for these more tempting activities may lead people to become less hard-working, striving and concerned with money. The fact that students are usually more of an elite in poor countries supports the argument even more strongly because it may be argued their guaranteed wealth would lead them to strive less compared with students from poorer homes.

To a large extent it is noteworthy that the attitudes of young people correlated with a country's wealth. Although one can speculate on a causal mechanism to explain this finding one cannot infer cause. It is just as possible that attitudinal factors in a population influence economic variables as the other way around. Indeed what is most likely is that there is some form of reciprocal causation whereby the attitudinal factors may influence economic factors, which once operating in a particular way, have considerable effects on young people's beliefs.

This study is not without its limitations. Student *S*s were used who may be unrepresentative of their country's men and women particularly in third world countries. Also few countries from Africa were obtained, none of the lowest 10 ranked economies of the world were included e.g. Mozambique, Tanzania, etc. The reliability (internal) of the questionnaires was not particularly high, though satisfactory. Finally, only longitudinal analysis can show causal patterns. Yet research of this type linking psychological and economic variables is sorely neglected and potentially very important (Lynn, 1991).

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