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**Individualism, Opportunism, and
the preference for direct foreign
investment across cultures**

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Investment Across Cultures

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Abstract

This article argues that differences in the preference for direct foreign investment across countries is explained by differences in the degree of individualism of the members of these societies. Individualism increases perceptions of opportunism and the transaction costs of exporting. These perceptions are projected by investors on their counterparts because of false consensus, leading squared individualism ratings to determine the preference for foreign direct investment. Squared individualism scores are found to explain 46.1% of the variance in the tendency to engage in foreign direct investment across 25 countries. Adding economic factors - technology and wealth - improves the equation so that it explains 62.5% of the variance.

Keywords: Direct foreign investment, culture, transaction cost economics.

A company seeking to supply a foreign market must make two choices. It must decide whether to supply the market by exporting from existing plants in other countries, or to engage in the production in that market. Assuming that production within the foreign country is called for, the company must decide whether it should make a capital investment or license its proprietary expertise and intangible assets to a local firm [Contractor, 1984]. This paper is concerned with the first choice.

Traditional theories argue that the direct foreign investment choice is made in response to economic factors, such as barriers to entry and patterns of oligopolistic behavior. However, since economic factors do not explain all of the variance in preferences for direct foreign investment across countries, it is possible that the cause of these differences is also cultural.

There is evidence which supports this notion that non-rational forces influence the decision to engage in direct foreign investment. Several surveys of how firms actually make the entry mode decision [reviewed in Robinson 1978] indicate that few companies make a conscious, deliberate cost/benefit analysis of the options.

Three studies isolate the influence of culture on mode of entry. Johanson and Vahlne [1977] describe investigations by researchers at the University of Uppsala which linked the foreign direct investment decision to "psychic distance" between countries. Puxty [1979] speculated on the relationship between cultural differences and ownership policies regarding overseas subsidiaries. However, as Kogut and Singh [1988] note, neither of these studies laid out systematically how cultural differences influence entry choices or provided large-sample statistical evidence.

One study that looks systematically at how cultural differences influence differences in preferences for direct foreign investment is that of Kogut and Singh, [1988]. This study argues that uncertainty avoidance is the operative cultural variable in determining the choice between joint venture and greenfield entry, the second of the two choices outlined above.

The purpose of this article is three-fold: First, it seeks to provide a large-sample statistical analysis of how culture affects the decision to engage in direct foreign investment to supply a market rather than to meet its needs through exports. Second, it applies Kogut and Singh's theory of uncertainty avoidance to the choice of direct foreign investment over exporting and tests it against an alternative theory - one that argues that differences in individualism explain differences in preferences for direct foreign investment. Third, the study examines the effect of these cultural variables on the preference for direct foreign investment once traditional economic explanations - wealth, technology, and product differentiation - have been taken into consideration.

Literature Review

Starting with Hymer [1960], the dominant approach in the direct foreign investment literature - that of industrial organization - has argued that the choice of whether to serve a market by direct foreign investment or exporting is determined by proprietary advantages possessed by the firm

[Kogut and Singh, 1988]. These advantages may be in the form of a unique or differentiated product which commands revenues superior to competing products in the marketplace. Or it might be that the firm possesses more efficient production, administration, and distribution techniques that give it a lower cost for a product than its competition. Or it may be that the company possesses a strong patent or trademark [Contractor, 1984]. According to industrial organization theory, the possession of proprietary intangible assets confers on their owners an advantage over local enterprises, which allow it to engage in direct foreign investment [Calvet, 1981].

Caves [1971] argues that these advantages operate not only at the firm level, but at the industry level as well. Caves [1974], Severn and Lawrence [1974], and Mansfield, Romeo, and Wagner [1979] reported that foreign direct investment tends to be associated with R&D intensity at the industry level. Kim and Lyn [1987] found this to be true for foreign investors entering the U.S. market.

The transaction cost economics approach to the mode of entry question differs in explanation from that of industrial organization, but hypothesizes similar results, that greater control is associated with proprietary products or processes. The theory here is that the classic problem of the valuation of information arises: The buyer cannot know what the knowledge is worth (what bid to make) unless the knowledge is disclosed, at which time the acquirer need not pay for it. This obliges information holders to exploit it themselves, resulting in high levels of ownership, and hence control of a foreign business entity [Anderson and Gatignon, 1986].

