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TABLE OF CONTENTS

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ATTITUDES TOWARD TAX EVASION: A DEMOGRAPHIC STUDY OF THE NETHERLANDS

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ABSTRACT

A number of studies have examined the relationship between tax collection and various demographic variables. However, until recently most of those studies have involved a United States sample population. The Internal Revenue Service provides demographic data for researchers on a regular basis. The present study goes beyond those studies in several important ways. For one, it uses data on the Netherlands taken from the World Values database. Not much work has been done on the Netherlands tax or public finance system. Thus, the present study expands on the very limited research done on the Netherlands public finance.

The present study expands on existing literature in at least two other ways as well. For one, it examines how various demographics interact with attitudes toward tax evasion. Secondly, we examine several demographic variables that were not examined in prior studies.

One of the questions in the World Values database asked whether it would be justifiable to cheat on taxes if it were possible to do so. Respondents were asked to choose a number from 1 to 10 to indicate the extent of their support for tax evasion. This study examines those responses, both overall and through the prism of more than 20 demographic variables. A trend analysis is also done to determine whether Netherlands attitudes regarding tax evasion have changed in recent years. A comparison is made with other ethical issues to determine the relative seriousness of tax evasion.

The study found that attitudes toward the justifiability of tax evasion often do vary by demographic variable. Tax evasion was found to be a less serious offense than wife beating, claiming government benefits to which you are not entitled and avoiding a fare on public transport and more serious than suicide, abortion, prostitution, euthanasia, divorce or homosexuality. The trend of opinion on the justifiability of tax evasion has been on a linear path since the first survey was conducted in 1981. Since then, tax evasion has been viewed as an increasingly serious offense over time.

Although the present study focuses on the Netherlands, the methodology used in the present study could serve as a template for research on other countries or regions.

INTRODUCTION

Most studies on taxation are written from a public finance perspective (Hyman, 1999; Kaplow, 2008; Marlow, 1995; Ricardo, 1817/1996; Rosen, 1999). They focus on issues such as how best to raise tax funds, efficiency of collection, optimum tax rates and even optimum tax evasion (Musgrave & Peacock, 1958).

Some public finance scholars have included their own ideological beliefs in a subtle manner. Musgrave (1959, 1986) and his wife (Musgrave & Musgrave, 1976) incorporated their view that the government is justified in adopting any kind of tax system it wants into their work. Their justification for this belief is that taxpayers in a democratic society choose their own representatives; thus, it cannot be said that whatever public finance system they choose can be against the wishes or best interests of their constituency. Their underlying premise is that there is a social contract between the government and the people.

The social contract theory has been discussed in various forms over the centuries (Hobbes, 1651; Locke, 1689; Rousseau, 1762). The argument has been applied to public finance, although scholars have debated some of the specifics. Spooner (1870) denied the existence of any social contract and argued that even if there was a social contract at some point in history, that contract is not binding on future generations because no individual or group of individuals can sign a contract that binds those who are not a party to it.

Another view is that the public finance system a democratically elected government adopts can be justified on moral grounds within certain limits, but there are constitutional limits to what any such government can do in the name of the people. Buchanan (1967) and other members of the Public Choice School of Economics (Buchanan & Flowers, 1975; Cullis & Jones, 1998) subscribe to this view. Buchanan and Musgrave (2001) debated their two approaches in a series of published lectures.

Walter Block conducted two studies examining the public finance literature in an unsuccessful attempt to find any justification for taxation. Perhaps the reason for his failure to find justification is because public finance scholars begin their analyses with the underlying premise that taxation is justified. They simply do not address the issue because of their belief that such questions are outside the field of public finance. Perhaps they are correct. Such issues might be more appropriate for political philosophers to discuss (Nozick, 1974).

The present study focuses specifically on tax evasion, a subtopic within the field of public finance that is seldom discussed other than in passing. When it is discussed, the focus of the discussion is usually technical aspects of the topic. This study examines the attitudes of people in the Netherlands. The data used in this study was gathered by a group of social scientists who worked in conjunction with the *World Values* surveys, which has been gathering information about attitudes on a wide range of social science issues since the early 1980s.

This study breaks new ground in several ways. Most prior research into taxpayer attitudes on tax evasion has used a United States database, mostly because the U.S. Internal Revenue

Service has published data on a regular basis and distributed it to scholars for analysis (Bloomquist, 2003a&b; Internal Revenue Service, 1978, 1983). It has only been in recent years that non-U.S. studies have been done on this subfield to any great extent. The present study reviews some of this international literature.

But it does more than that. It also examines some demographic variable that other international studies have not looked at and focuses on the Netherlands, a country where not much research has been done on taxpayer opinions regarding tax evasion.

REVIEW OF THE LITERATURE

Tax evasion has been in existence ever since the first rulers imposed taxes on their subjects (Adams, 1982, 1993; Webber & Wildavsky, 1986). People have been complaining about taxes since then as well.

Modern versions of complaints have taken several avenues. Some authors have discussed tax revolts (Baldwin, 1967; Beito, 1989; Laffer & Seymour, 1979; Larson, 1973; Rabushka & Ryan, 1982; Valentine, 2005) or revolutions (Edwards & Mitchell, 2008), while other merely talk about tax reform (Hall & Rabushka, 1985; Laffer & Seymour, 1979; Schlaes, 1999), perhaps by replacing the income tax with some sort of fairer tax system (Boortz & Linder, 2005; Champagne, 1994; Chodorov, 1954), such as the flat tax (Hall & Rabushka, 1985) or a consumption tax (Hultberg, 1996).

Another group of authors complain about the rich not paying their fair share (Cowell, 1990; Johnston, 2003, 2007; Lewis & Allison, 2002; Thorndike & Ventry, 2002) while other scholars argue that the rich are being exploited unfairly or are paying more than their fair share (Graetz & Shapiro, 2005; McGee, 1994, 1998a, 1999b, 2004, 2012). A classic study by Blum and Kalven (1953) argued that the graduated income tax is counterproductive on utilitarian grounds, which was an attempt by economists to apply utilitarian ethical theory to public finance.

Some scholars have tried to justify the tax system as the price we pay for civilization, the underlying assumption being that there is a duty to pay taxes and that any attempt to evade taxes is an attack on civilization itself (Greenwood, 2007; Holmes & Sunstein, 1999). Other scholars have challenged the legitimacy of taxes or the tax system (Block, 1989, 1993; Curry, 1982; Martinez, 1994; Nozick, 1974; Sabrin, 1995)

A few scholars have advocated abolishing the income tax and replacing it with a totally voluntary system (Curry, 1982; Sabrin, 1995). Shughart (1997) and McGee (2001) criticized the tax system for engaging in social engineering (using the tax system to encourage or discourage certain behavior) rather than revenue collecting. Members of Congress (DioGuardi, 1992; Hansen, 1984) and others (Burnham, Frankel & Fink, 1985) have warned about IRS abuses, while others expose the current waste in the system (Fitzgerald & Lipson, 1984; Grace, 1984; Gross, 1995; Payne, 1993). Myddelton (1994) discussed the power to tax as the power to destroy

from a British perspective. The practitioner literature ignores all of these arguments and focuses on technical issues (Armstrong & Robison, 1998; Oliva, 1998).

