

Transformation of the Second World from Plan to Market: Economic Effects of Culture, Convergence, and Investment

Richard H. Franke

This analysis of World Bank data for twenty-eight second world nations describes differences in performance and provides explanations for these differences over a 24-year period. Explanations include major political, social, and economic changes in the environments of these nations. Until recently, second world capital misinvestment retarded economic growth. Convergence, or catching up by less developed economies, halted with the passing of communist coordination and cooperation. Adaptability to the market economy depends on culture, with Western Christian and Confucian cultures more successful than Orthodox Christian and Moslem ones. Cultural differences have affected ease of transformation from plan to market, and require adaptive strategies for economic success in the future.

I. INTRODUCTION

The World Bank's *World Development Report* for 1996 describes recent economic history and current transition of the formerly communist "second world" nations from centrally administered to free market economies. During the 1970s, communist nations generally seem to have outperformed others. During the 1980s they stagnated, except for China, where reform began in 1978. In the immediate transition period of 1990–93, which followed Mikhail Gorbachev's 1985 opening of his society to other systems and the 1989 fall of the Iron Curtain's physical embankments, most nations experienced economic decline. By the end of the initial recovery period of 1993–95, all showed signs of turnaround. But there have been dramatic differences in success at economic transformation. In East Asia there was early positive change, and Poland proved to be successful as early as 1991–92. By 1993–95 a majority of these nations experienced economic expansion.

This paper seeks to explain economic growth differences for the 1970s, the 1980s, and the periods 1990–93 and 1993–95 among twenty-eight second world nations which contain one-third of the world's population. Economic growth differences and the facility with which different nations have been able to adapt to new circumstances are interpreted in terms of economic, cooperative, and human

Richard H. Franke, the Sellinger School, Loyola College, Baltimore, MD 21210-2699.

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factors in performance.

Three possible explanations are examined: (1) The economic theory that *investment* affects national economic growth; (2) the comparative economic theory that *convergence* or catching up allows more rapid development by lagging economies within cooperating groups of nations; and (3) the human behavior theory that historically-developed attitudes, motivation patterns, and capacities embodied in national *culture* affect economic growth.

(1) According to U.S. Commerce Department economist Edward Denison, the conventional wisdom in economics is that higher *investment* ratios lead to higher rates of national economic growth. But cross-national analyses of already developed nations shows that “whatever relationship does exist results more from the effect of rapid growth on investment than from the effect of investment on growth” ([10], 221; cf. Franke [12]). In addition, quantitative analysis of business units in North America and Europe by the PIMS (Profit Impact of Market Strategy) research group shows that “high-investment intensity acts as a powerful drag on profitability” (Buzzell and Gale [8], 10 and ch. 7; elaboration by Franke and Edlund [18]). Even in market economies, investment in new technology without attention to its effective utilization can lead to diminished economic performance (Franke [15]; Attewell [1]).

In planned economies, the situation may be worse. For example, after World War II, “acceleration in [communist country] growth involved a government effort to mobilize very high rates of investment (Maddison [25], 36).” But “with near-complete state ownership, enterprises lacked the defined property rights that spur work effort and profitmaking in market economies. Firms had little reason to use inputs efficiently [and] ... the deep inefficiencies of planning became increasingly evident with time.” In the Soviet Union and in Eastern Europe, “returns to capital formation began a steady and rapid descent” (World Bank [29], 2–4). Since investment impacts economic performance some years later if at all (Franke [12]), negative effects of misinvestment might reach into the initial transition period. *Hypothesis* (1) is that higher rates of capital investment were not beneficial to the formerly communist countries, but instead higher investment indicates misallocation of resources that resulted in *lower* rates of economic growth.