Whether the explanation for the association between direct foreign investment and technology lies in industrial organization or in transaction cost economics, the fact remains that it exists. Moreover, Calvet [1981] explains that rates of technological and technical innovation may vary among nations, thereby placing some countries in leadership positions with respect to new products and processes. Countries where technology is relatively advanced would find profitable opportunities abroad and would, therefore, have an incentive to invest overseas.

There is also reason to believe that the presence of non-technologically based advantages, such as brand names or trademarks, will be associated with greater amounts of direct foreign investment. Davidson [1982] argues that firms will take control to prevent their brand name from degradation by free-riders or to prevent the local operation from using the name in an inconsistent manner, thus diluting or confusing the international positioning of the brand [Holton, 1971]. Caves [1982] highlights the danger of local partners, who have less to lose from degrading a brand than does the entrant and finds that firms demand higher ownership levels when standardization of the product's design, style, quality and name is part of the entrant's strategy. Anderson and Gatignon [1986] state that a firm is advised to exert more control for valuable brand names.

Vernon [1966] presented the product cycle theory of direct foreign investment in which he argued that direct foreign investment occurs in a later stage of a product's life cycle than does exporting. Vernon explained that a country innovates because its wealth drives it to

develop products that meet its need for labor saving devices and technologically advanced products. After this innovation occurs, the innovator services foreign markets through exports. As the technology matures and foreign markets develop, companies begin building plants overseas, and exports may be displaced by production of foreign subsidiaries.

Hofstede [1980] found strong positive correlations ($r=.82$) between individualism and per capita GNP. According to Hofstede, individualism is related to wealth, which, in turn, presupposes higher technology. Since Vernon's product cycle theory argues that higher levels of wealth are what drive the leading industrialized countries to develop the innovations which later drive them to engage in direct foreign investment, and since Hofstede found a relationship between wealth and direct foreign investment, we must differentiate between wealth and individualism as drivers of direct foreign investment, though the two themselves are related. It may be that individualism is the cause of greater wealth, which, in turn, creates greater technology and more direct foreign investment. However, what we are after here is the direct effect of individualism as a cultural trait on the choice to engage in direct foreign investment.

The above mentioned economic approach - whether that of industrial organization, transaction cost economics, or the product cycle theory - is fruitful in explaining firm and industry level differences in preferences for direct foreign investment among American firms, but it does not account for all of the variance in differences in preferences for direct foreign investment across countries. Moreover, observations on non-economic national differences among countries in their propensity to engage in direct foreign investment have been made by many authors, including Robinson [1961], Brooke and Remmers [1972], Franko [1976] and Stopford and Haberich [1978], in relation to the lower frequency of overseas joint venture activity by American firms as compared to that of European firms. In his study on foreign acquisitions, Wilson [1980] found that there were significantly different patterns of acquisition among American, British and Japanese corporations.

Kogut and Singh [1988] present a theoretical argument for uncertainty avoidance as the cultural variable behind differences in preferences for mode of entry once the decision to enter has already been made. They argue that acquisitions confront firms with greater uncertainty over the management of foreign operations. Therefore, firms from countries characterized by relatively high uncertainty avoidance in their organizational practices will tend towards joint ventures or greenfield investments. Controlling for firm and industry level effects, they found that the cultural trait of uncertainty avoidance was related to a preference for joint ventures over acquisitions or greenfield approach to investment.

It is the opinion of the author of this paper that the emphasis on uncertainty avoidance as the operative cultural variable behind direct foreign investment is subject to some reservations. An acquisition does not necessarily create greater uncertainty than a joint venture, and, in many cases, actually reduces uncertainty. With high technology products, for example, an acquisition lowers uncertainty by reducing the probability that proprietary technology will be leaked to a competitor.

Similarly, joint ventures increase uncertainty as regards organizational functioning since they require the agreement of the participating parties for decisions to be implemented; whereas acquisitions eliminate such uncertainty by allowing the buyer to dictate the new operating rules. Thus, acquisitions reduce the uncertainty of implementing decisions that is present with joint ventures, and the uncertainties that result from the merging of two corporate cultures and systems.