Some studies have focused on philosophical aspects of tax evasion. Leiker (1998) discussed Rousseau's views on tax evasion. Morales (1998) discussed the view that it is sometimes more important to feed the family than to pay taxes. McGee (2006a) discussed the three basic views that Crowe (1944) identified in an earlier work [Tax evasion is never ethical, sometimes ethical or always ethical] and expanded on those possibilities by adding a fourth view [There is sometimes an affirmative duty to evade taxes (McGee, 2012)]. Torgler (2003a) wrote a dissertation that examined both theoretical and empirical aspects of tax evasion and also asked the question whether to evade or not (Torgler, 2003d). He also published a book that addressed both empirical and theoretical aspects of tax evasion (Torgler, 2007a).

McGee (1994, 1998c, 2004, 2012) and Martinez (1994) asked the basic question, "When is tax evasion unethical?" Questions have been raised about the ethics of evading specific taxes, such as tariffs (McGee, 1999c), the Social Security tax (McGee, 1999e), the capital gains tax (McGee, 1999f), the estate tax (McGee, 1999g), or whether it is ethical to evade taxes in an evil or corrupt state (McGee, 1999a).

Some studies focusing on tax evasion have examined cultural (Alm & Torgler, 2004, 2004; Cullis, Jones & Lewis, 2010; Cummings, Martinez-Vazquez, McGee & Torgler, 2004; Lewis, Carrera & Jones, 2009; Su, 2006; Torgler, 2003c; Torgler & Schneider, 2007), psychological (Alm & Torgler, 2004; Alm, Martinez-Vazquez & Torgler, 2010; Frey & Torgler, 2007; Groenland & van Veldhoven, 1983; Kirchler, 2007; Kirchler, Muehlbacher, Kastlunger & Wahl, 2010; Wallschutzky, 1984) or religious (Cohn, 1998; Crowe, 1944; DeMoville, 1998; Gronbacher, 1998; Jalili, 2012; McGee, 1998a,b,d,e&f; 1999a, 2004, 2008a, 2012; Murtuza & Ghazanfar, 1998; Pennock, 1998; Smith & Kimball, 1998; Tamari, 1998; Torgler, 2006a) aspects of the issue. Space does not permit a full discussion of all of these perspectives, although some discussion related to the empirical studies that have been conducted will be included below.

The religious literature has addressed the issue of tax evasion and the perspectives are diverse. Perhaps the most comprehensive analysis of tax evasion from a religious perspective was done by Crowe (1944), a Catholic priest who examined 500 years of Catholic literature on the subject, much of which was in the Latin language. He can be credited with introducing the English-speaking public to this literature.

The Catholic view on tax evasion is far from uniform. In fact, it is probably the most diverse of the various religious views. Some Catholic scholars view tax evasion as always unethical and even a mortal sin, while others regard it as a mere infraction against the state with hardly any moral issues. Sometimes the ethics of evasion have to do with the purpose, such as the ability to pay, paying to fund an unjust war or supporting a corrupt government.

Gronbacher (1998) examined the ethics of tax evasion from the perspective of Catholic social thought and classical liberalism, a view that sees the functions of the state as limited and evasion as justifiable if the state goes beyond its legitimate functions and into the realm of

redistribution. Pennock (1998) discusses the ethics of evading taxes to cut off funding for an unjust war. Schansberg (1998) examines tax evasion from the perspective of Biblical Christianity, with emphasis on the view that we should render unto Caesar what is Caesar's and to God what is God's, although he does not identify quite what the state is entitled to.

Of the various Christian sects, the group most opposed to tax evasion is the Church of Jesus Christ of Latter-Day Saints (Mormon). The literature of this religion strictly prohibits tax evasion without exception (Smith & Kimball, 1998), presumably even in cases where Hitler is the tax collector. An empirical study of Mormon student opinion, however, found that actual practitioners of the faith, while being strongly opposed to tax evasion in general, are not totally opposed in all cases, especially where the government engages in human rights abuses (McGee & Smith, 2009).

A few scholars have addressed the ethics of tax evasion citing Muslim sources. Murtuza and Ghazanfar (1998) discussed zakat, the Muslim duty to take care of the poor, although they did not address the issue of tax evasion directly.

Yusuf (1971) wrote a book on *Economic Justice in Islam* that devoted some space to Muslim views on tax evasion. According to Yusuf, there is no duty to pay taxes assessed on income or taxes that cause prices to rise, which would include sales and use taxes, excise taxes and tariffs. There is also no duty to pay estate or inheritance taxes. Ahmad (1995) wrote a book on *Business Ethics in Islam* that took the same position, citing Yusuf (1971) as a source.

McGee (1997, 1998a, d&e, 1999a) cited these two Muslim scholars in several places, which led another Muslim scholar (Jalili, 2012) to write a book chapter disputing their views and offering an alternative Muslim position. According to Jalili, Muslims have an absolute duty to pay any and all taxes to a purely Islamic state, meaning one that follows the Sharia law. In cases where the state is not purely Muslim or is secular, the duty to pay is less than absolute.

The literature of the Baha'i faith is almost as strongly opposed to tax evasion as that of the Mormons (DeMoville, 1998). Their literature would justify evasion only in cases where members of the Baha'i faith are persecuted by the government. The literature specifically addresses the issue of Hitler as tax collector and takes the position that even Hitler is entitled to be paid, unless he persecutes members of the Baha'i faith. The issue of persecution of members of other faiths was not examined, although in fairness it should be mentioned that the literature that addressed the Hitler question was published before it because widely known that Hitler intended on targeted the Jews for extermination.

The Jewish literature is also strongly opposed to tax evasion in general, although exceptions are made where the government is corrupt or oppressive (Cohn, 1998; McGee, 1998a,f, 1999a; Tamari, 1998). The Jewish literature is strongly against tax evasion for several reasons. One reason is the belief that "the law is the law," meaning that one must always obey the law no matter what the law is. Martin Luther King, Gandhi and other rights activists would challenge this view.

Another reason is because God commands us to pay taxes, a view that might be challenged by atheists and others who are not so sure that God would never support tax evasion. A third reason to prohibit tax evasion is because of a duty to the Jewish community not to do anything that would disparage another Jew. If one Jew evades taxes, it makes all Jews look bad; therefore, Jews must not evade taxes. This position could also be challenged, especially where Hitler is the tax collector.

A fourth reason why the Jewish literature forbids tax evasion is because Jews have a duty to perform good works (mitzvos), which they might not be able to do if they go to jail for tax evasion. One might challenge this position by pointing out that there may be multiple opportunities to perform good works in prison.

The issue of paying taxes to Hitler has been raised in a number of studies. In a study soliciting the opinions of Orthodox Jewish students (McGee & Cohn, 2008), one of the questions asked was whether it would be unethical for a Jew living in Nazi Germany to pay taxes to Hitler. Of the 18 arguments that have been used historically to justify tax evasion on ethical grounds, this argument garnered the most support, although the Orthodox Jewish students did believe that there is some duty to pay taxes even to Hitler, for the reasons mentioned above.