(2) As described by Andrei Sakharov [26] and William Baumol [4], nations following in the footsteps of an economically advanced nation can have economic growth advantages, so that initially lower levels of economic performance lead to higher rates of economic growth (see examples in Franke [17] and further description of terms by Baumol, Nelson, and Wolff [6]). In the post-World War II period, this process of *convergence* was noteworthy for the United States and its OECD (Organization for Economic Co-operation and Development) allies. Baumol [5] suggests that, for convergence to occur, there should be some

degree of cooperation that facilitates technology transfer, labor force learning through temporary migration, and international investment. It seems unlikely that the Soviet Union could have converged through “skiing in the tracks” of the United States economy, as Sakharov pictured, since Soviet antagonism toward the West and unwillingness to learn from their managerial and technological advances made catching up impossible. China, on the other hand, since rapprochement with the United States in the first Nixon Administration, “has been willing to ... admit that it is not a first world country and must copy to catch up” (Thurow [28], 57).

In general, until about 1990, preconditions for convergence existed among communist countries, but only within that system. Catching up by less developed communist nations could be expected during the 1970s and 1980s, halting after 1990 when the second world “convergence club” dissolved (adapting terminology applied to high-income nations by Baumol [5], 64). *Hypothesis (2)* is that internal second world convergence or catching up did occur until 1990, resulting in more rapid economic growth for lower GNP/capita nations which copied from and coordinated with higher GNP/capita nations.

(3) In the first (developed Western) and third (noncommunist less developed) worlds, differences in national economic growth rates can be explained largely by differences in cultural variables, using concepts and data from Max Weber, David McClelland, Geert Hofstede, and Michael Bond (Franke, [11, 13, 16]; Franke, Hofstede and Bond [19]; Franke, Mento, and Brooks [20]). With few exceptions, cultural data for variables such as McClelland’s achievement, affiliation, and power motivation and Hofstede’s individualism, power distance, and uncertainty avoidance were not collected for second world nations. Nevertheless, cultural indices do exist in that four of the world’s major civilizations are found among second world nations, and as suggested by Samuel Huntington [24], these civilizations’ deep and enduring cultures are described not by recent industrial or political history, but by histories over centuries that are indicated by their dominant religious traditions. These cultural entities are Western Christian (Roman Catholic and Protestant), Orthodox Christian, Moslem, and Confucian/Buddhist.

Western economic development “can be traced to the political and cultural ferment of countervailing feudal, religious, monarchic, and civic forces during and following the Middle Ages. Lack of clear direction made possible scientific, economic, and social innovations in the interstices of power, particularly in some of the ‘free cities’ and overseas colonies that achieved local autonomy” (Franke [16], 7–2; see Chirot [9]). Angus Maddison amplifies, finding economic success to be based on “the recognition of human capacity to transform the forces of nature through rational investigation and experiment. By the seventeenth century, Western elites had abandoned superstition, magic, and submission to religious authority” ([25], 33). On this foundation, scientific, educational, political, and

market institutions were constructed that contributed to sustained democratic and economic development over succeeding centuries.

Russia and East European nations with *Orthodox Christian* and Balkan and Central Asian nations of *Moslem* religion and culture have different cultural foundations. They have experienced individual freedom, democracy, and free market enterprise less. In their histories there has been more substantial and longer term hierarchical domination—by Mongol, Arab, Turkic, and domestic warlords and lords. This may make adaptation to the extant world market economic system slower and perhaps different from nations that are Western Christian. Although democracy is compatible even with fundamentalist Islam, the West's modernism in media and behavior is "tantamount to secularism and is almost by definition corrupting to all religion" (Barber [3], 209–210). Western behavior and attitudes may challenge the culture of Orthodox Christendom as well as that of Islam.

Chinese-oriented societies are held to be limited by "bureaucratic control and excessive respect for tradition [which] impeded the emergence of a modern scientific approach" (Maddison [25], 34; Balazs [2]). Their *Confucian* ethos stresses "the values of authority, hierarchy, the subordination of individual rights and interests, [and] the importance of consensus" (Huntington [24], 225). Surprisingly, modern "Confucian Work Dynamism" (measured by The Chinese Culture Connection [27]) appears to support a form of productive collectivism and long-term orientation that increases economic growth rates (Franke [16]; Franke, Hofstede, and Bond [19]; Hofstede [23], ch. 7).

Hypothesis (3) is that, following the second world's abandonment of hierarchically planned economies, transformation and economic growth are facilitated by Western Christian and Confucian/Buddhist cultures, and more difficult in Orthodox Christian and Moslem cultures.