An alternative theoretical explanation for cultural differences in preferences for direct foreign investment is the individualism of a society. Such a theory is based on cultural differences in perceptions of transactions costs. As was discussed above, the importance of transaction costs for an MNC's choice of entry mode has been extensively discussed in the literature [Anderson and Gatignon, 1986; Buckley and Casson, 1976; Hennart, 1982; and Hill and Kim, 1988. According to this theory, absent transactions costs, MNCs favor exporting or licensing. However, if an MNC gets an export partner or a licensee, it runs the risk of the licensee or partner disseminating information or using it for purposes other than that for which it was intended. The consequence in both situations is a reduction in the quasi rent that the MNC can earn from its proprietary know-how [Hill et al, 1990].

The risk of dissemination can be insured against if both parties enter into a comprehensive contingent claims contract that specifies the rights and obligations of both parties to the agreement [Williamson, 1975]. However, in a complex and uncertain world populated by economic actors of bounded rationality and opportunistic tendencies, the cost of drafting, negotiating, monitoring and enforcing such contracts are non-trivial [Williamson, 1975]. By establishing a wholly owned subsidiary, a firm can reduce these transaction costs. Once information is contained within the structure of a single firm, the risk of dissemination is reduced, and the need for contingent contracts is eliminated.

However, internalizing operations within a firm imposes certain governance costs. These include the cost of administering operations in different locations, transportation and communications costs, and the cost of incorrectly transmitted information. Firms must balance the transaction costs with the governance costs. As Buckley and Casson [1976] argue, direct foreign investment occurs when the transactions costs of the market solution of exporting exceed the governance costs. Thus, as Williamson [1979] suggests, the degree of integration proceeds from complete non-integration (in the case of export contracts) to complete integration (in the case of direct foreign investment).

Williamson [1975] explained that one of the determinants of transactions costs is the opportunism of the players in a market. Opportunism is a form of calculative behavior that requires one party to take advantage of a situation for reasons of self interest rather than for the good of the group, and to violate the letter and spirit of an agreement. Etzioni [1975] found that there is a more moral involvement with the organization where collectivist values prevail, and more calculative involvement where individualist values prevail. Since individualistic societies are more calculative and opportunistic than group oriented societies, managers in individualistic societies will see higher transaction costs for any given transaction, domestic or international, and will be more likely to internalize it. Thus,

individualistic societies will sense that transactions costs exceed governance costs more quickly than will group oriented societies and will shift sooner from exporting to direct foreign investment.

An examination of the questions making up Hofstede's scale reveals the calculative, opportunistic attitudes of the more individualistic respondents. Respondents in individualistic cultures were more likely than respondents in collectivist cultures to make the following statements [Hofstede, 1980]:

- (1) Staying with one company is *not* desirable, and the better managers in a company are *not* those that have been in the company the longest time.
- (2) Interesting work is not as important as earnings.
- (3) For getting ahead in industry, knowing influential people is usually more important than ability.

They were less likely to make the statement, "It is important to me to work with people who cooperate well with one another," [Hofstede, 1980: 239].

It is the belief of the author of this paper that the relationship between direct foreign investment and individualism should not be direct but should be exponential. There are at least two parties to any business transaction, so the effect of the culture of the participants on the resulting transactions is a function of the effect of the culture of one multiplied by the effect of the culture of the other. Ross, Green, and House [1977] found that people tend to attribute their own behavior to others, a phenomenon they called false consensus. Applying this concept to the decision to supply a market, we argue that business people are likely to project their individualism and opportunism on their counterparts when choosing whether to export or engage in direct foreign investment. Consequently, the effect of culture on the decision to engage in direct foreign investment and internalize the export operation can be modelled as the square of a country's individualism scores. (It is important to note that it is the culture of the investors, not the hosts, that determines the perception of the transaction costs since it is they who make the decision whether to export or invest.)

In short, the author of this paper agrees with Dunning [1977] that for foreign direct investment to occur, not only must firms possess superior resources (as in Hymer's [1960] argument), they must also have the desire and the ability to internalize the advantages which result from their possession. We add, however, the argument that the desire to internalize the advantages is a function of the degree of individualism and opportunism of a society.

Hypotheses

This paper tests three hypotheses regarding the cultural determinants of preferences for direct foreign investment.

- H1: Differences in the preference for outward direct foreign investment across societies can be explained by differences in the degree of uncertainty avoidance felt by its citizens.
- H2: Differences in the preference for outward direct foreign investment across societies can be explained by differences

in the degree of individualism felt by its citizens.