Similar surveys to other student groups in Argentina (McGee & Ross, 2008), Armenia (McGee & Maranjyan, 2006, 2008), Australia (Gupta & McGee, 2010b; McGee & Bose, 2009b), Bosnia (McGee, Basic & Tyler, 2008, 2009), Colombia (McGee, López & Yepes, 2009), Estonia (McGee, Alver & Alver, 2008), France (McGee & M'Zali, 2009), Germany (McGee, Benk, Ross & Kiliçaslan, 2009; McGee, Nickerson & Fees, 2006, 2009), Guatemala (McGee & Lingle, 2008), Kazakhstan (McGee & Preobragenskaya, 2008), Latin America (McGee & López, 2008), Mali (McGee & M'Zali, 2008), New Zealand (Gupta & McGee, 2010a), Poland (McGee & Bernal, 2006), Puerto Rico (McGee & López, 2007), Romania (McGee, 2006c; McGee, Basic & Tyler, 2008), Slovakia (McGee & Tusan, 2008), Thailand (McGee, 2008e), Turkey (McGee & Benk, 2011) and Ukraine (Nasadyuk & McGee, 2006, 2008), as well as international business academics teaching in the United States (McGee, 2006b) and Turkish tax practitioners (McGee, Benk, Yildirim & Kayikçi, 2011), also rated the paying taxes to Hitler as high on the list of arguments to justify tax evasion, although this argument was not always at the top of the list in terms of justifiability.

The ranking of the argument about Jews paying taxes to Hitler on the list of 18 arguments tended to be culture or geographic specific. European and North American surveys tended to rank this argument higher on the list than surveys in Latin America, Asia, Africa, Australia and New Zealand. That argument was not included in surveys conducted in China (McGee & An, 2008; McGee & Guo, 2007; McGee & Noronha, 2008), Hong Kong (McGee & Butt, 2008; McGee, Ho & Li, 2008), Macau (McGee, Noronha & Tyler, 2007; McGee & Noronha, 2008) and Taiwan (McGee & Andres, 2009) in order not to get one of the co-authors in trouble for discussing a human rights issue.

In recent years a few other studies focusing on the ethics of tax evasion have been conducted using non-US data. Examples include, Armenia (McGee, 1999d, 2000), Asia (McGee, 2007, 2008b; Torgler, 2004b), Australia (McGee & Bose, 2009a), Austria (Torgler & Schneider, 2005), Bulgaria (Pashev, 2008a&b; Smatrakalev, 1998), Costa Rica (Torgler, 2003e), developing countries (Bird, Martinez-Vazquez & Torgler (2004), Europe (Alm & Torgler, 2006), Greece (Ballas & Tsoukas, 1998), India (Torgler, 2006b), Latin America (McGee & Gelman, 2009; Torgler, 2005), Moldova (McGee, 2009), New Zealand (Hasseldine, Kaplan & Fuller, 1994; McGee & Bose, 2009a), Romania (McGee, 2009), Russia (Alm, Martinez-Vazquez & Torgler, 2005, 2006; Vaguine, 1998; Vogel, 1974), Spain (Martinez-Vazquez & Torgler, 2009), Sweden (Nylén, 1998; McGee, 1998g), Switzerland (Torgler, 2004a, 2007b; Torgler & Schaltegger, 2006), Thailand (McGee, 2006d, 2008) thirty-three countries (McGee & Tyler, 2007), transition economies (McGee & Gelman, 2008; Torgler, 2003b), Turkey (Benk, McGee & Ross, 2009; McGee & Benk, 2011) and Vietnam (McGee, 2006d, 2008f). Jackson and Milliron (1986) summarized the results of some pre-1986 studies, mostly of U.S. sample populations but also including some non-US data.

A study has also been made examining trends in tax evasion for 10 transition countries (McGee, 2008c). Another study examined tax misery and tax ethics in Korea, Japan and China (McGee, 2008d).

Some of the studies listed above examined demographic variables such as gender, age, education level, and so forth. Some of those studies found that women are more opposed to tax evasion than men. Other studies found no statistical difference between male and female views. A third group of studies found men to be more opposed to tax evasion. The present study examines gender views on tax evasion, as well as several other variables that were not examined in the studies cited above.

THE PRESENT STUDY

The present study examines Netherlands attitudes on tax evasion. It examines more than 20 demographic variables. It is probably the most comprehensive study of tax evasion attitudes in the Netherlands available in the English language. The sample size is more than 1,000, covering a wide demographic in terms of gender, age, occupation, marital status, religion, education, income level, etc.

METHODOLOGY

Groups of social scientists all over the world have been conducting coordinated surveys of the world's population since the 1980s. Some surveys have solicited the opinions of more than 200,000 people in more than 80 countries. The surveys included hundreds of questions on a wide

range of subjects. One question in the most recent surveys addressed attitudes toward tax evasion:

> Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: Cheating on taxes if you have a chance.

The range of responses used a 10-point Likert Scale where 1 = never justifiable and 10 = always justifiable. The surveys collected data on a number of demographic variables, including level of education, gender and age. The present study uses the data gathered in the most recent survey on the Netherlands. The sample size was slightly more than 1,000.

More that 20 demographic variables are examined using t-tests and ANOVAs to determine whether any differences are significant at the 5 percent level. The ANOVA was used to analyze mean score differences between groups as a whole. The ANOVA scores are reported in the "b" tables. T-tests were sometimes made to compare the mean scores of two particular groups. Those scores, where made, are reported in the "a" tables.

FINDINGS

The findings are given below, classified by variable.

Gender

Several other studies have examined views on tax evasion based on gender. Studies in Australia (McGee & Bose, 2009b, China (McGee & Guo, 2007), Colombia (McGee & López & Yepes, 2009), Estonia (McGee, Alver & Alver, 2008), Guatemala (McGee & Lingle, 2008), Orthodox Jewish students (McGee & Cohn, 2008), New Zealand (Gupta & McGee, 2010a), Puerto Rico (McGee & López, 2007), South Africa (McGee & Goldman, 2010), Taiwan (McGee & Andres, 2009),Thailand (McGee, 2008e) and the United States (McGee, 2006b, McGee, Nickerson & Fees, 2006) found that women were more opposed to tax evasion. Men were more opposed to tax evasion in studies of Romania (McGee, 2006c), Slovakia (McGee & Tusan, 2008), Turkey (McGee & Benk, 2011) and Vietnam (McGee, 2008f). Differences between male and female opinion were statistically insignificant in studies of Argentina (McGee & Rossi, 2008), China (McGee & An, 2008; McGee & Noronha, 2008), France (McGee & M'Zali, 2009), Hong Kong (McGee & Butt, 2008), Kazakhstan (McGee & Preobragenskaya, 2008) and Macau (McGee & Noronha, 2008; McGee, Noronha & Tyler, 2007).

Table 1 shows that women were significantly more opposed to tax evasion than men in the Netherlands. The difference is significant at the 1 percent level ($p = 0.0028$). This finding conforms to the findings of other studies that found women to be more averse to tax evasion.