II. METHOD

Data for the twenty-eight second world nations of Europe and Asia that are transitioning "from plan to market" were obtained from the 1996 and 1997 *World Development Reports*. The dependent variable for analyses is the rate of growth of gross domestic product over four periods—1971–80 and 1981–89 (provided) and 1990–93 and 1993–95 (calculated). Independent variables are investment ratios at about the beginning of the economic growth periods (not available for the first period), initial level of gross national product per capita (provided and calculated), and the nations' dominant cultures or religions (Huntington [24], Map 1.3).

After calculating means and standard deviations using all available data, correlations of dependent variables (four periods) with the independent variables of hypotheses (1) to (3) were computed. Spearman rank-order coefficients served to check Pearson product-moment results for possible outlier distortion. Stepwise

regression equations for the four growth periods include all significant independent variables, rerun excluding non-entering variables to avoid sample reduction.

III. RESULTS

As shown by the data in Table 1a, in general the economic growth rates of communist nations declined massively from the 1970s to the 1980s, except in China, where economic liberalization in 1978 replaced the disruption of the Cultural Revolution. In the Soviet Union and Central and Eastern Europe during the 1980s, growing awareness and dissent over human rights limitations and over misdirection and weakening of economies led to what John Kenneth Galbraith [21] termed “the great implosion” that marked the end of at least the economic determinism of communism about 1990. (Human rights and political liberalization did not prevail in China in 1989, and in general this issue remains on the table as a requirement for further maturation of the societies and economies of Asia, as noted by Franke [17].) In the initial period of transformation to market economies, during 1990–93, all but East Asian economies declined; during the next period of 1993–95, all declines slowed or reversed excepting the refractory case of Belarus described by Buck, Filatotchev, Wright, and Zhukov [7].

Second world investment ratios, which at about 30% were more than half again those of the United States in 1980 and 1990, declined thereafter to about the level of the U.S. and most OECD nations, as production focus began to switch from heavy industry and military to consumer goods. The data in Table 1b are levels of GNP per capita for 1995 and at the beginning of each economic growth period, followed by the dominant culture of each nation. With no exception, gross national product per capita was higher in 1981 than in 1971; with three exceptions, it was somewhat higher still in 1990, but average GNP/capita dropped dramatically by 1993. Most Central and Eastern European nations showed higher per capita national product again by 1995, but, among newly independent states from the former USSR, only the western-influenced Baltic States and Armenia (recovering from effects of the Nagorno-Karabakh war) showed improvement by 1995.

Results for *hypothesis* (1), that higher rates of capital investment were not beneficial, are shown in Table 2 for the three growth periods with initial (or early) investment data available (coefficients underlined). During the 1990–93 period, where existing early investments were high and affected by earlier central planning under communism, but the authority of central administration had diminished, the relationship of investment to economic growth was negative.

Hypothesis (2), that catching up by poorer members of the second world convergence club occurred so long as it remained intact, is supported strongly and significantly for the 1970s and the 1980s by negative correlation coefficients.

After the club ceased to operate, convergence ceased, as shown by the remaining underlined coefficients.