- H3: Differences in levels of individualism explain differences in the preferences for outward direct foreign investment across societies even after differences in preferences resulting from differences in wealth, technology, and marketing advantages have been accounted for.

Methodology

This study examined 25 of 40 of the countries studied by Hofstede [1980] in his evaluation of cultural differences at a large multinational corporation. 15 of the countries could not be included because data on their direct foreign investment outflows, patents, or trademarks are not available. The Appendix shows the countries included along with the raw data.

The dependent variable was the ratio of the value of exports to gross outflows of direct foreign investment averaged over the period 1981-1988. Since exporting and direct foreign investment are alternative methods of engaging in international operations, the ratio between them would show the preference of a country for direct foreign investment while moderating for country size, and tendency to toward international trade and production. If countries do not differ in their preference for direct foreign investment, this ratio should be constant.

The data, collected from International Financial Statistics, was averaged over an eight year period to smooth out yearly variations in direct foreign investment outflows and exports. The reader interested in the IMF methodology for calculating exports and direct foreign investment outflows is referred to International Financial Statistics which explains it in detail.

The cultural independent variables are Hofstede's [1980] indices of uncertainty avoidance and individualism. Hofstede found that differences in national culture vary substantially along four dimensions. These dimensions were labeled uncertainty avoidance, individuality, tolerance of power distance, and masculinity-femininity. Hofstede created ordinal scales for countries for each of these dimensions based on a standardized factor analysis of questionnaires administered between 1968 and 1972 to 88,000 employees in more than 40 overseas subsidiaries of a major American corporation. Bias for differences in occupational positions among subsidiaries was controlled. As the study consisted of two questionnaires separated by a four year interval, it was possible to test for the reliability in scores over time; only questions showing greater than .5 correlation in scores were used to derive the scales [Kogut and Singh, 1988].

The economic independent variables were derived from two sources. Wealth was measured as per capita GNP in 1980 dollars. The data were taken from the 1981 *World Development Report*.

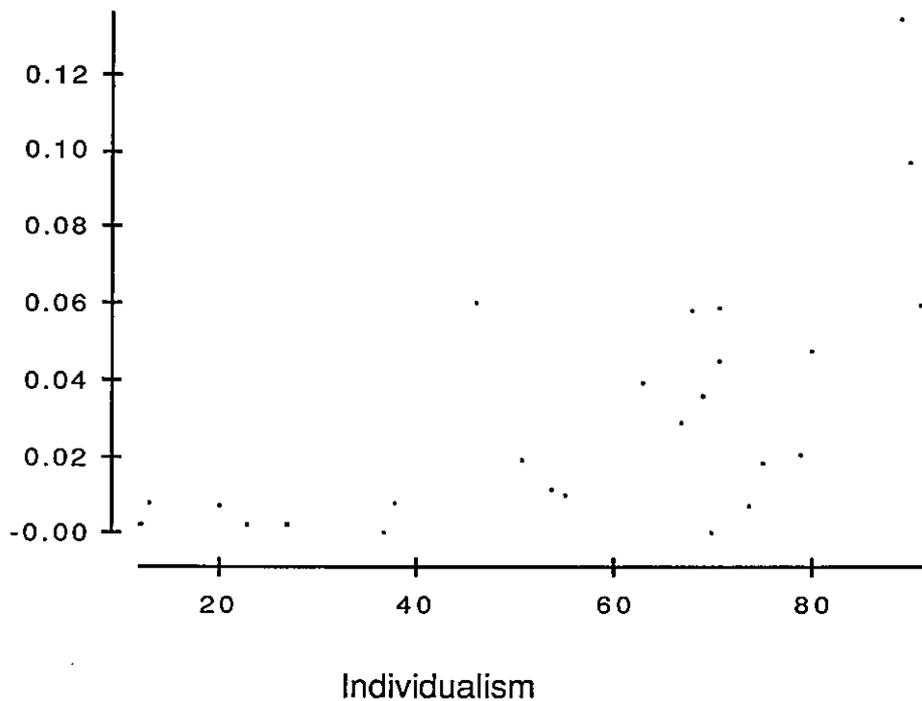
Technology was measured by the per capita number of invention patents granted to nationals in 1980; and marketing advantages were measured by per capita number of trademarks granted to nationals in the same year. Both were taken from Evenson's (1984) data. These data were calculated from various issues of *Industrial Property Statistical Report*.

