

Exogenous Determinants of International Corporate Tax Rates: A Gravity Theory Approach

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ABSTRACT

This study examines the extent to which national contextual or environmental variables may influence national corporate tax rate determination in different countries. Using arguments based on institutional, tax competition and gravity theories, we develop and test hypotheses regarding the influence of exogenous factors on a country's tax rate determination through imitation. Predictions concerning the gravitational pull between countries, geographical relatedness, and religion were either fully or partially supported, while predictions regarding the impact of language and type of legal system in a country were not supported. The results are discussed with respect to directions for future research.

INTRODUCTION

Much of recent foreign direct investment (FDI) research has focused on identifying which factors or policies can influence the location of multinational enterprises or the flow of investments. These factors range from market size, red-tape alleviation, laws, infrastructure, investment promotion to taxation. However, as one of the consequences of globalization, taxation has emerged as an important factor affecting global investment flows. Taxation is no longer simply regarded as one of life's certainties; it is an unavoidable part of the strategy behind practically every business decision (Ernst & Young, 2000).

The growing importance of taxation in international business has, however, not been matched by a parallel development in research on how these tax rates are determined. The reasons are not far-fetched. Buettner (1999, 2000) attributes this to the complexity of national tax systems, and to the difficulty of tracing back observed actions of economic agents to national tax systems. Where attempts have been made to study comparative capital taxation, they have been limited to OECD countries. Stewart and Wells (2003) have attributed this to the fact that outside the OECD, capital movements, to a large extent, depend on factors not related to observed data.

Previous studies have attributed the strategic interactions between nations which produce identical or isomorphic tax rates to tax competition (Wildasin, 1988; Bucovetsky, 1991; Edwards and Keen, 1996). However, tax competition does not appear to explain all the forces behind tax rate setting through fiscal policy mimicking. For example, is the mimicking attributable to the active agency on the part of nations as implied in tax competition or to the fact that nations are passive agents compelled by forces in their environments to imitate their more powerful neighbors?

Our objective in this study is thus twofold. First, we offer an alternative explanation to the mimetic behavior of nations which leads to identical or isomorphic tax rates. Secondly, we extend the FDI literature by applying theories which have been used to explain local mimetic behavior to the global environment. From a methodological perspective, the use of the gravity theory contributes to the development of international business (IB) literature by showing that theories from the physical sciences can be successfully used to explain phenomena in organizational and subsequently national behavior. The gravity theory also shows that nations may not be active imitators but are passive agents compelled by more powerful neighbors to imitate their policies.

LITERATURE REVIEW

Tax competition theory has been used to explain the processes that lead to the emergence of identical tax inter-jurisdictional policies. The basic tenets of the theory stipulate that national authorities compete for investment capital by offering a more favorable tax treatment to investors than is available elsewhere (Edwards and Keen, 1996; Schulze and Ursprung, 1999). Given a multi-jurisdiction competition for a given stock of capital, the theory stipulates that an increase in the tax rate in one country leads to a flight of capital from that country to others. In other words, a tax rate increase in one country produces a positive externality for others in terms of increased tax-base and income (Bucovetsky and Wilson, 1991; Wildasin, 1989). The losing countries will retaliate with lower rates to re-attract the lost capital. The process continues until the rates in the competing jurisdictions are the same or isomorphic and equilibrium is achieved (Edwards, 1993).

The Gravity Theory of Spatial Interaction

The basic principles of the gravity theory derive from Newtonian physics, and stipulate that physical objects attract each other, and the force of this gravitational attraction is directly proportional to the products of their masses, but declines with increases in the distances between them (Abler, Adams and Gould, 1971,). Shi et al (1997) have assumed the gravitational force field to have the form,

$$F = -\gamma Mm/r^2 \quad (1)$$

where M and m are the masses of attracting bodies, γ is a universal constant, and r is the distance between the masses. The formula simply states that the force of gravity is inversely proportional to the square of the distance between two masses and directly proportional to the product of their masses.