However, it differs from other studies that found no significant difference and in studies that found men to be more opposed to tax evasion.

H1: People are equally averse to tax evasion regardless of gender.
H1: Rejected.

Table 1: Ranking by Gender
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Gender	Mean	Std. Dev.	n
1	Female	2.1	2.02	532
2	Male	2.5	2.28	503
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Male v. Female				0.0028

Age

Some prior tax evasion studies have found that older people are more averse to tax evasion than younger people (Gupta & McGee, 2010, 2010a; McGee, Alver & Alver, 2008; McGee & Tusan, 2008; McGee & Benk, 2011). Some prior studies also examined age as a variable and found that as people get older then have more respect for law and authority or they become more ethical (Babakus et al., 2004; Barnett & Karson, 1987, 1989; Harris, 1990; Kelley et al., 1990; Longenecker et al., 1989; Ruegger & King, 1992; Serwinek, 1992). However, some studies have found that younger people are more ethical (Babakus et al., 2004; Browning & Zabriskie, 1983) or that age is not a significant factor in determining ethical behavior (Akaah, 1996; Babakus et al., 2004; Callan, 1992; Izraeli, 1988; Kidwell et al., 1987). Thus, the results are mixed, although it would be fair to say that most studies that have examined age and ethical behavior have found that people have more respect for authority as they get older.

Tables 2a and 2b show the results for the age variable. Based on some other studies, one might assume a priori that the older groups would be more averse to tax evasion than the younger groups. However, that was not always the case in the present study. Although the oldest group (65+) was also the group that was most firmly opposed to tax evasion, the groups that ranked second and third in terms of opposition to tax evasion were the two youngest groups (25-34 & 14-24). The second oldest group (55-64) was least opposed to tax evasion. Thus, it could fairly be said that the pattern in the Netherlands does not conform neatly to the pattern found in some other countries. An ANOVA found that the difference between groups was significant at the 1 percent level ($p < 0.0001$). Some of the t-test comparisons between individual groups were also significant at the 1 percent and 5 percent levels. Thus, we can say that attitude toward tax evasion differs significantly by age, but we cannot say that older people are more averse to tax

evasion than younger people because that is not always true. It is true in the case of the oldest group (65+) but definitely not for the second oldest group (55-64).

H2: People are equally averse to tax evasion regardless of age.
H2: Rejected.

Table 2a : Ranking by Age
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Age	Mean	Std. Dev.	n
1	65+	1.8	1.83	163
2	25-34	1.9	1.82	175
3	15-24	2.2	1.86	145
4	45-54	2.3	2.17	160
5	35-44	2.6	2.41	235
6	55-64	2.8	2.52	156
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
15-24 v. 55-64				0.0202
25-34 v. 35-44				0.0014
25-34 v. 55-64				0.0002
35-44 v. 65+				0.0004
45-54 v. 65+				0.0258
55-64 v. 65+				0.0001

Table 2b: Age and Attitudes toward Tax Evasion
ANOVA Analysis

	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	130.054	5	26.011	5.678	<0.0001
Within Groups	4,709.184	1,028	4.581		
Total	4,839.238	1,033			

Marital Status

Tables 3a and 3b show the results for the marital status variable. The divorced and widowed categories have identical mean scores, indicating equal opposition to tax evasion. People who are separated have the least opposition to tax evasion. People who are living together as married and people who are single/never married have identical mean scores. An ANOVA found that the difference between groups was only significant at the 10 percent level ($p = 0.077$), which is not significant for purposes of the present study. However, some of the t-test comparisons between two individual groups did show significance at the 5 percent level.

H3: People are equally averse to tax evasion regardless of marital status.
H3: Rejected.

Table 3a: Ranking by Marital Status (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Marital Status	Mean	Std. Dev.	n
1	Divorced	2.0	1.77	53
1	Widowed	2.0	2.09	67
3	Married	2.2	2.11	498
4	Living together as married	2.4	2.20	140
4	Single/Never married	2.4	2.18	245
6	Separated	3.6	3.46	16
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Married v. Separated				0.0111
Married v. Widowed				0.4662
Divorced v. Separated				0.0156
Separated v. Widowed				0.0190
Separated v. Single/Never married				0.0418

Table 3b: Marital Status and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	45.981	5	9.196	1.992	0.077
Within Groups	4,675.819	1,013	4.616		
Total	4,721.800	1,018			

Number of Children

One might guess a priori that the more children people have, the less averse they would be to tax evasion, based on the principle of ability to pay. But on the other hand, the Netherlands has a large safety net, and people with more children might qualify for more government benefits than people with fewer children, which might cause them to be more averse to tax evasion. Thus, one cannot be sure of the relationship between the number of children one has and the attitude toward tax evasion unless one conducts an experiment, which is what we will do next.

Tables 4a and 4b show the results. Those with 8 or more children are the most strongly opposed to tax evasion. However, the sample size for this category is only one, so we can ignore it. Those with 5 or 7 children were tied for second place, but the sample sizes for those two categories was also small, and therefore not a reliable indicator of what the true mean might be. Those with 4 children ranked fourth, and with a sample size of 37 is a somewhat credible statistic. Those with 6 children were also more opposed to tax evasion than people with fewer children. The groups least opposed to tax evasion were the groups with fewer children. Thus, we can say that, generally, people with more children are more opposed to tax evasion than people with fewer children. An ANOVA found the difference between groups to be significant at only

the 10 percent level, however (p = 0.073), which means insignificant for purposes of the present study. However, some t-test comparisons between groups at the lower end of the scale did find some differences that were significant at the 5 percent level, so we can say that:

- people who do not have any children are significantly more opposed to tax evasion than people who have one child (p = 0. 0182), and
- people who have one child are significantly less opposed to tax evasion than people who have no children (p = 0.0182), two children (p = 0.0100) or four children (p = 0.0291).

More research is needed to determine why this might be the case.

H4: People are equally averse to tax evasion regardless of number of children.
H4: Rejected.

Table 4a: Ranking by Number of Children
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Number of Children	Mean	Std. Dev.	n
1	8 or more	1.0	-	1
2	5	1.5	1.12	14
2	7	1.5	0.66	2
4	4	1.8	2.04	37
5	6	1.9	2.21	5
6	2	2.2	2.13	283
7	None	2.3	1.94	342
7	3	2.3	2.28	159
9	1	2.8	2.57	149
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
None v. 1				0.0182
1 v. 2				0.0100
1 v. 4				0.0291

Table 4b:Number of Children and Attitudes toward Tax Evasion
ANOVA Analysis

	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	60.202	7	8.600	1.859	0.073
Within Groups	4,547.763	983	4.626		
Total	4,607.965	990			

Religion

Tables 5a and 5b show the results for the religion variable. Some of the sample sizes are too small to make any meaningful comparisons, and we suspect that the data for the Netherlands includes at least one error, since the mean score given for Buddhists is 9.3, which is not possible with a sample size of one. However, that mean score can be disregarded due to the small sample size.

An ANOVA found that the difference between groups is not significant ($p = 0.522$). None of the t-test comparisons of individuals groups found any significance, either.