For the purposes of this study, they were divided by the *International Financial Statistics*' figures on population for the relevant countries and years to provide a standardized figure for the per capita number of invention patents and trademarks.

Results

It appears that the preference of a nation to undertake direct foreign investment is an exponential function of the individuality of its people, as the individualism theory predicts. The graph below shows this relationship.

DFI/EXP



The regression equation that fits this function is significant at the .001 level, and explains 46.1 percent of the variance in preferences for direct foreign investment. The following table shows the regression specifications.

Table 1
Regression Specifications for Individualism Squared

Dependent variable is: DFI/EXP 81-88
 $R^2 = 48.3\%$ $R^2(\text{adjusted}) = 46.1\%$
 $s = 0.0245$ with $25 - 2 = 23$ degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	0.012877	1	0.012877	21.5
Residual	0.013780	23	0.000599	

Variable	Coefficient	s.e. of Coeff	t-ratio
Constant	-0.003490	0.0090	-0.388
IDV ²	0.000009	0.0000	4.64****

****Significant at the .001 level in a two-tailed test.

It appears that uncertainty avoidance is not an important factor in determining differences in preferences for direct foreign investment across cultures. Uncertainty acceptance, rather than uncertainty avoidance is correlated with preference for direct foreign investment ($r = -.293$), the opposite of what Kogut and Singh's theory would predict. By contrast individualism scores squared are correlated with preference for direct foreign investment ($r = .695$).

However, this data should not be interpreted as rejecting Kogut and Singh's results for three reasons. First, Kogut and Singh controlled for industry level differences, which this study did not. Therefore, it is possible that the different results reflect different industrial makeups of the countries studied here. Second, Kogut and Singh sought to explain the choice of entry mode, once the decision to engage in direct foreign investment was made. This study seeks to answer a different question - whether a firm should engage in direct foreign investment or serve a market through exports. The effect of culture on the two decisions may be different, although the author can see no theoretical reason why this should be the case. Third, the results on uncertainty avoidance in this study while signed in the opposite direction from those in Kogut and Singh's study, are not significant at the 5 percent level.

Table 2
Pearson Product-Moment Correlation

	DFI/EXP	GNP	Patents	Trade	UAI	IDV	IDV ²
DFI/EXP	1.000						
GNP/Capita	0.548	1.000					

Patents	0.572	0.564	1.000				
Trademarks	-0.075	-0.039	0.109	1.000			
UAI	-0.293	-0.426	0.027	0.161	1.000		
IDV	0.643	0.828	0.418	-0.008	-0.405	1.000	
IDV ²	0.695	0.826	0.357	-0.081	-0.453	0.978	1.000

The results also indicate that when one variable is applied alone to explain the direct foreign investment decision, individualism is a better predictor than wealth or technology. (This study did not find marketing advantages, measured as the per capita number of trademarks to be a significant predictor of direct foreign investment outflows.) Table 1 shows the simple regression specifications for individualism squared and direct foreign investment. Table 3 shows the simple regression analysis for wealth alone. Table 4 shows the simple regression analysis for technology and direct foreign investment flows. In simple regression analysis, individualism squared explains 16.3% more of the variance than does technology, and 19.2% more of the variance than does wealth.

Table 3

Wealth and Preference for Direct Foreign Investment

Dependent variable is: DFI/EXP 81-88
 $R^2 = 30.0\%$ $R^2(\text{adjusted}) = 26.9\%$
 $s = 0.0285$ with $25 - 2 = 23$ degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	0.007994	1	0.007994	9.85
Residual	0.018662	23	0.000811	

Variable	Coefficient	s.e. of Coeff	t-ratio
Constant	0.000179	0.0115	0.016
GNP/Capita	0.000147	0.0000	3.14***

***Significant at the .02 level in a two-tailed test.

Table 4

Technology and Preference for Direct Foreign Investment

Dependent variable is: DFI/EXP 81-88
 $R^2 = 32.7\%$ $R^2(\text{adjusted}) = 29.8\%$
 $s = 0.0279$ with $25 - 2 = 23$ degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	0.008725	1	0.008725	11.2
Residual	0.017931	23	0.000780	

Variable	Coefficient	s.e. of Coeff	t-ratio
Constant	0.012714	0.0079	1.61
Patents/Capita	0.000222	0.0001	3.35***

***Significant at the .02 level in a two-tailed test.

One question that can be answered a priori is whether the relationship between individualism and direct foreign investment runs from individualism to direct foreign investment or the other way around. Since direct foreign investment affects only a small percentage of the population of most countries (it is not a substantial portion of GNP, and relatively few people are engaged in it as compared to the total employment of a country), it is unlikely that direct foreign investment makes people more individualistic. Rather, we expect the causality to run in the other direction. That is, individualism drives certain cultures to engage in more direct foreign investment than others.