The concept has been used extensively in trade theory. The trade model stipulates that after controlling for size, trade between two regions decreases in relation to the distance between the two regions. In other words, the greater the distance between two regions, the smaller would be the volume trade between the two regions. In McCallum's (1995) estimation, two regions separated by 500 miles will trade more than 2.67 times as much as two regions separated by 1000 miles. The underlying concept is that the flow of goods from country i to country j equals the product of the potential capacities of the two countries divided by a resistance or distance factor (Oguledo and MacPhee, 1994). In other words, all things being equal, commercial interaction between US and Mexico and US and Canada should be greater than the commercial interaction between US and Japan or Korea. By the same reasoning, the strategic interaction, including fiscal competition, between proximately related countries will be greater than countries which are further apart. It can be concluded from the foregoing that isomorphic pressures can emanate from several sources, which include institutional theory, tax competition theory and gravity theory.

THEORY AND HYPOTHESES

DiMaggio and Powell (1983) have argued that when organizations are structured into an actual field, *powerful forces* emerge to lead them to become similar or isomorphic in policies, procedures and structures. This will happen because the organizations may imitate each other using heuristics to economize on search costs (Cyert and March, 1963), or in order to achieve legitimacy and subsequently access to resources (Tolbert and Zucker, 1983; Scott, 1987). From Newtonian physics, two bodies in a field attract each other. The strength of a body's attraction is proportional to its mass or weight.

Applied to social physics, it means that when two nations with disparate incomes and populations coexist, the bigger and wealthier country will exert pressure on the smaller and poorer country. The pressure will be greater if the smaller and poorer country depends on the bigger and richer country for resources, such as investment capital. In that case, the smaller country will accede to the demands of the bigger country by imitating the former's policies and procedures to achieve economy of action and subsequently become more efficient (Tolbert and Zucker, 1983; Scott, 1987). The imitation may also enable the poorer country to acquire legitimacy (Meyer and Rowan, 1977). This

legitimacy provides such countries access to resources. This imitation will ultimately produce isomorphic policies, procedures and structures.

Buettner (1999, 2000) has stated that local governments set fiscal policies with those of their immediate neighbors in mind, and that fiscal competition is particularly strong in communities in the same neighborhood, whereas more distant locations are of less relevance. Ashworth and Heyndels (1997) and Besley and Case (1995) have also found that both politicians and voters compare their fiscal policies (tax rates) with those of their immediate neighbors in what is tantamount to a yardstick competition. They conclude that in determining their tax rates, local jurisdictions take their immediate neighbors' tax rates into consideration. This has also been confirmed by Ladd (1992), who found that city and state governments in the US imitate the fiscal policies of their neighbors.

Viewed from a different perspective, a nation setting its tax rate will look closer to home for guidance. For it stands to reason that given identical conditions between two jurisdictions or countries, citizens, including corporate citizens, will compare their tax burdens with their most immediate neighbors, which they may be familiar with. This means that nations that are contiguous or proximately related are more likely to interact with each other in the form of trade, investment flows, culture, and in other areas including governmental and fiscal policies than nations that are further apart. This thus leads us to hypothesize that:

H1: The global influence potential of a country, as measured by its global distance index, will be positively related to its tax rate.

H2: Nations that are proximately related are more likely to have similar tax rates

Common History and Tax Rates

A common historical heritage, may constrain choices and actions of an organization or a nation (Prahalad and Doz, 1987). For instance, countries that share a common historical heritage may also share legal, cultural or commercial policies and procedures. This common heritage may extend to fiscal policies. The restraints imposed by common history may be exemplified by the use of a common language, legal system or religion between an ex-colony and its colonial master.

Language, as a vehicle of culture, often serves as a manifestation of several aspects of culture. A single language unifying all members of a community is often accompanied by a culture, a way of life, preferences and tastes (Bada, 2003). For example, the US, an ex-British colony, shares the English language with Great Britain, its former colonial master. The sharing of a common language may imply the sharing of identical educational systems through which students may be exposed to identical philosophical, economic and fiscal issues. Nationals of such countries can thus easily develop similar outlooks on economic and fiscal matters.

The legal system, like language, may be a remnant of the colonialism. It may also be a manifestation politico-cultural globalization. Much of the observed imitation phenomenon is based on the assumption that modernity for much of the world is represented by American or western institutions and way of life, where the world tunes in to CNN for news and democracy is the preferred form of government (Pennycook, 1994). This would imply that several countries would copy governmental institutions, including the legal system, of perceived model countries.

