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Hofstede and Schwartz's models for classifying individualism at the cultural level: their relation to macro-social and macro-economic variables[1]

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One of the most used dimensions for comparing human values at the cultural level is that of *indivi - dualism-collectivism*. It was originally proposed by Hofstede (1984), and continues to be employed in current theoretical models such as those of Triandis (1995) and Schwartz (1994). Although the Hofstede and Schwartz models have been compared in previous studies, there is little data that permits an evaluation of their explanatory potential with respect to macro-social and macro-economic variables. Furthermore, even when there is evidence to the relation of the *individualism-collectivism* dimension with others, such as *power distance*, *autonomy* and *conservation*, they are not usually treated in the same study. In this sense, our work compares these two models in relation to the values of *individualism-collectivism*. With this goal in mind, the same 20 countries that have scores in Hofstede and Schwartz's studies on these dimensions are compared in relation to a group of macro-social (birth rate, human development, illiteracy rate, etc.) and macro-economic (gross national product, rate of agricultural activity, rate of inflation, etc.) variables. Results show that the Hofstede model is better explained by macro-economic variables while the Schwartz model is better accounted for by macro-social variables.

Los modelos de Hofstede y de Schwartz para clasificar a las naciones en Individualismo-Colecti - vismo: su relación con variables macro-sociales y macro-económicas. El individualismo- colectivismo es una de las dimensiones más utilizadas para comparar a un nivel cultural los valores humanos. Fue propuesta originalmente por Hofstede (1984) y continua siendo utilizada en modelos teóricos contemporáneos como los de Triandis (1995) y Schwartz (1994). Aunque los modelos de Hofstede y Schwartz han sido comparados en previos estudios hay poca evidencia que evalúe su capacidad explicativa en relación a variables macro-sociales y macro-económicas. Mas aun, aunque hay evidencia de la relación de la dimensión de *Individualismo-Colectivismo* con otros, como la *distan - cia de pod*er, la *autonomía* y el *conservacionismo,* estas dimensiones generalmente no se utilizan en el mismo estudio. En este mismo sentido nuestro trabajo comparará los dos modelos (Hofstede y Schwartz) en relación a los valores *Indidividualismo-Colectivismo.* Para cumplir este objetivo, 20 países que poseen puntuaciones de las dimensiones de Hofstede y Schwartz son comparados en relación a un grupo de variables macro-sociales (tasa de natalidad, desarrollo humano, tasa de analfabetismo, etc.) y macro-económicas (producto nacional bruto, tasa de actividad agrícola, tasa de inflación, etc.). Los resultados muestran que el modelo de Hofstede se explica mejor por las variables macro-económicas, mientras que el modelo de Schwartz se explica mejor por las variables macro-sociales.

There are various theoretical approaches to the structure of values at the cultural level, such as those employed by Hofstede (1984), Triandis (1995) and Schwartz (1994). Hofstede proposes a one dimensional structure called simply *individualism-collecti - vism*; those cultures that emphasize the autonomy of the person are grouped under individualism, while those cultures whose most important values place emphasis on the dependency of the individual with respect to in-groups are clustered under collectivism. Triandis, Bontempo, Villareal, Asai and Lucca (1988) initially began, like Hofstede, with a unidimensional understanding, but recently (Triandis, 1995; Triandis & Gelfand, 1998) have progressed toward the recognition of bi-dimensionality. Schwartz (1990, 1994), criticizes this dychotomical assignment of values to either individualism or collectivism, and suggests that some values can serve both individual and collective interests. Given that our study focuses only on the comparison of the Hofstede and Schwartz models, we will now proceed to explain each one of them.

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Individualism-Collectivism at the Cultural Level: The Hofstede and Schwartz Models

The Hofstede Model

With the publication of *Culture's Consequences*, Hofstede (1984) describes at the cultural level one of the first theoretical orientations towards the structure of values which has *individualism* as one of their components. This author conducted an important study of values associated with work among employees of a multinational company with branches in more than 40 countries. The following four factors were sufficient to distinguish among cultures:

1. *Power Distance*: Degree to which members of a society accept as legitimate that power in institutions and organizations are unequally distributed.
2. *Avoiding Uncertainty*: Degree to which members of a society are uncomfortable with uncertainty and ambiguity. This leads them to support beliefs that promise certainty and to maintain institutions that protect conformity.
3. *Masculinity/Femininity*: A preference for accomplishment, heroism, severity and material success as opposed to a preference for relationships, modesty, attention to the weak and quality of life.
4. *Individualism/Collectivism*: A preference for closed social surroundings in which it is understood that individuals must care for themselves and only their closest relations as opposed to a dependence on groups of which individuals form part.

Individualism, considered as one dimension with two poles, is defined as an assessment of the emotional independence and autonomy of the person. Culture, in this case the mean of a country, is scored high in this factor if there are favorable responses to items such as: «Have a job which leaves you sufficient time for your personal or family life», «Have considerable freedom to adapt your own approach to the job», and «Have challenging work to do – work from which you can get a personal sense of accomplishment.» A country with a high score in *collectivism* gives more importance to factors such as: «Have training opportunities (to improve your skills or learn new skills)» and «Have good physical working conditions (good ventilation and lighting, adequate work space, etc.).» In other words, they value more what the organization can do for the individual.