H5: People are equally averse to tax evasion regardless of religion.
H5: Cannot be rejected.

Table 5a: Ranking by Religion
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Religion	Mean	Std. Dev.	n
1	Jew	1.0	-	1
1	Lutheran	1.0	-	1
1	Presbyterian	1.0	-	1
4	New Apostolic Church	1.5	1.33	4
5	Church of Christ	1.7	1.04	5
6	Protestant	1.9	1.62	103
7	Baptist	2.0	2.73	2
7	Hindu	2.0	-	1
9	Orthodox	2.1	1.88	57
10	Muslim	2.2	1.47	12
11	Roman Catholic	2.4	2.43	253
12	Evangelical	3.0	3.20	4
13	Christian	3.2	1.90	6
14	Pentecostal	6.0	-	1
15	Buddhist	9.3	1.05	1
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
None significant				

Table 5b: Religion and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	28.918	7	4.131	0.880	0.522
Within Groups	2,037.969	434	4.696		
Total	2,066.887	441			

Religious Practice

This question asked, "How often do you attend religious services?" The results are reported in Tables 6a and 6b. One might guess a priori that people who attend religious services more frequently are more averse to tax evasion than people who attend less frequently or not at all, but such a conclusion is tentative without conducting a test. The test below shows that those who attend more than once a week are more averse to tax evasion than are any other groups. Those who attend once a week are ranked second. These two groups have mean scores that are significantly different than the mean scores for some other groups. An ANOVA found that the difference between groups is significant at the 5 percent level ($p = 0.035$). Some t-tests also found significant differences in comparisons between individual groups.

H6: People are equally averse to tax evasion regardless of religious practice.
H6: Rejected.

Table 6a: Ranking by Religious Practice (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Religious Practice	Mean	Std. Dev.	n
1	More than once a week	1.5	0.80	25
2	Once a week	1.8	1.99	90
3	Less than once a year	2.1	1.53	50
4	Never/practically never	2.3	2.13	541
5	Once a month	2.4	2.33	73
6	Once a year	2.5	2.57	79
7	Only on special holy days	2.7	2.39	118
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
More than once a week v. Only on special holy days				0.0145
Once a week v. Only on special holy days				0.0043
Once a week v. Once a year				0.0480
Once a week v. Never/practically never				0.0379

Table 6b: Religious Practice and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	63.247	6	10.541	2.266	0.035
Within Groups	4,506.818	969	4.651		
Total	4,570.065	975			

Importance of God in Your Life

The question asked, "How important is God in your life?" One might guess a priori that the more important God is in your life, the more averse you would be to tax evasion, since such people tend to respect authority, and presumably the rule of law. However, that assumption must be tested.

Tables 7a and 7b show the results. Based on the ranking, it can be said that, generally, the more important God is in their life, the more opposed they are to tax evasion. The ANOVA found the difference in mean scores to be significant at the 5 percent level (p = 0.019).

H7: People are equally averse to tax evasion regardless of the importance of God in their life.
H7: Rejected.

Table 7a: RANKING BY IMPORTANCE OF GOD (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Importance of God	Mean	Std. Dev.	n
1	10 Very important	1.8	1.64	104
2	9	2.1	2.33	44
2	5	2.1	1.75	77
2	8	2.1	2.05	93
5	3	2.2	1.91	71
5	6	2.2	2.38	85
7	1 Not at all important	2.4	2.23	313
7	7	2.4	2.28	91
9	4	2.6	2.12	48
10	2	3.0	2.70	83
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
1 Not at all important v. 10 Very important				0.0119
1 Not at all important v. 2				0.0381
2 v. 10 Very important				0.0002
2 v. 8				0.0131
4 v. 10 Very important				0.0121
7 v. 10 Very important				0.0346

Table 7b: Importance of God and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	79.060	7	11.294	2.419	0.019
Within Groups	4,244.766	909	4.670		
Total	4.323.826	916			

Education Level

One might think, a priori, that the relationship between level of education and attitude toward tax evasion might be linear, although determining the direction of the line might be more difficult. On the one hand, one might assume that as the level of education increases, people become more averse to tax evasion. But on the other hand, the higher the level of education, the more knowledge one might gain on how to evade taxes. Also, since more highly educated people are generally in higher income categories, they might feel exploited by the graduated income tax system, and thus less averse to tax evasion.

Tables 8a and 8b show the results. People with no formal education were the most strongly opposed to tax evasion. Those with inadequately completed elementary education ranked second. However, those with some university education ranked third, which breaks the pattern. Those with completed secondary school and those with college degrees were among the groups least opposed to tax evasion. Thus, there is a relationship between level of education and aversion to tax evasion, but it is not strictly linear. One might say that, in general, aversion to tax evasion tends to decreased with the level of education. An ANOVA found that the difference between groups was not significant ($p = 0.217$). However, t-tests of some individual groups found one difference was significant at the 1 percent level and two differences were significant at the 5 percent level. Thus, it can be said that the level of education is sometimes a significant factor.

H8: People are equally averse to tax evasion regardless of education level.
H8: Rejected.

Table 8a: RANKING BY EDUCATION LEVEL (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Education Level	Mean	Std. Dev.	n
1	No formal education	1.5	1.26	11
2	Inadequately completed elementary education	2.0	1.89	70
3	Some university without degree	2.1	1.85	154
4	Completed elementary	2.2	2.20	179
5	Incomplete secondary – technical, vocational	2.3	2.35	128
5	Complete secondary – technical, vocational	2.3	2.26	305
7	Complete secondary – college preparatory	2.4	1.93	54

Table 8a: RANKING BY EDUCATION LEVEL (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Education Level	Mean	Std. Dev.	n
8	University with degree	2.6	2.24	63
9	Incomplete secondary – college preparatory	2.9	2.36	68
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Inadequately completed elementary education v. Incomplete secondary – college preparatory				0.0145
Completed elementary v. Incomplete secondary – college preparatory				0.0295
Incomplete secondary – college preparatory v. Some university without degree				0.0070

Table 8b: Education Level and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	44.919	7	6.417	1.364	0.217
Within Groups	4,767.379	1,013	4.706		
Total	4,812.299	1,020			

Employment Status

The results for the employment status variable are given below. It is difficult to say a priori which group might be most opposed or least opposed to tax evasion. One might guess that self-employed individuals would be least opposed, since they have to make the tax payments themselves, and thus see their money leaving their pockets, wallets or purses, whereas other groups have taxes withheld from their paychecks, and thus do not feel the bite as much. But this initial perception needs to be tested before any conclusions can be reached.

Tables 9a and 9b show the results. Housewives was the group most opposed to tax evasion, followed by retired people. One reason why housewives might be most opposed to tax evasion is because they do not pay taxes, and thus do not feel the bite of taxes, which is relatively high in the Netherlands. One might guess that retired people would be strongly opposed to tax evasion because they rely on the tax payments from those who are still working to pay their government pensions. Also, retired people are older than the general population, and there is usually a relationship between age and opposition to tax evasion, although that relationship did not hold true for the Netherlands sample. Full-time employees and the self-employed had identical mean scores and were the groups least opposed to tax evasion.