Several countries across the globe share similar dominant religions. For example, both Christianity and Islam are found on all the continents. Generally, people who share the same religious faith may share identical cultural or philosophical principles which could influence their policy formulation. For example, Islam forbids the charging of interests on loans and also provides guidelines for commercial behavior. Such teachings can easily seep into policy formulation. It is thus possible to have identical policies for nations sharing identical dominant religions.

The effects of a common historical heritage and physical distance are the same: the shorter the distance or the commonality of heritage, the more likely some of the countries will imitate the policies and procedures of those in the proximate vicinity. In other words, where countries share a similar cultural heritage or where the cultural distance between them is short, there is the likelihood that the policies and programs of the countries may be identical. On the other hand, the greater the difference in heritage between two countries, the more likely their policies and programs may be dissimilar. We thus hypothesize:

H3A: Countries that share a common language are more likely to have similar tax rates.

H3B: Countries that share a common legal system are more likely to have similar tax rates.

H3C: Countries with similar dominant religions are more likely to have similar tax rates.

METHODOLOGY

To test the relationships posited in Hypotheses 1, 2 and 3, a modified and reformulated gravity theory model was used. The choice of the model emanates from its possession of several characteristics that other spatial models lack. Lowe and Sen (1996) have claimed that the model does not have to include detailed information about subjects (e.g. countries). Second, each destination can be represented by a single parameter (e.g. an index). In other words, we need not decide on which of the large number of descriptors that would be useful, nor do we have to address the thorny problems of appropriate algebraic form. The model's considerable value in analysis stems from its ability to separate purely spatial from the non-spatial characteristics of a subject (Lowe and Sen, 1996).

The single parameter or index can be developed by following the principles espoused by Reilly (1931) in his "Law of Retail Gravitation", by aggregating data for a number of locations. The index can take the form:

$$R_i = \frac{P_1}{D_{i,1}^2} + \frac{P_2}{D_{i,2}^2} + \dots + \frac{P_j}{D_{i,j}^2} \quad (2)$$

or more simply:

$$R_i = \sum_{j=1}^J \left(\frac{P_j}{D_{i,j}^2} \right) \quad (3)$$

where R_i is the index value for location i , P_j is the population of city j , and $D_{i,j}^2$ is the square of the distance between location i and city j . In the Shi et al. (1997) model, instead of R_i , they computed U_i , which is the *urban influence potential*. Again, instead of the discretionary income of a city which was used as a proxy for size in the original model, they used the population of the cities concerned.

To make our hypothesis testable in view of the fact that our study involves 97 countries, not 2 or 3 jurisdictions as in the Shi et al. and other models, we computed an index of *global distance influence potential* (DINDEX) for each country. Following the Shi et al. example, we modeled the influence of one country on another with a relevant variable for size. However, instead of the discretionary income of the total residents of a city as used in the Reilly (1931) market access potential model or the total population of a city as in the Shi et al. urban potential influence model, we used the GDP of each country as a proxy for the size of the country. Our model, which can be regarded as a *global distance influence potential* model takes the form:

$$G_i = GDP_i \sum_{j \neq i}^{97} \left(\frac{GDP_j}{D_{i,j}^2} \right) \quad (4)$$

where j represents the countries in the study. This model accounts for the fact that the size of a country's GDP or economic weight is important in determining the influence of one country on another. Common history variables, as well as lagged own and adjacency tax rates were also included in our model. G in equation 4 above represents *global*. However, since the index represents distance influence potential, we can replace the G with a D to emphasize the importance of distance in the index. Replacing G with D and adding *INDEX*, we get *DINDEX*, the resultant model is of the form:

$$TR_{it} = \alpha + \beta_1 DINDEX_{it} + \beta_2 LANG_{it} + \beta_3 RELIG_{it} + \beta_4 LEGSYS_{it} + \beta_5 TR_{t-1} + \beta_6 ATR_{t-1} + \beta_7 (CONT) + \epsilon_{it} \quad (5)$$

where, TR_{it} is the tax rate of country i in period t , *DINDEX* is the gravity index of distance influence potential, *LANG* is language (English, French, Spanish, Portuguese, other languages), *RELIG* is religion (Christianity, Islam, Hindu, Buddhism, other religions), *LEGSYS* is the legal system (English common law, civil law, Islamic law, other legal systems), *CONT* is the continent (Africa, Asia, Europe, North America, Oceania, South America). TR_{t-1} is the lagged own tax rate, ATR_{t-1} is lagged tax rate of own continent, and ϵ_{it} represents the error term.