According to Hofstede, *individualism* would reflect the emotional independence of the person with respect to groups and organizations, while its absence would be similar to an emotional dependence and a feeling of «us.» Individualism is inversely related to the *power distance* dimension, which is -.64 in Hofstede's original study, and -.70 in the sample of teachers and -.75 in that of students used in Schwartz's cross-cultural study (Schwartz, 1994). Therefore, at least at a cultural level, *individualism* is the opposite of the acceptance of hierarchy and of ascribed social inequality.

Individualism has been erroneously mistaken with the *masculinity-femininity* dimension. Hofstede (1998) clarifies that while both dimensions share a relation with a conception of the self, the individualism dimension is related to the individual's position in society while the masculinity-femininity dimension is related to the individual's concept of masculinity or femininity. However, they diverge in a number of aspects. While individualism is connected to the autonomy or dependency of individuals from groups, the masculinity-femininity dimension is related to ego enhancement versus relationship enhancement regardless of group ties. Moreover, unlike individualism-collectivism, masculinity-femininity is unrelated to wealth.

The Schwartz Model

Schwartz (1990) points out that the individualism-collectivism dichotomy has enjoyed great popularity in cross-cultural psychology, but at the same time it has obscured important differences among some values which are normally associated with it. To this end, he presents three criticisms of why it is not an adequate typology: a) there can be values that, because of their nature, serve both personal interests (individualism) and group or collective ones (collectivism). This would be the case of those values that share a motivation for the search for personal, family or national security; b) the dichotomy is insufficient because it ignores values that serve collective goals, but are not characteristic of the in-group (i.e., equality for all, social justice, preserving nature, and a world of beauty). The need to include these values is due, according to the theory (Hui, 1988; Triandis et al., 1988), to the fact that often collectivists show less interest than individualists for strangers. According to Schwartz (1990), if collectivism is defined in function of the in-group, then one must distinguish between in-group collectivism and universal collectivism; and c) the dichotomy implies a polar opposition, and there can be individual and collective interests that are not in conflict. For example, hedonism, self-direction or stimulation, are values that serve the interests of the person but not necessarily at the expense of any collectivity. These same values can be placed by leaders or members of a collectivity as goals for all members.

Schwartz develops an alternative theory of the structure of cultural values to that developed by Hofstede (1984). Cultures can be accounted for by seven basic cultural values (Schwartz, 1994):

Conservation. Characteristic of societies based on interdependent social relations, where security, conformity and tradition are priorities. These values emphasize the status quo and propriety, and try to avoid actions by individuals which attempt to alter the traditional established order (social order, obedience, respect for tradition, family security, self-discipline).

Hierarchy. Places emphasis in the legitimacy of the hierarchical ascription of roles and fixed resources (social power, authority, humility, wealth). Together with the value type of *conservation*, this constitutes the nucleus of the collectivism dimension that has been widely used to describe cultures and societies (Hofstede, 1984; Triandis, 1990).

Intellectual Autonomy. Comprises the values that situate the person as an autonomous entity to pursue his or her goals and intellectual interests (curious, open minded, creative).

Affective Autonomy. Interest in promoting and protecting the attainment of positive affective experiences (pleasure, exciting life, varied life). These values share with *intellectual autonomy* the same concept of an autonomous person that implies relating to others in terms of self-interest and negotiated agreements. Both types are also similar in that they are the opposite pole of collectivism (Schwartz, 1994).

Competency. Values give priority to the dominance of the surroundings through self-affirmation (ambition, success, risk). It is related with affective individualism through sharing the desire for activity and stimulation and presupposing the legitimacy of changing the status quo.

Harmony. Harmonious fit with nature and perhaps as well with the environment (unity with nature, protection of the environment, world of beauty). These values are in opposition with the active change of the world promoted by the values of *competency*.

Egalitarian compromise. Typical of societies that share a concern for the well-being of others (equality, social justice, responsible, help). These values are not very important in collectivist cultures where the identification with those who matter (in-groups) assures the preoccupation for well-being. It is positively related with intellectual and affective autonomy (individualism) and negatively related to collectivism.

The seven cultural value types are structured in two bipolar dimensions of superior order:

1. *Autonomy* versus *Conservation*. Close to the individualism-collectivism dimension (Hofstede, 1984; Kagitçibasi & Berry, 1989; Schwartz & Ros, 1996; Triandis, 1990, 1994). The principle that organizes this bipolar dimension is the opposition between pursuing values that especially benefit the individual, those of self-promotion, as opposed to achieving values that mostly benefit the collective, those of self-transcendence.

2. *Hierarchy* and *Competency* versus *Egalitarian compromise* and *Harmony*. The former legitimize the pursuit of personal or group interests even at the cost of others, while the latter require the sacrifice of personal interests to maintain the social and material surroundings. *Hierarchy* and *Egalitarian Compromise* are more clearly opposed in the aspect of whether persons should be treated as equals. *Competency* and *Harmony* are opposed more precisely in the area of change versus adaptation to the social environment.