Table 1a
Economic growth and investment data

Nation	Percent/year Growth of Real Gross Domestic Product				Gross Domestic Investment, % of GDP		
	GDP 7180	GDP 8189	GDP 9093	GDP 9395	GDI 80	GDI 90	GDI 94
<u>Ten Central and East European Nations</u>							
1 ALB	.	1.7	-10.18	6.70	34.5	28.9	13.5
2 BUL	.	4.9	-7.36	1.54	34.0	25.6	20.8
3 CRO	.	.	-10.51	1.90	.	13.4	13.8
4 CZE	.	1.8	-7.20	3.79	.	28.6	20.4
5 HUN	4.6	1.8	-4.79	2.25	30.7	25.4	21.5
6 MAC	.	.	-11.41	-4.85	.	32.0	18.0
7 POL	.	2.6	-0.32	6.25	26.4	25.6	15.9
8 ROM	7.6	1.0	-8.72	4.67	39.8	30.2	26.9
9 SLK	.	2.7	-8.41	5.89	37.3	33.5	17.1
10 SLN	.	.	-4.76	4.50	.	16.9	20.8
<u>Fifteen Newly Independent States (former USSR)</u>							
11 ARM	14.5	3.5	-28.17	4.98	28.5	47.1	10.2
12 AZE	21.5	2.9	-20.90	-19.49	23.3	27.8	22.5
13 BLR	6.6	5.0	-6.94	-16.89	19.5	27.4	.
14 EST	5.1	0.2	-17.07	5.00	28.5	30.2	.
15 GEO	6.8	1.2	-31.16	-17.41	.	.	.
16 KAZ	4.4	2.0	-11.88	-17.39	37.6	42.6	24.0
17 KYR	4.4	4.0	-13.79	-16.88	28.7	23.8	.
18 LAT	4.7	3.7	-20.19	0.55	25.7	40.1	.
19 LIT	4.6	1.8	-23.82	2.50	31.2	34.3	.
20 MOL	.	.	-17.73	-10.86	.	.	7.7
21 RUS	6.5	3.0	-9.49	-8.40	22.4	30.1	27.0
22 TAJ	4.9	3.3	-22.65	-13.51	30.0	23.4	.
23 TUR	4.0	4.0	.	.	28.5	40.0	.
24 UKR	.	.	-10.60	-18.38	.	27.5	.
25 UZB	6.2	3.4	-4.78	-3.26	31.6	32.2	23.3
<u>Three Other Asian Nations</u>							
26 CHI	5.5	11.1	11.64	11.00	35.2	34.8	42.1
27 MON	.	5.7	-6.34	4.79	46.2	42.3	20.9
28 VIE	.	4.4	7.56	9.05	.	13.0	24.2
Mean:	6.99	3.29	-11.11	-2.67	30.98	29.87	20.56
S.D.:	4.60	2.19	9.69	9.95	6.37	8.40	7.42

Source: *World Development Report: 1996*, Table A.2. The nations are Albania, Bulgaria, Croatia, Czech Republic, Hungary, Macedonia, Poland, Romania, Slovak Republic, Slovenia, Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, China, Mongolia, and Vietnam. Source: *World Development Report: 1996*, Table A.2.

Table 1b
Economic level and major religion/culture data

Nation	Gross National Product per capita (1995 U.S. Dollars)					Dominant Religion or Culture				
	GNPc71	GNPc81	GNPc90	GNPc93	GNPc95	West	Orth	Mos	Con	
<u>Ten Central and East European Nations</u>										
1 ALB	.	816.38	788.04	581.48	670	0	0	1	0	
2 BUL	.	995.13	1558.42	1269.42	1330	0	1	0	0	
3 CRO	.	.	4367.53	3129.94	3250	1	0	0	0	
4 CZE	.	3882.71	4518.13	3599.50	3870	1	0	0	0	
5 HUN	2307.82	3728.78	4498.22	3917.09	4120	1	0	0	0	
6 MAC	.	.	1428.82	967.16	860	0	1	0	0	
7 POL	.	2140.84	2533.06	2486.39	2790	1	0	0	0	
8 ROM	821.27	1641.61	1732.04	1337.29	1480	0	1	0	0	
9 SLK	.	2886.36	3476.18	2646.54	2950	1	0	0	0	
10 SLN	.	.	8649.25	7494.15	8200	1	0	0	0	
<u>Fifteen Newly Independent States (former USSR)</u>										
11 ARM	463.87	1578.92	1915.75	681.05	730	0	1	0	0	
12 AZE	230.16	1390.35	1572.78	755.36	480	0	0	1	0	
13 BLR	1431.55	2555.04	3755.95	3008.52	2070	0	1	0	0	
14 EST	2865.08	4437.96	4281.65	2532.45	2860	1	0	0	0	
15 GEO	1039.69	1872.06	1957.40	642.49	440	0	1	0	0	
16 KAZ	1952.83	2666.03	2861.82	1952.62	1330	0	0	1	0	
17 KYR	1053.79	1342.82	1613.43	1021.29	700	0	0	1	0	
18 LAT	2051.03	3088.72	4095.37	2178.43	2270	1	0	0	0	
19 LIT	2634.81	3777.06	4091.32	1808.49	1900	1	0	0	0	
20 MOL	.	.	2069.17	1155.53	920			0	1	0
21 RUS	1646.78	2911.73	3600.00	2669.72	2240	0	1	0	0	
22 TAJ	863.98	1047.38	1084.60	472.91	340	0	0	1	0	
23 TUR	920	0	0	1	0	
24 UKR	.	.	3424.29	2446.86	1630	0	1	0	0	
25 UZB	867.85	1237.23	1338.51	1082.54	970	0	0	1	0	
<u>Three Other Asian Nations</u>										
26 CHI	115.65	170.23	383.93	515.38	620	0	0	0	1	
27 MON	.	293.87	377.47	293.14	310	0	0	0	1	
28 VIE	.	147.25	179.94	210.39	240	0	0	0	1	
Mean:	1356.41	2027.66	2672.34	1883.56	1803.21	.32	.32	.25	.11	
S.D.:	858.06	1270.72	1832.22	1548.60	1674.97	.48	.48	.44	.31	