Data

The data for the study consist of historical tax rates of a sample of 97 countries extracted from COMTAX international tax tables covering the decade of 1990 - 2001. Appendix A is a list of countries used in the study. We also categorized the countries on the continental basis of Africa, Asia, Europe, North America, Oceania and South America. Oceania consists of Australia, Indonesia, Malaysia, Singapore and New Zealand. In addition to COMTAX, other sources of data include The World Bank – World Development Report (various years), Penn World Tables, United Nations – UNCTAD, Bali Online Service, and the Exporters Encyclopedia (various years).

Appendix A: List of Countries Used in Study

#	Country	Corporate Tax Rate (2000)	#	Country	Corporate Tax Rate (2000)	#	Country	Corporate Tax Rate (2000)
1	Algeria	35	34	Hungary	18	67	Peru	30
2	Argentina	36	35	Iceland	30	68	Philippines	32
3	Australia	39	36	India, Distributed	38.5	69	Poland	30
4	Austria	34	37	Indonesia	35	70	Portugal	32
5	Bahamas	0	38	Iran	54	71	Puerto Rico	39
6	Bahrain	0	39	Ireland	43	72	Qatar	35
7	Barbados (Offshore)	2.5	40	Israel	40	73	Romania	30
8	Belgium	43	41	Italy	42	74	Russia	30
9	Bermuda	0	42	Jamaica	40	⁷⁵	Saudi Arabia	45
10	Bolivia	25	43	Japan	41	⁷⁶	Senegal	35
11	Brazil	30	44	Kazakistan	30	77	Singapore	26
12	Bulgaria	36	45	Kenya	32.5	78	Slovak Republic	29
13	Cameroon	35	46	Korea, Rep. Of	36.5	79	Slovenia	25
14	Canada	38	47	Kuwait	55	80	South Africa	37.8
15	Cayman Islands	0	48	Latvia	25	81	Spain	35
16	Chile	35	49	Lebanon	30	82	Sri Lanka	35
17	China	33	50	Lithuania	29	83	Sweden	28
18	Colombia	30	51	Luxembourg	36	84	Switzerland	17
19	Costa Rica	40	52	Malawi	38	85	Thailand	30
20	Cote d'Ivoire	35	53	Malaysia	39	86	Togo	40
21	Croatia	35	54	Mali	35	87	Trinidad & Tobago	40
22	Czech Rep.	31	55	Mauritius	35	88	Tunisia	35
23	Denmark	32	56	Mexico	35	89	Turkey	33
24	Ecuador	25	57	Morocco	35	90	Ukraine	30
25	Egypt	40	58	Netherlands	35	91	U. Arab Emirates	50
26	El Salvador	25	59	New Zealand	33	92	United Kingdom	30
27	Finland	29	60	Nicaragua	35	93	United States	35
28	France	42	61	Nigeria	30	94	Uruguay	30
29	Gabon	35	62	Norway	28	95	Venezuela	34
30	Germany	42	63	Oman	50	96	Vietnam	25
31	Greece	46	64	Pakistan	43	97	Zimbabwe	35
32	Guatemala	25	65	Panama	30			
33	Hong Kong	16.5	66	Paraguay	30			

Source: Tax rates: Comtax (2002)

Measures

Table 1 is a list of the variables used in the study. The variables are conceptualized and operationalized below.