Ros and Schwartz (1995) re-enforce the theoretical proposal of the multidimensionality of some cultures in relation to individual and collective values, and in doing so show, for the first time, detail that cultures do not have to subscribe to a strictly individualist or collectivist pattern. Using Schwartz's cultural theory of values, they compare the hierarchy of values belonging to samples of a group of Western European countries with the value priorities of countries of the rest of the world. From the classical individualism-collectivism contrast perspective (Hofstede, 1984; Triandis, 1990), Western European culture is clearly individualist in one sense but not in the other. The emphasis in types of values that assume a vision of an autonomous and voluntary individual as the social unit render it individualist. Nevertheless, Western European culture also emphasizes concern for others, rather than egoism, wealth, social power, ambition. This orientation contradicts clearly the point of view that individualist cultures promote selfishness – especially Triandis (1990), but contrast with Waterman (1981).

In a similar line, when Schwartz and Ros (1996) compare the profile of values of Western European countries with the US, they show how both share individualist and collectivist values, although of different signs. While in Europe priority is given to both values that emphasize the autonomy of the person as independent and socially responsible for others, in the U.S. the primary values are the autonomy of the person but linked to the search for pleasure and success, as well as values of security and social order.

The study

Schwartz's cultural model has been validated in relation to the dimensions of Hofstede's model (see Schwartz, 1994). Hofstede's *Individualism Index* is positively correlated with *Affective* and *Intellectual Autonomy* (r = .54 in teachers, and .81 in students, p < .05) and with *Egalitarian Compromise* (r = .51 in teachers, and .45 in students, p < .05). On the other hand, it is negatively correlated with *Conservation* (r = -.56 in teachers, and -.66 in students, p < .05) and with *Hierarchy* (r = -.51 in teachers, p < .05, and -.22 in students, p > .05). Therefore, there is an empirical convergence between the *Individualism-Collectivism* dimension of Hofstede and the *Individualism* dimension of Schwartz, although the latter adds to classic individualism the concern for well-being and social justice.

Power Distance shows a pattern of correlations almost opposite to Hofstede's *Individualism* (Hofstede, 1984) and, in consequence, has high and positive correlations with Schwartz's *Collectivism*, evaluated by *Conservation* (r = .45 in teachers , and .70 in students, p < .05), and negative correlations with his *Individualism* expressed in the value of *Autonomy* (r = -.47 in teachers, and -.79 in students, p < .05). Therefore, *Power Distance*, the assessment that social inequalities are legitimate, is a convergent dimension with the assessment of maintaining the status quo and traditional order.

Hofstede's model has been related to macro-economic variables (Hofstede, 1984). We know that *individualism-collectivism* is related to the gross national product of a country or to its level of wealth (r = .82 in Hofstede's samples, and r = .87 in teachers and r = .81 in students in 1988, all with p < .05 in Schwartz's samples). It appears that it is the level of wealth attained by a country that tends to produce individualism and not the inverse. Proof for this statement is found in the «causal relation» provided by Schwartz when relating the *Individualism Index* (IDV) of each country with their economic growth, the accumulated earnings in gross national product, during the approximately 20 years that elapsed since Hofstede collected his data. It is supposed that greater wealth brings more individualism, and greater poverty more collectivism to a country. We know this is not always the case; Japan is a good example of the reconciliation of wealth with collectivism, a fact possibly explained by the «Post-Confucian» hypothesis that explains the vitality of part of the Oriental economy from the second half of the century onwards (see Chinese Culture Connection, 1987).

After national wealth, the next indicator related with *individualism* is the geographic latitude, in other words, the distance to the equator of the country's capital. Countries with moderate and cold climates tend to be more individualist. Although the size of a country is not related with collectivism, the index of demographic growth is. This reflects the result of a high mean of births per family, which can be seen in the formation of clans, the necessity of sharing physical space and recognition of the need for cooperation among all members to get ahead.

The *Power Distance* dimension is negatively related to individualism, which suggests that those countries with a lot of distance to power tend to be collectivist as well, and those with a small distance tend to be individualist. One possible reason for this correlation is that both *individualism* and *power distance* are associated with a third factor, economic development. When this factor remains constant the relation decreases considerably (Hofstede, 1991).

While the Hofstede's model has been amply related to geographic and macro-economic variables, the same has not occurred with Schwartz's model. Treated as one dimension, *autonomy-conservation* presents a positive correlation with *gross national pro-*

duct (per capita) in 1988: $r = .40$ in teachers, $p > .05$, and $r = .57$ in students, $p < .05$ (Schwartz, 1994). Nevertheless, neither of the two models have been analyzed with relation to macro-social variables such as *human development*, *literacy*, or *life expectancy*, which are all clear indicators of the psychosocial well-being and the quality of life of a given culture.