An ANOVA found the difference between groups to be significant at the 1 percent level ($p < 0.0001$). Some of the t-test comparisons between individual groups also found the difference to be significant at the 1 percent or 5 percent level.

H9: People are equally averse to tax evasion regardless of employment status.
H9: Rejected.

Table 9a: RANKING BY EMPLOYMENT STATUS (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Employment Status	Mean	Std. Dev.	n
1	Housewife	1.7	1.81	88
2	Retired	2.0	1.98	152
3	Part time	2.1	2.01	275
3	Unemployed	2.1	2.06	37
5	Students	2.3	2.04	45
6	Full time	2.7	2.26	342
6	Self employed	2.7	2.67	40
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Full time v. Part time				0.0006
Full time v. Retired				0.0010
Full time v. Housewife				0.0001
Self employed v. Housewife				0.0144

Table 9b: Employment Status and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	118.895	6	19.816	4.438	<0.0001
Within Groups	4,339.587	972	4.465		
Total	4,458.482	978			

Occupation

One might assume, a priori, that the result for occupation might be related to the results for education level and income level, all other things being equal. However, such a view must be tentative until tested. Tables 10a and 10b show the results.

Semi-skilled manual workers were most opposed to tax evasion, followed by skilled manual workers. Members of the armed forces were least opposed to tax evasion, but we can ignore that result, since the sample size was only three. The group that showed the least opposition to tax evasion that had a sample size of 30 or more was employer/manager of an enterprise that had fewer than 10 people employed. An ANOVA found that the difference between groups was significant at the 1 percent level ($p < 0.0001$). Thus, we can say that views on tax evasion do differ by occupation.

H10: People are equally averse to tax evasion regardless of occupation.
H10: Rejected.

Table 10a : RANKING BY OCCUPATION (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Occupation	Mean	Std. Dev.	n
1	Semi-skilled manual worker	1.5	1.10	36
2	Skilled manual	1.9	1.89	208
3	Non-manual office worker	2.0	1.46	53
4	Employer/manager of establishment with 10 or more employed	2.3	1.95	30
4	Unskilled manual worker	2.3	2.13	80
6	Supervisory non-manual office worker	2.4	2.14	275
7	Professional worker	2.8	2.40	94
8	Farmer – has own farm	2.9	2.23	14
9	Foreman and supervisor	3.0	3.09	53
10	Employer/manager of establishment with less than 10 employed	3.3	3.11	37
11	Member of armed forces	7.1	3.18	3

SIGNIFICANT DIFFERENCES IN MEAN SCORES	
	p value
Employer/manager of establishment with less than 10 employed v. Supervisory non-manual office worker	0.0245
Employer/manager of establishment with less than 10 employed v. Non-manual office worker	0.0094
Employer/manager of establishment with less than 10 employed v. Skilled manual	0.0003
Employer/manager of establishment with less than 10 employed v. Semi-skilled manual worker	0.0016
Employer/manager of establishment with less than 10 employed v. Unskilled manual worker	0.0448
Professional worker v. Non manual office worker	0.0290
Professional worker v. Skilled manual	0.0005
Professional worker v. Semi-skilled manual worker	0.0022
Supervisory non-manual office worker v. Skilled manual	0.0078
Non-manual office worker v. Foreman and supervisor	0.0355
Foreman and supervisor v. Skilled manual	0.0012
Foreman and supervisor v. Semi-skilled manual worker	0.0065
Semi-skilled manual worker v. Unskilled manual worker	0.0357

Table 10b: Occupation and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	149.797	7	21.400	4.559	<0.0001
Within Groups	3,886.220	828	4.694		
Total	4,036.018	835			

Institution of Occupation

It is difficult to predict what the relationship between institution of occupation and attitude toward tax evasion might be. On the one hand, one might predict that people who work in the private sector might be less opposed to tax evasion than government employees, since private sector employees might think that government employees are underworked and overpaid, and government employees realize that their paychecks depend on taxes being paid. On the other hand, one might think that government employees might be less averse to tax evasion because they can see from the inside how tax funds are spent and might develop a high level of cynicism about government.

Tables 11a and 11b show the results. Those who work for nonprofit organizations were most opposed to tax evasion; those who work in a private business were least opposed to tax evasion. An ANOVA found the difference between groups not to be significant at the 5 percent level ($p = 0.131$). None of the t-test comparisons found significance, either.

H11: People are equally averse to tax evasion regardless of institution of occupation.
H11: Cannot be rejected.

Table 11a: RANKING BY INSTITUTION OF OCCUPATION
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Institution of Occupation	Mean	Std. Dev.	n
1	Private Non-profit Organization	1.9	1.78	70
2	Public Institution	2.2	2.09	238
3	Private Business	2.4	2.26	584
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
None Significant				

Table 11b: Institution of Occupation and Attitudes toward Tax Evasion
ANOVA Analysis

	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	19.371	2	9.686	2.035	0.131
Within Groups	4,231.590	889	4.760		
Total	4,250.961	891			

Income Level

One might think that people at the higher income levels would be less opposed to tax evasion, since they might feel exploited by the graduate income tax system. Also, people in the higher income levels also tend to be more educated than the general population and, as we

learned above, the more educated groups tend to be less averse to tax evasion than the less educated groups, which might lead us to conclude that people earning more income are less opposed to tax evasion than other groups.

The results are shown in Tables 12a and 12b. The group most opposed to tax evasion was the lowest income group. However, the highest income group ranked third. There seems to be no pattern between income group and ranking. An ANOVA found that the difference between groups was significant only at the 10 percent level (p = 0.071). However, some t-test comparisons were significant at the 1 percent or 5 percent level. Thus, we can say that aversion differs by income group in some cases.

H12: People are equally averse to tax evasion regardless of income level.
H12: Rejected.

Table 12a: RANKING BY INCOME LEVEL
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Income Level	Mean	Std. Dev.	n
1	Lower step	1.8	1.73	136
2	Seventh step	2.0	2.04	24
3	Fifth step	2.3	2.14	73
3	Tenth step	2.3	2.04	14
5	Second step	2.4	2.22	199
5	Third step	2.4	2.01	170
5	Eighth step	2.4	2.46	12
5	Ninth step	2.4	1.76	10
9	Sixth step	2.6	2.53	51
10	Fourth step	2.7	2.73	124
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Lower step v. 6				0.0147
Lower step v. 4				0.0015
Lower step v. 3				0.0062
Lower step v. 2				0.0085

Table 12b: Income Level and Attitudes toward Tax Evasion
ANOVA Analysis

	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	63.385	7	9.055	1.876	0.071
Within Groups	3,778.942	783	4.826		
Total	3,842.328	790			

Region

Tables 13a and 13b show the results by region. Gelderland and Flevoland were more opposed to tax evasion than any other region. An ANOVA found that the difference between groups was significant at the 5 percent level (p = 0.030). Some t-tests found individual differences at the 1 percent level.

H13: People are equally averse to tax evasion regardless of region.
H13: Rejected.