Table 1: Description of Independent Variables

Construct	Hypothesis	Variable Name	Definition
Dependent variable			
Tax rates	1 – 3	TRATE	Percentage of corporate income paid to the fiscal authority
<i>Predictor variables:</i>			
1		DINDEX	GDP/(sum of inter-capital distances squared.)
2	1A	CONT	Countries located on same continent
3	2B	LANG	Official /dominant language of a country
4	3A	RELIG	The dominant religion of a country
5	3B	LEGSYS	The official legal system
	3C		

Control Variables

To provide for the desired robustness of the hypothesized relationships, we controlled for the variables that may offer alternative explanations or may possibly exert influences on the dependent variable. These variables include:

Openness or level of trade. The variable openness (OPEN) which is a measure of a country's integration into the world economy through trade, has been found to affect fiscal policy (Rodrick, 1997). The measure is obtained from Penn World Tables.

Oil production. The production of oil (OILPDN) is operationalized as a dummy control variable, with 1 indicating the country as a producer and exporter of oil, and 0 indicating otherwise.

Population. Population has been used to as a proxy for markets in several studies on investment flows (Ajami and Ricks, 1981).

Analysis

To estimate H1, H2, and H3 we used a modified gravity model, which necessitated the computation of an index (DINDEX). Also, to account for jurisdictional tax competition or mimetic isomorphism, we included the tax rates of competing jurisdictions as endogenous variables in the model. However, including the tax rates of competing jurisdictions creates a simultaneity problem (Buettner, 2000). This meant that the OLS assumption that predictor variables were uncorrelated with a dependent variable's error was not tenable (Bae & Lawler, 2000). Therefore, we estimated the parameters of the model with a two-stage least squares (2SLS) regression analysis or the instrumental variable technique using STATA 7 software. The control and exogenous variables served as instrumental variables.

Another problem was the sample size. In a smaller study limited to one focal country, it would be easy to identify a jurisdiction's immediate neighbors. In the present study, with over 90 countries spread over six continents, identifying each country's competing jurisdictions was not feasible. Rather, we assumed that countries on the same continent constituted immediate competing jurisdictions. In this case, we averaged the continent's tax rates to represent the rates of immediate competing jurisdictions of any focal country. The tax rate of immediate competing jurisdictions variable was, however, lagged because tax rates are normally set ex-ante. In other words, a jurisdiction can only imitate a neighbor's existing tax rate. The use of lagged values for the competing tax rate variable as well as lagged values for a nation's own tax rate, avoids a possible simultaneity bias.

Using the endogenous variables as instruments, we regressed tax rates on DINDEX as well as the dummy variables representing common histories and the control variables openness and presence of oil. These included LANG (English, French, Spanish, Arabic, Portuguese, and other languages), RELIG (Christianity, Islam, Buddhism, Hinduism, and other religions), and LEGSYS (civil law, English common law, Islamic law, and other legal systems).

RESULTS

The 2SLS regression results of the estimated model are produced below in Table 2. Hypothesis 1 predicted that a country's global distance index potential will be positively related to its tax rate. Hypothesis 2 on the other hand

predicted that countries that share a proximate relationship will have identical tax rates while countries that do not share such a relationship or are far apart will have rates which are substantially different. In other words, differences in tax rates increase with increases in distance. Support was found for H1. DINDEX, the distance influence potential, has a positive and significant coefficient.

Table 2: Regression Results

Intercept	23.6766*** (3.25)
Distance influence potential (DINDEX)	0.1833* (1.92)
Lag of own continent rate	0.1651*** (3.35)
Africa	5.1391* (1.72)
Asia	12.2557*** (4.55)
Europe	1.3129 (0.46)
North America	-2.4732 (0.78)
South America	-9.9988* (-2.23)
English	-9.5116* (-2.12)
French	-5.0200 (-1.10)
Spanish	6.749 (-1.69)
Other Languages	-4.1504 (-1.10)
Christianity	7.6223 (1.49)
Islam	9.0556* (1.91)
Hinduism	12.4957* (2.26)
Budhism	-5.2442 (1.07)
Civil Law	-0.3033 (-0.11)
English common law	5.0114 (1.39)
Other law	-4.3036 (-1.24)
Log of population	.3925 (0.097)
Openness	-0.0252* (-1.85)
Oil production	-2.5011* (-1.89)
N	285
F (23, 261)	4.11
<i>p</i>	0.0000
R ²	.2703
Adjusted R ²	.2060

Results are for test of Hypotheses 1 & 2; values are unstandardized regression coefficients, with t values in parentheses.