For this reason, we pose as an objective to compare the Hofstede and Schwartz models with relation to macro-social and macro-economic variables in order to test the external validity of each one of them. In addition to the practical implications, for example, knowing to what degree one can assume that a country is individualist or collectivist according to a given structural fact, theoretically the study can illuminate the debate that relates the constructs of interest with *modernization* (Kagitçibasi, 1994; Kim, 1994). According to Hofstede (1984) individualism is positively related to economic development ; moreover, some of the psychological features that characterize the modern man, such as low integration of relatives, independence and future orientation, etc., also describe individualism (Yang, 1988).

Sample

We have selected those countries for which there are comparable data in scores for *Individualism* (IDV) and *Power Distance* (PDI) (Hofstede, 1984) as well as for *Autonomy (Affective and Intellectual)* (AUT) and *Conservation* (CON) (Schwartz, 1994). Of the 40 countries that participated in Hofstede's study (1984) and the 38 that participated in Schwartz's (1994), 20 coincide. The countries selected for this study, in alphabetical order, are: Austria, Brazil, Denmark, Finland, France, Germany, Greece, Hong Kong, Israel, Italy, Japan, Mexico, New Zealand, Portugal, Singapore, Spain, Switzerland, Thailand, Turkey and the United States of America. In Table 1, there is a list of these countries with their respective scores for the previously mentioned four dimensions[2].

Table 1
Scores for the 20 countries in the Hofstede and Schwartz dimensions

	MODELS			
	Hofstede		Schwartz	
Country	**IDV**	**DPO**	**AUT**	**CON**
Germany	67 (8)	35 (15)	4.31 (4)	3.50 (16)
Australia	90 (2)	36 (14)	3.81 (13)	4.06 (5)
Brazil	38 (13)	69 (3)	3.72 (16)	3.97 (8)
Denmark	74 (5)	18 (19)	4.30 (5)	3.64 (15)
Spain	51 (11)	57 (10)	4.44 (3)	3.42 (17)
United States	91 (1)	40 (13)	3.93 (10)	3.90 (9)
Finland	63 (9)	33 (17)	4.06 (8)	3.84 (11)
France	71 (6)	68 (5)	4.78 (2)	3.35 (19)
Greece	35 (15)	60 (9)	4.03 (9)	3.68 (14)
Hong Kong	25 (18)	68 (4)	3.60 (19)	4.04 (6)
Israel	54 (10)	13 (20)	3.75 (15)	4.36 (2)
Italy	76 (4)	50 (12)	3.78 (14)	3.82 (12)
Japan	46 (12)	54 (11)	4.11 (7)	3.87 (10)
Mexico	30 (16)	81 (1)	3.72 (17)	4.03 (7)
New Zealand	79 (3)	22 (18)	4.17 (6)	3.73 (13)
Portugal	27 (17)	63 (8)	3.83 (12)	3.36 (18)
Singapore	20 (20)	74 (2)	3.36 (20)	4.38 (1)
Switzerland	68 (7)	34 (16)	4.79 (1)	3.25 (20)
Thailand	20 (19)	64 (7)	3.85 (11)	4.22 (4)
Turkey	37 (14)	66 (6)	3.69 (18)	4.27 (3)
Mean	53.1	50.2	4.0	3.8
Standard deviation	23.32	19.96	.38	.34

Variables

We will deal with cultural and macro-social and macro-economic variables in this study. A variable is cultural when it reflects the mean of a country. In our case the cultural variable is the mean of the values of individualism and collectivism. The macro va-

Table 2
Description of the macro-economic and macro-social structural variables

Variable	Definition	Year	Minimum	Maximum	M	SD	N
Population density	Population per km^2	1991	.17	444.33	46.59	97.54	20
Human development	Comprised of the factor health, education Housing, employment and basic Freedoms, among the most important	1990	.71	.98	.90	.09	20
Life expectancy	At birth, in years	1991	66	78	74.40	3.73	20
Grain imports	Thousands of Tm.	1991	.04	24.47	3.19	5.54	20
Agrarian index	Population by grain imports	1991	.00	7.48	.12	.17	20
GIP in agriculture	Percentage of distribution assigned	1991	00	18	7.56	5.78	16
GIP in industry	Percentage of distribution assigned	1991	25	40	33.37	5.00	16
GIP in manufacturing	Percentage of distribution assigned	1991	00	29	20.37	6.93	16
GIP in services	Percentage of distribution assigned	1991	45	75	58.94	7.68	16
Population	In millions of inhabitants	1991	2.80	252.70	44.57	62.25	20
Population to 14	Percentage of total	1991	16.20	37.60	23.56	6.98	20
Population from 15 to 64	Percentage of total	1991	60.00	70.70	66.04	2.92	20
Population over 65	Percentage of total	1991	1.70	18.10	10.39	5.09	20
Gross Interior Product	In millions of dollars	1991	39984	5610800	557959.25	1253362.85	20
Gross National Product	*Per capita*, in dollars	1991	1570	33610	13831.50	9452.15	20
Surface	In thousands of km^2	1991	1	9373	1707.10	3029.39	20
Rate of illiteracy	Percentage of adult population illiterate	1990	1	29	7.35	8.70	17
Rate of fertility	Average number of childern per woman during her lifetime	1991	1.3	3.4	1.95	.64	20
Rate of inflation	Annual average in percent	1980-91	1.6	416.9	52.66	112.66	20
Birth rate	Per 1.000 inhabitants	1991	10	43	20.50	9.09	20
Death rate	Per 1.000 inhabitants	1991	5	12	8.10	2.02	20

riables do not refer exactly to a person but to a collective, which can represent a group of persons or simply a mere physical attribute, such as the land area of a country. In general there is no equivalence of these variables with personal ones; for example, a person may be literate or not, but it is hardly justifiable to consider to what degree he or she is illiterate.