Hofstede's study showed that wealth and individualism were highly correlated ($r=.82$). Numerous studies already mentioned have shown the relationship between technology and direct foreign investment. As we have already mentioned, this study supports these relationships.

Given these relationships, one question that we seek to answer is whether the relationship between individualism and foreign investment is direct or occurs through the moderating variables wealth and technology. Tables 5 and 6 provide a number of clues which show that this relationship is at least partially direct. Simple regression equations of individualism squared and direct foreign investment show coefficients of individualism squared equal to 0.000009. When wealth is added in a multiple regression equation, the individualism squared coefficient increases to 0.000010, as the wealth variable is negatively correlated with direct foreign investment and has a coefficient of 0.000002. This suggests that most of the relationship between individualism and direct foreign investment is direct, not through the moderating variable of wealth. Moreover, as Table 8 indicates, when technology is included in these multiple regression equations, wealth takes on a statistically significant negative relationship with direct foreign investment, adding further support to this argument.

Table 5

Wealth and Individualism Squared as Explanations for Direct Foreign Investment

Dependent variable is: DFI/EXP 81-88
 $R^2 = 48.5\%$ $R^2(\text{adjusted}) = 43.9\%$
 $s = 0.0250$ with $25 - 3 = 22$ degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	0.012937	2	0.006468	10.4
Residual	0.013720	22	0.000624	

Variable	Coefficient	s.e. of Coeff	t-ratio
Constant	-0.002176	0.0101	-0.215
GNP/Capita	-0.000023	0.0001	-0.310
IDV ²	0.000010	0.0000	2.82***

***Significant at the .01 level in two tailed tests.

Table 6

Technology and Individualism Squared as Explanations for Direct Foreign Investment

Dependent variable is: DFI/EXP 81-88
 $R^2 = 60.3\%$ $R^2(\text{adjusted}) = 56.7\%$
 $s = 0.0219$ with $25 - 3 = 22$ degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	0.016084	2	0.008042	16.7
Residual	0.010572	22	0.000481	

Variable	Coefficient	s.e. of Coeff	t-ratio
Constant	-0.009010	0.0083	-1.08
Patents/Capita	0.000144	0.0001	2.58**
IDV ²	0.000007	0.0000	3.91****

****Significant at the .001 level in a two-tailed test.

**Significant at the .02 level in a two-tailed test.

The effect of technology on the relationship between individualism and direct foreign investment is more complex. A yet unpublished study by the author shows rank correlations statistically significant at the 0.0001 level between individualism and the per capita number of patents granted to nationals across a thirteen year period, suggesting that individualism makes some societies more innovative than others. The innovation and invention research [Maidique, 1980; Schon, 1966; Knight, 1987; Quinn, 1979] supports this argument, suggesting that individualistic people are more likely to invent and innovate than are group-oriented people; and Hlavacek and Thompson [1975] and Schon [1966] argue that groups tend to stifle innovation.

In this study, the coefficient of individualism squared drops from 0.000010 to .000007 when technology is included in the regression equation. This suggests that a significant portion of the effect of individualism on direct foreign investment occurs through the moderating variable of technology, but an even larger portion of the effect is direct. This argument is supported by Table 8 which shows a multiple regression equation which includes wealth, technology, and individualism squared. In this equation individualism scores and technology are both significant contributors to the preference for direct foreign investment.

Now we turn to an explanation of the effect of individualism and uncertainty avoidance on the preference for direct foreign investment once the economic factors of wealth, technology, and marketing advantages have been taken into consideration. As Table 7 indicates, a multiple regression of wealth, technology, marketing advantages, individualism squared, and uncertainty avoidance explains 61.2 percent of the variance in preferences for direct foreign investment across countries. The only two variables which are significant in this equation are technology and individualism, which are both significant at the 0.02 level in two tailed tests. Moreover, uncertainty avoidance is still negatively correlated with the preference for direct foreign investment,

though this correlation is not significant at the 0.05 level.