* $p < .05$; ** $p < .01$; *** $p < .001$

Hypothesis 2 was also supported. CONTINENT, which is a proxy for adjacency or proximate relatedness, has a positive and significant coefficient. Continental dummy variables of Africa ($p < .05$) and Asia ($p < .001$) show significant and positive effects, while South America ($p < .05$) has a significant but negative coefficient, indicating that the closer the countries are in South America, the greater the differences in their tax rates.

Hypothesis 3A predicted that countries with a common historical heritage will have identical tax rates even if they are far apart. The dummy variables tested here included LANG (English, French, Spanish, Portuguese, and other languages), RELIG (Christianity, Islam, Hindu, Buddhism, and other religions), and LEGSYS (English common law, civil law, Islamic law, and other legal systems). With regard to language, the evidence was contrary to expectations. No support was found for French, Spanish and other languages. Arabic was dropped in the regression due to collinearity. English was found to have a negative impact on fiscal policies. Thus, Hypothesis 3A was not supported.

Hypothesis 3B predicted that countries that share the same religion will have identical tax rates, while Hypothesis 3C predicted that countries with identical legal systems will have similar tax rates. With regard to religion, again the results were mixed. Islam and Hinduism all showed positive and significant coefficients ($p < .01$) in each case. Other religion was dropped due to collinearity and Buddhism showed a negative and insignificant effect. Christianity did not show any impact. With regard to legal system, contrary to expectation, apart from the English common law which showed a positive but insignificant effect, civil law and other law showed negative and insignificant effects. Islamic law was dropped due to collinearity.

Support was also found for the relationship between some continental dummies and tax rates. Specifically, Africa ($p < .01$), and Asia ($p < .001$) showed positive impacts. South America, on the other hand, showed a negative but significant relationship ($p < .05$). Further, North America showed a negative and insignificant relationship. Oceania was dropped due to collinearity.

DISCUSSION

The overarching purpose of this study was to investigate whether apart from the answers provided by traditional equilibrium analysis in economic theory, there are national contextual or environmental variables that may influence national corporate tax rate determination. The results indicate that the distance between nations can affect the level of interactions between them. They also confirm that common historical or cultural ties between nations or different jurisdictions can produce similar policies in the nations or jurisdictions concerned. Several suggestions can be offered for these findings.

First, as has been suggested by Scott (1983), Lawrence and Lorsch (1967), organizations are creatures of the environment. Practices and policies of the more successful or established organizations are readily copied or imitated by less successful or newer ones with the objective of achieving the same measure of success. This copying or mimicking produces conformity and hence isomorphism. Moreover, by mimicking successful organization's policies or practices, organizations avoid learning by trial and error to arrive at their own appropriate policies. This saves them time and expense. These reasons for organizational policy mimicking also apply to nations. If an emerging country like Afghanistan is formulating fiscal policy, it will not have to reinvent the wheel, but imitate the policies of those countries perceived to be successful.

The study also indicates that physical distance between countries can influence their mimetic behavior. Using the gravity theory to examine the extent of the potential influence one nation may have on another, it becomes apparent that distance or proximate relatedness influences the mimetic behavior of nations. This, for example, implies that the US, which has the greatest index of all the countries in the sample (45.24) would exert more pressure on its neighbors and force them to imitate its policies and procedures. This may explain the similarities in the fiscal policies of the US, Mexico and Canada, although in the latter case, political ideology and other variables may moderate the effect of the pressure.

The effects of common historical heritage are analogous to the effects of physical distance between nations. A common language usage between nations reduces information costs and facilitates communication. French, Spanish and Portuguese all have positive and significant impacts. English, the global language of commerce, contrary to

expectations, does not show a positive effect. This anomaly may be attributed to the fact that English has now become a global language and because of the multitude and variety of countries using it, the bonds between these countries have been weakened.