Dependent Variables. Comprise the scores of each one of the 20 countries in the four dimensions of cultural values: *Individualism* (IDV), *Power Distance* (PDI), *Autonomy* (AUT) and *Conservation* (CON).

Independent Variables. The group of structural variables (macro-economic and macro-social) that we describe below. In Table 2, these variables, their average value and range are listed.

a) Macro-economic variables: *GIP, Gross Interior Product*, is a general index of a country's wealth; *GIP dedicated to agriculture, industry, manufacturing and services*. This is an index of the priority awarded to certain economic activities. *GNP, Gross National Product*, indicates the wealth of a country after substracting the rate of exports from that of imports. *Rate of Inflation*, indicates the degree to which an economy spends more than it has.

b) Macro-social variables. These are subdivided into two more specific categories:

• Demographic. *Birth rate*, number of births per thousand inhabitants; *Death rate*, percent of deaths per thousand inhabitants; *Fertility rate*, average number of live children per woman throughout her lifetime. This is the index of birth and of health development of a country; *Population*, number of inhabitants per country; and *Population Density*, distribution of the population per km2 of territory. This is an index of the concentration or dispersion over the a territory's whole extension.

• Social Development. *Life Expectancy*, expected longevity at birth. This is an indicator of the economic and health development of a country, with a clear influence in the social sphere. With greater development, greater life expectancy, and attention and care for the population that is no longer economically productive; *Human Development*, indicates the degree of development of a country's social welfare, that is, that education, employment, housing, and basic freedoms are available to all citizens. In this sense, it comprises an index composed of various attributes.

Procedure

Countries that appear in both the studies by Hofstede (1984) and Schwartz (1994) were selected, and their respective scores in each of the aforementioned four cultural dimensions were tallied. In the case of the latter study, the sample of professors was used as it is presumably more equivalent to that of workers in the former. The data corresponding to macro-economic and macro-social variables studied, distributed by the *World Bank*, cover the years 1990 and 1991. These can be obtained in easily accessible statistical annuaries, such as *El Pais* or *El Mundo*.

Data Analysis

The statistical packet SPSS/PC+, version 4.01, was used to tabulate and analyze the data. Descriptive calculations were made, such as the measurements of central tendency; and correlations of each country's scores with the cultural dimensions and with the macro-economic and macro-social variables were also calculated. Although the majority of these variables are clearly parametric (some are not, such as the ones expressed as a percentage), we accept the risk of treating them undifferentiately, in the hope that they do not affect the final results. This note is necessary in order to understand the statistical technique used in a following phase: discriminant analysis. This technique is used in order to know which macro-economic and macro-social variables define the discriminant function of the cultural dimensions considered as well as to rank countries according to the standardized scores obtained from the discriminant functions.

Results

Relation between the cultural dimensions of Hofstede and Schwartz

Individualism correlates negatively with *Power Distance* (r = -.70, p < .00) and with *Conservation* (r = -.34, p > .05). *Autonomy* correlates negatively with *Conservation* (r = -.82, p < .00) and with *Power Distance* (r = -.34, p > .05). This pattern is coherent with the positive and significant correlation (r = .49, p < .05) between *Individualism* and *Autonomy*, and, though non-significant, a positive correlation is also observed between *Conservation* and *Power Distance* (r = .14, p > .05).

Relation among structural variables and cultural dimensions

Table 3 lists the correlations among the structural variables: economic, demographic and social with the dimensions of *Individualism, Power Distance, Autonomy* and *Conservation*.

Human Development, Gross National Product, Birth Rate and *Death Rate* are the structural variables that are highly and significantly associated with the previously mentioned four cultural di-

Table 3
Correlation between Hofstede's and Schwartz's variables and dimensions

	MODELS			
	Hofstede		Schwartz	
Structural variables	**IDV**	**DPO**	**AUT**	**CON**
Human Development	.70***	-.61***	.53*	-.47*
Gross National Product	.69***	-.53*	.59*	-.49**
Birth rate	-.63***	.54*	-.52*	.59**
Death rate	.48*	-.44*	.59**	-.76***
Illiteracy rate (1)	-.77***	.69***	-.56*	.39
Population over 65	.64***	-.43	.68***	.76***
Life expectancy	.51*	-.44*	.43	-.47*
Population under 15	-.49*	.37	-.50*	.66***
Fertility rate	-.19	.14	-.38	.60**
Gross Interior Product	.46*	-.14	.01	-.04
Population Density	.44*	-.19	-.05	.12
Surface	.33	.03	-.20	.20
GIP in agriculture (2)	-.30	.18	-.04	.13
GIP in services (2)	.30	-.14	-.06	-.15
Rate of inflation	-.20	.17	-.12	.16
Agragrian Index	-.20	.04	-.06	.13
Population	.19	.14	-.17	.13
GIP in industry (2)	-.14	.05	.11	.11
GIP in manufacturing (2)	-.13	.14	-.20	.24
Grain imports	-.05	.16	-.00	.01
Population from 15 to 64	.04	-.12	.01	-.24