Table 7

Multiple Regression Equation for Direct Foreign Investment Preferences
With Economic and Cultural Variables Included

Dependent variable is: DFI/EXP 81-88
 $R^2 = 69.3\%$ $R^2(\text{adjusted}) = 61.2\%$
 $s = 0.0208$ with $25 - 6 = 19$ degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	0.018463	5	0.003693	8.56
Residual	0.008193	19	0.000431	

Variable	Coefficient	s.e. of Coeff	t-ratio
Constant	0.015029	0.0187	0.804
GNP/Capita	-0.000164	0.0001	-2.25*
Patents/Capita	0.000234	0.0001	3.57***
Trdmks/Capita	-0.000009	0.0000	-0.513
UAI	-0.000194	0.0002	-0.954
IDV2	0.000012	0.0000	3.90****

****Significant at the .001 level in a two-tailed test.

***Significant at the .01 level in a two-tailed test.

*Significant at the .05 level in a two-tailed test.

The best regression model to explain national differences in preferences for direct foreign investment includes wealth, technology and individualism squared. This equation explains 62.5% of the variance in the preference for direct foreign investment. We cannot draw inference from the individual variables in this equation because of the existence of multicollinearity. However, as Douglas (1987:182) explains, when we look at "the values of all the independent variables, we look at the impact of the independent variables as a group rather than individually. Thus it does not matter if individual coefficients are inaccurate because of multicollinearity since it the total effect ... that interests us." Table 8 shows this regression model.

Table 8

Best Regression Model of Differences in Direct Foreign Investment
Preferences Across Countries

Dependent variable is: DFI/EXP 81-88
 $R^2 = 67.2\%$ $R^2(\text{adjusted}) = 62.5\%$
 $s = 0.0204$ with $25 - 4 = 21$ degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	0.017907	3	0.005969	14.3
Residual	0.008750	21	0.000417	

Variable	Coefficient	s.e. of Coeff	t-ratio
Constant	-0.003062	0.0083	-0.370

GNP/Capita	-0.000145	0.0001	-2.09*
Patents/Capita	0.000209	0.0001	3.45***
IDV2	0.000012	0.0000	4.16****

****Significant at the .001 level in a two-tailed test.

***Significant at the .01 level in a two-tailed test.

*Significant at the .05 level in a two-tailed test.

Conclusion

The results indicate that cultural characteristics are indeed important in determining the tendency of a society to engage in direct foreign investment. However, the cultural characteristic that makes one society more likely than another to engage in direct foreign investment may not be the society's degree of uncertainty avoidance, but may be its tendency to engage in individualistic and opportunistic behavior.

The data on uncertainty avoidance, though not statistically significant, suggest a reexamination of how the traditional interpretation of uncertainty in the transaction cost economics literature is applied to direct foreign investment. Anderson and Gatignon [1986] define external uncertainty as the volatility of a firm's environment. Williamson [1979] hypothesizes that firms should react to volatility by avoiding ownership since it commits them to one operation that might not be appropriate when the next environmental shift occurs. Rather, a firm should retain flexibility and shift risk to outsiders [Anderson and Gatignon, 1986]. In societies where people are uncertainty avoiding, a firm's perceptions of these risks and its desire to shift them to outsiders should come at lower levels of external uncertainty than in uncertainty accepting societies. Hence, we would expect uncertainty avoiding societies to hang more tenaciously to the market approach (exporting); while we would expect uncertainty accepting cultures to engage in greater direct foreign investment. This explanation is consistent with the data found in this study.

However, it differs from how uncertainty traditionally is applied to direct foreign investment. According to Anderson and Gatignon [1986], internal uncertainty exists when the firm cannot accurately assess its agents' performance by objective, readily available output measures. This may occur when good measures of output are not available, or when the relationship between inputs and outputs is ill-understood, making it difficult to specify what performance level to expect. Uncertainty internal to the firm makes control more desirable regardless of the level of asset specificity involved [Williamson, 1981]. When performance cannot be specified or measured easily, firms can monitor inputs instead of outputs. Further, firms can use a variety of subtle incentives to develop goal congruence and loyalty. Thus, employees may act in the firm's best interest even if a firm cannot precisely specify what to do [Anderson and Gatignon, 1986].