Sources: For GNPc95: World Development Report: 1996, Tables 1 and 1a. Earlier levels calculated from World Development Report: 1996, Tables A.2 and A.4 (closest periods). Dominant cultures are Western Christian (Roman Catholic or Protestant), Eastern Orthodox Christian, Moslem, and Confucian (cf. Huntington, 1996: Map 1.3).

Table 2
Correlation coefficients (Pearson and Spearman)

Econ. Growth:	GDP7180	GDP8189	GDP9093	GDP9395
GDP7180	1.00	1.00		
GDP8189	-.04	-.16	1.00	1.00
GDP9093	-.30	-.14	<u>.54**</u>	<u>.38*</u>
GDP9395	-.19	-.04	.17	.02
			<u>.47**</u>	<u>.50***</u>
				1.00
Investment				
GD180	-.29	-.27	<u>.10</u>	<u>-.10</u>
GD190	.07	-.07	<u>.09</u>	<u>.04</u>
GD194	-.42	-.26	<u>.64**</u>	<u>.21</u>
			<u>.27</u>	<u>.28</u>
			<u>-.36*</u>	<u>-.27</u>
			<u>.66***</u>	<u>.41*</u>
				<u>.45*</u>
				<u>.37</u>
				<u>.00</u>
				<u>.11</u>
				<u>.12</u>
				<u>-.05</u>
Economic Level				
GNPC71	<u>-.55**</u>	<u>-.61**</u>	<u>-.53**</u>	<u>-.38</u>
GNPC81	-.30	-.28	<u>-.59***</u>	<u>-.57**</u>
GNPC90	-.30	-.29	<u>-.49**</u>	<u>-.48*</u>
GNPC93	-.36	-.26	<u>-.36*</u>	<u>-.35</u>
GNPC95	-.33	-.22	<u>-.38*</u>	<u>-.40*</u>
			<u>-.14</u>	<u>-.05</u>
			<u>-.31</u>	<u>-.29</u>
			<u>-.08</u>	<u>-.09</u>
			<u>.17</u>	<u>.20</u>
			<u>.19</u>	<u>.22</u>
				<u>.15</u>
				<u>.06</u>
				<u>.04</u>
				<u>-.20</u>
				<u>.05</u>
				<u>-.12</u>
				<u>.12</u>
				<u>-.08</u>
				<u>.28</u>
				<u>.11</u>
Religion/Culture				
WEST	-.29	-.34	<u>-.37*</u>	<u>-.43**</u>
ORTH	.21		<u>.66***</u>	<u>-.05</u>
MOSLEM	.10	-.34	<u>-.08</u>	<u>.01</u>
CONFUC	-.09	.03	<u>.68***</u>	<u>.55**</u>
			<u>.02</u>	<u>.11</u>
			<u>-.26</u>	<u>-.24</u>
			<u>.46**</u>	<u>.35*</u>
			<u>-.33*</u>	<u>-.36*</u>
			<u>-.44**</u>	<u>-.34*</u>
			<u>.40**</u>	<u>.47**</u>

Notes: * $p < .10$, ** $p < .05$, and *** $p < .01$, all two-tailed. Underlined coefficients are those of economic factors that might be causally related to (subsequent) economic growth. Since dominant culture did not change in the short term, all relationships are potentially causal.