Note: * p .05; ** p .01; *** p .005; (1) = information missing for 3 countries; (2) = information missing for 4 countries.

mensions. *Illiteracy Rate* seems to work better in Hofstede's model, while *Population over 65* or *under 14* does so in Schwartz's. In the same way, *Gross Interior Product* and *Population density* only function as an explanation of the *Individualism* dimension in Hofstede. *Fertility Rate* only correlates with *Conservation* in Schwartz's study.

With respect to the weight of each structural variable in the four dimensions, the following can be pointed out: *Illiteracy Rate* is the most highly negatively related with *Individualism* (r = -.77, p < .00) and positively with *Power Distance* (r = .69, p < .00). Finally, *Population over 65* is positively related to *Autonomy* (r = .68, p < .00) and negatively to *Conservation* (r = -.76, p < .00).

As the ratio cultures/variables is considerably low in this study, close to 1:1, and given the lack of acceptable theoretical orientation, we decided to use the criteria of correlation to select variables to be treated in the following statistical analysis. Therefore, only the first seven variables listed in Table 3 were considered, causing an increase in the ratio cited above, to approximately 3:1.

Discriminant functions and rank of countries

The cultural dimensions *Individualism, Power Distance, Autonomy,* and *Conservation* have been considered as *discriminant variables*. Subjects were divided in two groups according to whether their score was below or above the corresponding median score. This measure of central tendency was prefered to the average because it is not affected by the distribution of each dimension, since it always divides the group into two «equal» parts of subjects. This strategy has another implication: for each cultural dimension only one discriminant function results, since the number of functions is given by K (number of groups) -1.

Before entering directly into the results section, it is necessary to point out that given that three cultures have no score in at least one of the structural variables, they will initially be discarded in the determination of the discriminant functions; this does not necessarily impede their being ranked later. To rank them, it is only necessary that the aforementioned variables not be present in the function, as will be seen later on. The statistical indexes with respect to each dimension are treated below; it is useful to point out that the criteria of selection of the variables was that of *Minimum Residuals*, following the stepwise routine.

Individualism. Given the discard of three cultures, the sample was reduced to 17, divided into two comparison groups, according to the criteria given above; eight cultures are defined as low and nine as high on individualism. The indexes of the function were: Eigenvalue 4.471; Canonical Correlation .904; Wilks' Lambda .183; p <.000. The standardized coefficients of the discriminant function were: *Gross National Product* .795 and *Illiteracy Rate* -.472. These coefficients must be analyzed in light of the correlations among all the structural variables and the discriminant function obtained:

Gross National Product	.886
Population over 65	.631
Life Expectancy	.630
Illiteracy Rate	-.626
Human Development	.604
Birth Rate	-.516
Death Rate	.372

Gross National Product has the greatest contribution to the discriminant function. The low Individualism group has a score of -2.107 on the centroid and the high Individualism group a score of 1.872. This means that the group of countries low on individualism – that is collectivists – have a lower *GNP* and a higher *Illiteracy rate*; this pattern is exactly opposite to that of countries high on individualism, which seem wealthier and better educated. According to the *confusion matrix*, this function correctly classifies 100% of the countries in the individualism dimension.

Power Distance. A total of nine cultures are classified as low in power distance and eight as high. The indexes of this function are: Eigenvalue 2.499; Canonical Correlation .845; Wilks' Lambda .286; p < .003. The standardized coefficients of the discriminant function are: *Human Development* -1.139; *GNP* -.795; *Life Expectancy* 1.513; *Illiteracy Rate* .731. Comparing the standardized coefficients with the correlation of each one of the structural variables and the discriminant function obtained, the data below clearly show that *Illiteracy Rate* is the variable with greater weight followed closely by *Human Development*:

Illiteracy Rate	.701
Human Development	-.641
Gross National Product	-.498
Population over 65	-.410
Birth Rate	.363
Life Expectancy	-.329
Death Rate	-.123

The low *Power Distance* group has a -1.400 score on the centroid and the high *Power Distance* group has a 1.575 score. This means that countries low in *Power Distance* present higher scores on *Human Development, GNP,* and *Life Expectancy*, and lesser *Illiteracy Rate* than those with high Power Distance, that seem to be economically poorer and socially less developed.