Religion also appears to play a role in the mimetic behavior of countries. Islam and Hinduism all have positive effects. The most important explanation that can be offered for this is that religious teachings can influence economic thinking. For example, Islamic teachings forbid the practice of usury or even the charging of interest. This implies that laws relating to usury may be similar in Saudi Arabia, Egypt, Morocco, Tunisia and the other Islamic countries in the sample. These similarities may extend to fiscal policies. Christianity on the other hand does not appear to affect national mimetic behavior. This may partly be due to the diverse nature of the countries which are regarded as *Christian*. Again, it may be due to the fact that in such countries, religion does not drive political or fiscal policy.

Similarities in legal systems showed a negative and insignificant impact on fiscal policies. This was contrary to expectations. This is because it is conceivable that countries with similar legal systems may have similar fiscal policies.

The African and Asian continental dummies all show significant positive effects. This implies that countries in Africa and Asia pay attention to each other's policies. The South American dummy showed a significant negative effect, indicating large variations in tax rates. On the other hand, the North American dummy, showed an insignificant and negative effect. This may be due to the fact that there are several countries which were categorized as North America which have fiscal policies which are at variance with those of the major countries of the North American continent, *viz.*, Canada and USA. Such countries include the Cayman Islands, with a corporate tax rate of 0%, The Bahamas (0%) and Bermuda (0%). Those of the USA and Canada were 35% and 39% respectively. Thus instead of proximity leading to similarities in tax rates, it has led to disparity in rates. This may be attributed to the fact Cayman Islands, The Bahamas and Bermuda are small, resource-poor countries which have to offer tax incentives to attract investors.

SUMMARY AND CONCLUSIONS

This study presents a model of inter-jurisdictional mimicking behavior that includes both previously recognized but ignored variables. Based on our results and statistical analysis, it is clear that tax rates have a relationship with such exogenous variables as adjacency, common historical and cultural ties, and gravitational pull or pressure exerted by neighbors.

By utilizing a modified gravity concept to provide an alternative explanation for mimetic fiscal isomorphism espoused by tax competition theory, the study broadens our understanding of the strategic interactions between nations in competing for investment capital through the use of fiscal policies. Indeed, the study helps to fill a void in the mimetic isomorphism literature by developing and empirically testing the concept on a global scale. Thus, the study contributes to international business research from the point of view that theories from the physical sciences can be used to explain the behavior of nations. By using a large dataset, the study extends previous studies which have been limited to the mimetic behavior between different political units in a particular country, such as between states, counties or other forms of local government.

The study will enable countries to examine whether their corporate tax rates are too high or too low in relation to their neighbors, and to adjust them accordingly in order to be able to compete for investment capital. The findings may also have some implications for advancing our understanding of multinational firm strategy. As an attempt at describing the impact of taxation on investment location decisions, our findings suggest that tax rate is an important factor in influencing a multi-national firm strategy. This is evidenced by the mimetic behavior of nations in order to achieve legitimacy, economy and efficiency in the global capital markets. Given a near factor-cost parity in the global economy, multinational enterprises can maximize their returns by investing in nations with lower tax rates. A major limitation of the study was the classification or definition of *neighbors* or adjacency. Because of the complexity involved in defining all the neighbors of each of the 97 countries in the sample, *neighborhood* was defined as all the countries on a continent. This means that countries such as Japan, Sri Lanka and Iran were all classified as neighbors or adjacent to each other. Again, apart from the fact that all these countries are on the Asian continent, there is very little in common between them which makes them neighbors. A solution to this problem will be to subdivide the continents into regions. For

example, Asia could be divided into the Middle East, the Far East, Central Asia, the Indian sub-continent, Indo-China etc. Again, such a division may further complicate the study and may add very little explanatory power to the results.

Since research is a knowledge accrual process, this study was guided by previous studies in terms of literature and modeling. This study has in turn opened a few different avenues for future research by providing a foundation for expanding the literature on the effects of contextual variables on national fiscal policy, mimetic isomorphism and its effects on capital investment flows. One way to extend our findings is to re-estimate the models using effective corporate tax rates. Research can also be extended to the effect that membership of strategic groups may have on a country's mimetic behavior. Finally, several opportunities exist to apply gravity theory in studying the competitive interactions between countries. A start has already been made with network analysis. Using the gravity theory approach in network analysis, future researchers can examine how a country's position in the global network of economic entities influences its mimetic behavior and subsequently fiscal policies.

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