Table 13a: RANKING BY REGION
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Region	Mean	Std. Dev.	n
1	Gelderland	1.8	1.87	123
1	Flevoland	1.8	2.04	19
3	Utrecht	1.9	1.75	70
4	Zuid Holland	2.2	2.04	224
4	Limburg	2.2	2.31	74
4	Friesland	2.2	2.31	41
7	Zeeland	2.3	1.87	25
8	Nord Brabant	2.5	2.35	155
9	Noord Holland	2.6	2.35	171
9	Overijssel	2.6	2.15	67
9	Drenthe	2.6	2.46	30
9	Groningen	2.6	2.10	37
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Noord Holland v. Utrecht				0.0254
Noord Holland v. Gelderland				0.0019
Utrecht v. Overijssel				0.0381
Nord Brabant v. Gelderland				0.0075
Gelderland v. Overijssel				0.0082
Gelderland v. Groningen				0.0281

Table 13b: Region and Attitudes toward Tax Evasion
ANOVA Analysis

	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	72.483	7	10.355	2.227	0.030
Within Groups	4,263.325	917	4.649		
Total	4,335.809	924			

Feeling of Happiness

It is difficult to predict a priori what the relationship might be between happiness and the attitude toward tax evasion. One the one hand, one might think that happy people are tax evaders because they can keep a larger portion of the fruits of their labor. On the other hand, tax evaders might be less happy than the general population because they are constantly looking over their shoulder for the tax police.

The results are shown in Tables 14a and 14b. The groups that are very happy and quite happy are also more firmly opposed to tax evasion than are people who are not very happy. An ANOVA found the difference between groups to be significant at the 5 percent level ($p = 0.035$).

H14: People are equally averse to tax evasion regardless of level of happiness.
H14: Rejected.

Table 14a: RANKING BY FEELING OF HAPPINESS
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Feeling of Happiness	Mean	Std. Dev.	n
1	Very happy	2.1	2.10	434
2	Quite happy	2.4	2.15	538
3	Not very happy	2.7	2.65	55
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Very happy v. Quite happy				0.0291

Table 14b: Feeling of Happiness and Attitudes toward Tax Evasion
ANOVA Analysis

	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	31.422	2	15.771	3.372	0.035
Within Groups	4,771.028	1,024	4.659		
Total	4,802.450	1,026			

Satisfaction with Life

One might expect the relationship between satisfaction with life and attitude toward tax evasion might be the same as the relationship found for happiness. Tables 15a and 15b show the results. The two groups who are most dissatisfied are also the groups that are most opposed to tax evasion. However, the sample sizes were so small that their mean scores should be disregarded. There seems to be no clear pattern, although it is clear that some of the differences

between groups are significant. An ANOVA found the difference between groups was significant at the 5 percent level (p = 0.038).

H15: People are equally averse to tax evasion regardless of their degree of satisfaction with life.
H15: Rejected.

Table 15a: RANKING BY SATISFACTION WITH LIFE
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Satisfaction with Life	Mean	Std. Dev.	n
1	1 Dissatisfied	1.0	-	1
2	2	1.6	0.97	3
2	5	1.6	1.21	33
4	8	2.2	2.08	418
4	9	2.2	2.19	149
4	10 Satisfied	2.2	2.34	99
7	6	2.5	2.05	80
7	7	2.5	2.22	235
9	3	3.1	2.78	4
10	4	3.8	3.51	14
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
5 v. 6				0.0203
5 v. 7				0.0234

Table 15b: Satisfaction with Life and Attitudes toward Tax Evasion
ANOVA Analysis

	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	69.484	7	9.926	2.133	0.038
Within Groups	4,765.981	1,024	4.654		
Total	4,835.465	1,031			

State of Health

A test was conducted to determine whether there was any relationship between the state of health and attitude toward tax evasion. Tables 16a and 16b show the results. Those in poor health were more opposed to tax evasion than any of the other groups. However, an ANOVA found that the difference was not significant (p = 0.551).

H16: People are equally averse to tax evasion regardless of health status.
H16: Rejected

Table 16a : RANKING BY STATE OF HEALTH (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	State of Health	Mean	Std. Dev.	n
1	Poor	1.8	1.79	41
2	Very good	2.3	2.19	252
2	Good	2.3	2.20	503
2	Fair	2.3	2.11	238
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
None significant				

Table 16b: State of Health and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	9.844	3	3.281	0.702	0.551
Within Groups	4,816.813	1,030	4.677		
Total	4,826.656	1,033			

Self Positioning in Political Scale

If one were to guess a priori what the relationship might be between position on the political scale and attitude toward tax evasion, one might guess that the right wing would be more opposed to tax evasion because of stronger respect for the rule of law. However, one might argue in the alternative that the left wing would be more opposed to tax evasion because of their belief that taxes need to be paid to finance their various spending programs.

The results are shown in Tables 17a and 17b. Those most opposed to tax evasion were in the middle (group 5). Two of the groups at the other end (least opposed) were the extreme right and left. Thus, it appears that the middle groups are most opposed to tax evasion and the extreme left and right are least opposed. An ANOVA found the difference between groups was not significant at the 5 percent level ($p = 0.165$). However, t-tests comparing groups 3 and 8 found the difference to be significant at the 5 percent level ($p = 0.0378$) and a comparison between groups 5 and 8 found the difference to be significant at the 1 percent level ($p = 0.0082$).

H17: People are equally averse to tax evasion regardless of position on the political scale.
H17: Rejected.

Table 17a: RANKING BY SELF POSITIONING IN POLITICAL SCALE (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Self Positioning in Political Scale	Mean	Std. Dev.	n
1	5	2.2	2.20	205
1	9	2.2	1.89	14
3	3	2.3	2.22	127
3	4	2.3	2.05	112
3	7	2.3	2.04	134
6	2	2.4	2.17	49
6	6	2.4	2.14	139
8	10 Right	2.7	2.36	19
9	1 Left	3.0	2.99	25
9	8	3.0	2.64	86
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
3 v. 8				0.0378
5 v. 8				0.0082

Table 17b: Positioning in Political Scale and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	51.734	7	7.391	1.496	0.165
Within Groups	4,293.299	869	4.941		
Total	4,345.033	876			

Hard Work Brings Success

If one were to guess a priori what the relationship between the belief in hard work and attitude toward tax evasion might be, one might guess that those who believe that hard work leads to success might also be more opposed to tax evasion because of the belief in a strong rule of law. The group most opposed to tax evasion was group 3 and the next most opposed group was group 2, which are both groups that believe that hard work brings a better life. However, group 10, at the other end of the spectrum, tied for second place, which tends to disprove the a priori theory. Groups 7, 8 and 9 were least opposed to tax evasion, but group 1 was equally opposed to groups 7 and 8. Thus, it is difficult to establish a clear relationship. An ANOVA found that the difference between groups was not significant ($p = 0.953$). None of the t-tests found significant differences, either.

H18: People are equally averse to tax evasion regardless of attitude toward hard work.
H18: Cannot be rejected.