Autonomy. Seven cultures were classified as low on *Autonomy* and ten as high. The statistical indexes with respect to this dimension are the following: Eigenvalue 1.108; Canonical Correlation .725; Wilks' Lambda .474; p <.001. The only structural variable in the discriminant function was *Human Development*, whose standardized coefficient is unavoidably 1. Nevertheless, if one examines the correlation obtained from each structural variable with the discriminant function, the secondary importance of other variables is noteworthy:

Human Development	1.000
Life Expectancy	.764
Illiteracy Rate	-.748
Population over 65	.706
Birth Rate	-.618
Gross National Product	.574
Death Rate	.257

The social background of the variables that most contribute to the function in the above list is clear: *Human Development, Life Expectancy, Population over 65,* and *Illiteracy Rate*. The high Autonomy group has a -.827 score on the centroid, and the low Autonomy group a -1.182 score. Cultures that present high scores in Autonomy – that is individualists – are those with higher indexes of *Human Development* and *Life Expectancy*, and low *Illiteracy Rate* and *Birth Rate*. Cultures distinguishable by their low Autonomy present basically the opposite pattern. The function has a

good efficiency and it correctly classifies 100% of the countries in the Autonomy dimension .

Conservation. Of the 17 cultures that enter in this analysis, ten were classified as low and the rest as high on Conservation. The statistical indexes of the function are: Eigenvalue 2.892; Canonical Correlation .862; Wilks' Lambda .257; $p < .000$. The standarized coefficients in the discriminant function are *Human Develop - ment* -1.235 and *Population over 65* 1.829.

Analyzing the correlations of each of the structural variables with the discriminant function, we observe the crucial role played by the variable *Population over 65*, and that of *Human Develop - ment* loses some of its relevance in this context.

Population over 65	.771
Gross National Product	.577
Death Rate	.543
Birth Rate	-.511
Life Expectancy	.472
Human Development	.333
Illiteracy Rate	-.263

The low group on this dimension has a 1.336 score on the centroid and the high group on this dimension obtains a -1.909 score. Among those cultures low in conservation – individualists – there tends to be a high percentage of *Population over 65*, a high *GNP*, a high *Death Rate* and a low *Birth Rate*. These are cultures where there is a considerable level of *Human Development*. Cultures with high scores in conservation present exactly the opposite pattern. This model is fairly satisfactory, allowing for the correct classification of 90% of the cases. Only one culture of the low group and one in the high were mistakenly classified.

Finally, considering the discriminant functions obtained for each of the cultural dimensions, a ranking of countries was established, as listed in Table 4.

Table 4
Standardized scores according to the discriminante function

	MODELS			
	Hofstede		Schwartz	
Country	**IDV**	**PDI**	**AUT**	**CON**
Switzerland	3.68	-1.65	1.17	1.41
France	2.33	-1.02	1.07	2.89
Finland	2.15	-1.51	.82	.93
Denmark	2.10	-1.93	.83	1.58
Germany	2.09	-1.54	.86	1.88
United States	1.87	-1.76	1.14	- .04
Italy	1.28	- .27	.38	1.96
Australia	1.05	- .96	1.08	-1.08
New Zealand	.30	- .68	.72	- .45
Israel			.59	-3.18
Hong Kong			.22	-1.23
Singapore			- .71	-1.80
Spain	- .21	.85	.37	.27
Greece	-1.53	2.05	.06	1.73
Japan	-1.57	-2.30	1.24	-2.61
Thailand	-2.20	1.90	-2.66	-2.48
Portugal	-2.29	2.58	- .65	1.16
Mexico	-2.40	1.38	-1.35	-3.38
Brazil	-2.85	1.53	-2.44	-1.98
Turkey	-3.82	3.33	-2.63	-1.79

With respect to Hofstede's *Individualism*, the discriminant function with the variables *GNP* and *Illiteracy Rate* permits the identification of Switzerland, France, Finland, Denmark, Germany and the United States of America as close to the individualism extreme, while Turkey, Brazil, Mexico, Portugal and Thailand are classified in the pole closer to collectivism.

The discriminant function of Hofstede's *Power Distance* dimension covers four variables: *Human Development* and *GNP* in one extreme, and *Life Expectancy* and *Illiteracy Rate* in the other. This function situates in the low pole of Power Distance Japan, Denmark, United States of America, Switzerland, Germany and Finland, and in the high pole, Turkey, Portugal, Greece, Thailand, Brazil and Mexico.

In reference to Schwartz's *Autonomy* dimension, with only *Hu - man Development* in the discriminant function, the following countries are closer to the superior pole: Japan, Switzerland, United States of America, Australia, France and Germany; the countries with the lowest scores are: Thailand, Turkey, Brazil, Mexico, Singapore and Portugal.

Schwartz's *Conservation* dimension, whose discriminant function is formed by the variables *Population over 65* and *GNP* on one pole and *Birth Rate* and *Illiteracy rate* on the other, the following countries are defined with the lowest scores: Mexico, Israel, Japan, Thailand, Brazil and Singapore; those with the highest scores are France, Italy, Germany, Greece, Denmark and Switzerland.

Discussion

The main objective of this study was to compare the Hofstede and Schwartz models with respect to external variables, such as macro-economic and macro-social indexes. We were interested in analyzing in which aspects these cultural theories were similar and in which were they different.