Hypothesis (3), that culture matters, is supported and extended beyond the specifics that Western Christian and Confucian cultures should benefit second world nations in their transitions from plan to market (after 1989) and that Orthodox Christian and Moslem cultures are disadvantageous. By extension, in the period prior to 1990, the Orthodox culture—that of Russia, the dominant participant in the USSR, and shared as dominant religious background and culture by eight other post-1990 nations—might have conveyed some advantage in the

coordinated CMEA economic system (of the Council for Mutual Economic Assistance of nations led by the USSR). The positive and significant Spearman correlation in Table 2 for Orthodox culture with economic growth rates in the 1970s, when the CMEA continued to operate successfully, supports this advantage of common culture with the USSR leadership.

As shown in Table 2, beginning in the 1980s—following the conclusion of China's Cultural Revolution and the initiation of Deng Xiaoping's economic reforms—and for all subsequent periods, Confucian/Buddhist culture has been significantly and positively related to economic growth rate across the data available for second world nations, supporting this part of *hypothesis* (3). For further support using more refined data, see Franke, Hofstede, and Bond [19].

Effects of Western Christian culture during the pre-transition decade of the 1980s (outside East Asia) were shown to be *negative* and significant in Table 2. Disaffection with political and economic restrictions was particularly severe and early in nations such as Poland that did not identify with the cultural values and aims of Soviet leadership in the Council for Mutual Economic Assistance and in the military Warsaw Pact, leading to political and economic disorder. But during the turnaround years of 1993–95 (the latest for which data were provided), there are significant positive correlation coefficients of Western Christian culture with economic growth rates. *Hypothesis* (3) is supported in this final period, with Western Christian and Confucian nations growing more rapidly, and Orthodox and Moslem nations growing less rapidly or even declining.

In the four regression equations of Table 3, the three hypothetical explanations of second world economic growth differences among nations that were tested individually in Table 2 now are evaluated jointly. EQUATIONS ONE and TWO for the 1970s and 1980s support *hypothesis* (2), showing significant convergence effects up to the time of collapse of the second world economic structure. During the difficult years of deceleration in and early transition from the communist system, EQUATION TWO for the 1980s and EQUATION THREE for 1990–93 support *hypothesis* (1), showing negative effects of investment in second world economies.

Supporting *hypothesis* (3), in all but the first equation (with data prior to reforms in China), Confucian culture enters equations as a positive factor explaining greater economic growth. In the turnaround period of 1993–95, EQUATION FOUR presents both Western Christian culture and Confucian culture as explanatory variables. Of course, the measures of dominant religion/culture are ipsative, in that having one excludes the other three. That only two of the four cultural indices are included in EQUATION FOUR's multiple regression thus does not exclude the others as important. In support of the full *hypothesis* (3), that transformation and economic growth are facilitated by Western Christian and Confucian/Buddhist cultures and retarded by Orthodox Christian and Moslem

cultures, the correlations of Table 2 for 1993–95 economic growth also show negative influences of Moslem and Orthodox culture.

Table 3

Regression of economic growth on investment, economic level, and culture

EQUATION ONE:

1971-80 Economic Growth Rate:

$$\text{GDP7180} = 11.24 - 0.00298 \text{GNPc71}$$

t = -2.35
(p = .0353)

n = 15 R² = 29.79%

EQUATION TWO:

1981-89 Economic Growth Rate:

D
P
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1
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9

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5
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9
6
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C-
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8G
D
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8
0-
0
.0
0
0
6
6
0G
N
P
c
8
1

t = 5.18 (p = .0001)	t = -3.08 (p = .0076)	t = -2.41 (p = .0292)
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n = 19	R ² = 77.78%	cR ² = 73.33%
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 EQUATION THREE:

1990-93 Economic Growth Rate:

GDP9093 = 0.351 + 16.55 CONFUC - 0.409 GDI90
t = 4.01 t = -2.48
(p = .0006) (p = .0211)

$$n = 25 \quad R^2 = 49.68\% \quad cR^2 = 45.11\%.$$

EQUATION FOUR:

1993-95 Economic Growth Rate:

$$\text{GDP9395} = -8.628 + 12.25 \text{ WEST} + 16.91 \text{ CONFUC}$$

$$\begin{array}{cc} t = 3.91 & t = 3.60 \\ (p = .0007) & (p = .0015) \end{array}$$

$$n = 27 \quad R^2 = 48.50\% \quad cR^2 = 44.21\%.$$

Note: Stepwise regression in order of entry, with $p < .05$ and tolerance $> .60$ (multicollinearity $< .77$; cf. Franke 1980: 1011, 1014; Franke, Hofstede, and Bond 1991: 167).

In Table 3, the regression equation for 1971–80 explains 30% of the variance in second world nations' economic growth rates on the basis of convergence alone (catching up by poorer nations within the communist alliance)—*hypothesis* (2). The regression equation for 1981–89, just prior to the communist breakup, explains 78% of the variance in economic growth rates, supporting at least parts of all three hypotheses: Positive effects of Confucian culture—*hypothesis* (3), negative effects of investment—*hypothesis* (1), and negative effects of already achieved economic status, or convergence—*hypothesis* (2). During 1990–93, the regression result explains 50% of the growth variance utilizing Confucian culture—*hypothesis* (3)—and misinvestment—*hypothesis* (1). Finally, the regression equation for 1993–95 explains 48% of growth variance utilizing only the *hypothesis* (3) variables of Western Christian and Confucian cultures. By this time, the overinvestment of the communist decades had diminished in importance, so that investment ratio (GDI) no longer was significant. By 1993, economic collaboration within the CMEA framework had ceased, eliminating convergence as an explanatory variable (although there have been attempts by Russia to resurrect collaboration through formation of the Council of Independent States).

III. CONCLUSION

During the 1970s, 1980s, and early 1990s, the second world nations' collective and individual economic environments changed radically. Different explanations are needed to make sense of performance advantages in each decade: During the 1970s, when communist nations continued to perform well under Soviet leadership, collaboration under Orthodox-culture auspices helped the poorer nations to grow more rapidly. In the 1980s, second world countries came under increased pressure from military, scientific, technological, and other advances in

the West; they were weighted down by internal problems of corruption, pollution, and dissent, and Soviet leadership lost the will to maintain union by force. Growth declined and the second world monolith fragmented. Oddly, given the political and economic disruption in this period, most of the 1980s economic growth variance among these nations can be explained by utilizing all three of the stated hypotheses: Confucian culture was a positive influence and Western culture (just before the breakup) was disruptive, and overinvestment held back economic performance, while support for poorer economies (convergence) continued.

With the collapse of the communist convergence club about 1990, convergence halted and, with the diminishment of the over- and misinvestment that characterized an economic system not directed to the criterion of return on investment, by the mid-1990s only culture remained to explain differences in economic success.

Since cultural change cannot be imposed and seems to occur over centuries, it appears that Orthodox and Moslem societies may require innovative approaches for further economic development as part of the world market structure. Convergence of some Orthodox and Moslem formerly second world nations may occur through a Russian-led Council of Independent States, eventually with more rapid development for less developed members. Convergence with market economies and rapid economic development seem imminent for other formerly second world nations whose cultural background and proximity to advanced Western nations allow their early incorporation in the European Union. Adoption of modern technologies, tied to excellence of scientific and engineering education in some formerly second world nations, may lead to positive economic returns from future investment.

This analysis of World Bank data for second world nations describes differences in performance and provides explanations of these differences over a turbulent 24-year period. It suggests that cultural differences have influenced ease of the transformation from plan to market, and that strategies for economic success in the future require adaptation to these differences of human perspective.

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