It may be that cultural differences in uncertainty avoidance are more important in affecting perceptions of external uncertainty rather than internal uncertainty. Or it may be that the impact of the sum of internal uncertainty and external uncertainty is such that the relationship between uncertainty and uncertainty avoidance as a cultural trait moves in the direction of the internal uncertainty-uncertainty avoidance relationship. Or it may be that internal uncertainty is relevant to the

acquisition versus joint venture decision, and external uncertainty applies to the exporting versus direct foreign investment decision. In any case, more work needs to be done to examine the impact of cultural differences in uncertainty avoidance on the perception of transaction costs and the preference for direct foreign investment.

The relationship between individualism and direct foreign investment indirectly supports the transaction costs theory as it is consistent with the view that differences in transaction costs are culturally determined, but that the relationship between transaction costs and governance costs ultimately drives the decision to engage in direct foreign investment. It also indicates the importance of the perceptions of these costs rather than the actual costs since it appears that the observed relationships were consistent with the view that investors project their own degree of individualism and opportunism onto their counterparts when making the foreign investment decision.

Drawing inference from the relationship between individualism, wealth, and direct foreign investment is somewhat trickier. Alone, wealth and technology explain a large amount of the variance in the decision to engage in direct foreign investment over export, but the cultural trait of individualism explains an even greater amount of the variance. Thus, when the choice is made for a single variable to explain the cross-national differences in the preference for direct foreign investment, the winner is individualism.

When technology, wealth and individualism are combined, individualism still has a direct effect in determining direct foreign investment. Individualism also appears to influence direct foreign investment through the moderating variable of technology; and technology adds its own, non-culturally determined, effect on the preference for direct foreign investment. Thus, this study supports the findings of economists on the importance of technology as a factor in national differences in the preference for direct foreign investment. However, it suggests that cultural factors are also at work.

In interpreting the results of this study, it is important to keep in mind its weaknesses. The study does not control for firm, industry or government effects. It is possible that once the relative industrial composition of different nations and government policies are taken into consideration, the cultural effect becomes non-existent. Further research needs to be undertaken to determine if this is the case. In addition, the study uses cultural values measured in the 1970s. Work needs to be done to update the measures of cultural values.

The results have a wider implication outside of the decision to engage in direct foreign investment. The above study suggests that cultural characteristics influence economic choice across countries. Traditional approaches to the study of direct foreign investment concentrate on firm and industry level factors, even though there are significant differences in the preferences of countries for direct foreign investment. Often this research [Davidson, 1980; Gatignon and Anderson, 1987] uses American data to draw universal conclusions about direct foreign investment, ignoring the differences between Americans and other nationalities in their preference for direct foreign investment. The above results show the importance of cultural differences in the decision to engage in direct foreign investment, and indicate the need to use universal data sources

to make universal claims about direct foreign investment.

Appendix

Country	DFI/EXP 81-88	GNP/ Capita	Patents/ Capita*	Trademarks/ Capita*	UAI	IDV
Australia	.0966	282	43.4	130.1	51	90
Austria	.0104	201	163.6	444.4	70	55
Belgium	.0188	272	85.4	450.8	94	75
Brazil	.0078	42	3.0	1174.3	76	38
Canada	.0479	370	63.4	370.4	48	80
Chile	.0021	72	5.5	182.2	86	23
Colombia	.0088	34	1.4	22.4	80	13
Denmark	.0074	319	37.6	259.6	23	74
Finland	.0394	239	91.5	146.5	59	63
France	.0453	310	157.9	699	86	71
Gr. Britain	.1349	227	158.4	60	35	89
Germany	.0291	293	160.6	56.1	65	67
Ireland	.0000	136	7.3	49.1	35	70
Israel	.0121	196	80.3	67.1	81	54
Japan	.0605	192	328.7	359.4	92	46
Norway	.0362	286	67.3	113.2	50	69
N. Zealand	.0207	270	42.8	163.8	49	79
Portugal	.0025	66	9.7	105.6	104	27
Singapore	.0069	92	0.42	326.7	8	20
Spain	.0199	102	40.1	300.51	86	51
Sweden	.0593	404	168.0	190	29	71
Switz.	.0585	332	226.9	378.8	58	68
Turkey	.0000	31	0.8	25.5	85	37
USA	.0599	476	166.2	77.5	46	91
Venezuela	.0025	98	3.8	16.3	76	12

* The patent and trademark data have been multiplied by one million to aid the readability of the index.

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