The cultural dimension termed individualism, as opposed to power distance in Hofstede, and autonomy as opposed to conservation in Schwartz, have been shown to be theoretically coherent at an internal level. Within each theory each pair of opposite dimensions had a strong negative correlation among them (r = -.70 and -.82 , respectively, see Table 1), as was to be expected. Nevertheless, the convergence between these models is not complete; although the combinations among the dimensions present a correlation in the expected direction, only the correlation between individualism and autonomy reaches a statistically acceptable magnitude (r = .49, p <.05). Before evaluating these results, it is important to consider each model in light of the structural variables.

The two models are mainly related to the following seven variables: human development, GNP, birth rate, death rate, illiteracy rate, population over 65 and life expectancy. The role that each one of these variables has in each model is observed when establishing the bestfunction to discriminate the high and low levels of the cultural dimensions. In this sense, clearly individualism versus power distance in the Hofstede model is predominantly defined by country's wealthy and its level of education. Its equivalent in the Schwartz model, autonomy versus conservation, seems to be better defined by the distribution of this wealth in social welfare and human development. This difference, perhaps subtle but not without importance, is reflected in the ranking of countries according to the discriminant function derived from each attribute. Japan for example is found at the head of the countries high in autonomy,

which is contrary to the idea of its group dependency, collectivism as opposed to individualism.

Schwartz (1994) states that the scant association of his model with economic indicators possibly reflects his conceptual and measurement differences with respect to Hofstede's model. He adds that over the years the association between national wealth and these types of cultural dimensions is disappearing. We believe that the first explanation is more satisfactory, and one realizes this comparing the instruments and subjects of each study, or even the statistical procedure followed in defining the dimensions.

The second explanation deserves some reflection on the styles of production and economic development. If mathematically it is true that the order of the factors does not affect the product, sociologically it is being presented, according to Triandis, as the maxim that the operation (addition or multiplication) of two factors does not alter it either. *Performance* in individualist cultures is equal to the product of *ability* and *effort*, while in those that are collectivist this is defined by the sum of these factors (see Triandis, 1995). Perceiving *performance* as a personal quality or as a group quality seems to be a question of how these values are promoted according to culture. If the United States of America has been capable of producing enormous wealth with its work style, Japan has also achieved it with a different style, not exactly oriented toward personal and unconditional success. The *Post-Confucian* hypothesis as an explanation of development and economic vitality in the «Chinese» societies in the second half of the present century presents an alternative style of wealth production: centered on educated, motivated and responsible persons, but with a sense of organizational commitment, identity and loyalty to institutions (Chinese Culture Connection, 1987).

Modernization can no longer be equal to individualism. Pure traditionalism exists predominantly as a historical fact; it comprises more or less the *mechanical societies* that Durkheim (1893 / 1982) never observed directly or the *community* that in the time of Tonnies (1887 / 1979) was being left behind. Countries seem to move toward a less differentiated block, at least economically and sociologically, which is reflected in the cultural patterns that have been called *globalization*. What Hofstede defines as individualism in function of the economic resources of a country is perhaps a *protoindividualism* (Triandis, 1988). In this sense Schwartz comes closer to the spirit of *social individualism* that is scattered around the world. In this last case, although wealth continues to be important, freedom, ideas and intimate space of each individual are what orient action.

We have found some, though no complete, correspondence between the models. This can be ascertained looking at the content of the evaluated cultural dimensions. In Hofstede, individualism means *in*dependence of groups, and low power distance, *in*dependence in the sense of hierarchy. In Schwartz autonomy can be understood as *in*dependence of groups and persons, and conservation is rather *in*dependence from group norms. If one takes Triandis (1995; Triandis & Gelfand, 1998) as a reference, one can conclude that collectivism in the first author adapts more to the *vertical* attribute, with emphasis on *obligation*, obedience to authority. In Schwartz perhaps the *horizontal* attribute adapts better. In this last category the components *cooperation, harmony* and *equality in the group* are implicit. If this is true, this would explain why there is no absolute correspondence between the two models in the dimension termed 'collectivism'. Although they pertain to the same cultural orientation, power distance and conservation are somehow different.

Finally, as far as future research is concerned, there are surely many alternatives, and the reader can suggest his or her own. Without going any further, in analyzing the data published by Hofstede and by Schwartz, it would be laudable to center on the dimensions *hierarchy* and *harmony*. Previously we situated them as possible correspondents of collectivism, but we did not evaluate them. Taking as references the correlations presented by Schwartz (1994), our work was limited to the strongest coefficients of individualism-collectivism.

Notas

1 A shorter version of this paper was presented at the Symposium «Valores y sus Aplicaciones» (Values and their Applications) organized by M. Ros (Universidad Complutense de Madrid) and M.A. Molpeceres (Universidad de Valencia) at the *VI National Congress of Social Psychology*, San Sebastian, 29th Sept-1st Oct. 1997.

2 In order to compare the scores obtained in the two studies, Germany has been considered only as the former West Germany. In the case of Israel in Schwartz's study, the scores are the mean of the result of the Christian and Muslim sub-samples, which do not show differences in the dimensions compared here.

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