Table 18a: RANKING BY HARD WORK BRINGS SUCCESS (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Hard Work brings Success	Mean	Std. Dev.	n
1	3	2.1	1.76	144
2	2	2.2	2.33	109
2	10 Hard work doesn't generally bring success – it's more a matter of luck and connections.	2.2	2.56	31
4	4	2.3	1.90	146
4	5	2.3	2.03	166
4	6	2.3	2.06	110
7	1 In the long run, hard work usually brings a better life	2.4	2.65	52
7	7	2.4	2.16	138
7	8	2.4	2.51	85
10	9	2.5	2.52	29
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
None Significant				

Table 18b: Hard Work Brings Success and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	9.443	7	1.349	0.301	0.953
Within Groups	4,221.722	942	4.482		
Total	4,231.215	949			

Income Equality

If one were to guess a priori what the relationship might be between the view on income equality and attitude toward tax evasion, it might be that those who favor more income equality might be more averse to tax evasion because they want the graduated tax system to equalize incomes and tax evasion would make it more difficult to achieve that goal. However, such a conclusion needs to be tested.

Tables 19a and 19b show the results. The two groups that ranked highest (most opposition to tax evasion) were groups 4 and 6, which are in the middle. The next two groups were in the "equal" category. There seems to be no clear pattern. An ANOVA found that the difference between groups was significant at the 1 percent level ($p = 0.001$). T-tests of individual groups also found many significant differences.

H19: People are equally averse to tax evasion regardless of attitude toward income equality.
H19: Rejected.

Table 19a: RANKING BY INCOME EQUALITY (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Income Equality	Mean	Std. Dev.	n
1	4	1.9	1.59	84
1	6	1.9	1.66	115
3	3	2.0	1.71	85
4	2	2.1	1.80	57
4	8	2.1	1.98	148
4	10 We need larger income differences as incentives	2.1	2.56	56
7	5	2.2	1.96	136
8	1 Incomes should be made more equal	2.5	2.40	83
9	7	2.8	2.49	208
10	9	3.1	2.85	53
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
1 Incomes should be made more equal v. 6				0.0389
2 v. 9				0.0288
2 v. 7				0.0483
3 v. 7				0.0071
4 v. 7				0.0024
4 v. 9				0.0019
5 v. 9				0.0141
6 v. 7				0.0006
6 v. 9				0.0008
7 v. 8				0.0048
8 v. 9				0.0058

Table 19b: Income Equality and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	102.701	7	14.672	3.504	0.001
Within Groups	3,801.691	908	4.187		
Total	3,904.392	915			

Government Responsibility

If one were to guess a priori what the relationship might be between the view on government versus individual responsibility and the attitude toward tax evasion, one might guess that those who favor more government responsibility might also be more opposed to tax evasion, since more government responsibility requires more funds for government, and tax evasion makes it more difficult to obtain that funding. However, such a conclusion needs to be tested.

Tables 20a and 20b show the results. The two highest ranking groups are in the middle, more or less, although slanted to the more government responsibility position. The third ranking group was the extreme government position. The groups least opposed to tax evasion tended to be the groups who supported the individual responsibility position. An ANOVA found that the difference between groups was significant at the 5 percent level (p = 0.016). Some t-test results also found significant differences.

H20: People are equally averse to tax evasion regardless of attitude toward personal responsibility.
H20: Rejected.

Table 20a: RANKING BY GOVERNMNET RESPONSIBILITY
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Government Responsibility	Mean	Std. Dev.	n
1	3	1.8	1.58	109
2	5	2.0	1.96	167
3	1 The government should take more responsibility	2.1	2.11	89
4	2	2.3	2.09	75
4	8	2.3	1.90	103
6	6	2.4	2.01	114
6	7	2.4	2.03	168
8	10 People should take more responsibility	2.6	2.85	50
9	4	2.8	2.55	100
10	9	2.9	3.22	52
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
1 The government should take more responsibility v. 4				0.0426
3 v. 4				0.0007
3 v. 6				0.0142
3 v. 8				0.0380
3 v. 9				0.0041
3 v. 10 People should take more responsibility				0.0245
4 v. 5				0.0043
5 v. 9				0.0153

Table 20b: Government Responsibility and Attitudes toward Tax Evasion
ANOVA Analysis

	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	71.548	7	10.221	2.480	0.016
Within Groups	3,779.030	917	4.121		
Total	3,850.578	924			

Confidence in Government

If one were to guess a priori what the relationship between confidence in government and attitude toward tax evasion might be, one might guess that those who place more trust in government might be more opposed to tax evasion than those who have less confidence in government. However, this initial belief needs to be tested.

Tables 21a and 21b show the data. The groups who have the most trust in government are also most opposed to tax evasion, which confirms the a priori conclusion given above. An ANOVA found the group differences to be significant at the 1 percent level (p = 0.003).

H21: People are equally averse to tax evasion regardless of the degree of confidence in government.
H21: Rejected.

Table 21a: RANKING BY CONFIDENCE IN GOVERNMENT
(Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)

Rank	Confidence in Government	Mean	Std. Dev.	n
1	A great deal	1.3	0.49	8
2	Quite a lot	1.9	1.56	271
3	Not very much	2.4	2.36	538
4	Not at all	2.5	2.31	204
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Quite a lot v. Not very much				0.0017
Quite a lot v. Not at all				0.0008

Table 21b: Confidence in Government and Attitudes toward Tax Evasion
ANOVA Analysis

	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	64.435	3	21.478	4.615	0.003
Within Groups	4,732.856	1,017	4.654		
Total	4,797.291	1,020			

Confidence in the Justice System

One might guess a priori that those who have the most confidence in the justice system would also be the most opposed to tax evasion and that those who have the least confidence in the justice system would also be least opposed in tax evasion. However, this a priori conclusion needs to be tested.

Tables 22a and 22b show the data. Those who have the most confidence in the justice system also are the most opposed to tax evasion. An ANOVA found that the difference between groups was significant at the 1 percent level (p = 0.001).

H22: People are equally averse to tax evasion regardless of the degree of confidence in the justice system.

H22: Rejected.

Table 22a: RANKING BY CONFIDENCE IN THE JUSTICE SYSTEM (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Confidence in Justice System	Mean	Std. Dev.	n
1	A great deal	1.5	1.65	30
2	Quite a lot	2.1	1.85	423
3	Not at all	2.5	2.44	109
4	Not very much	2.6	2.38	445
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
A great deal v. Not very much				0.0131
A great deal v. Not at all				0.0364
Quite a lot v. Not very much				0.0006

Table 22b: Confidence in the Justice System and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	78.364	3	26.121	5.597	0.001
Within Groups	4,681.230	1,003	4.667		
Total	4,759.594	1,006			

Confidence in the Police

One might expect the same relationship between confidence in police and attitude toward tax evasion as that found for confidence in government and confidence in the justice system. Tables 23a and 23b show the data. The two groups most confident in the police were also the two groups most opposed to tax evasion. An ANOVA found that the difference between groups was significant at the 1 percent level ($p < 0.0001$).

H23: People are equally averse to tax evasion regardless of the degree of confidence in the police.

H23: Rejected.

Table 23a: RANKING BY CONFIDENCE IN THE POLICE (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Confidence in the Police	Mean	Std. Dev.	n
1	A great deal	1.9	2.30	62
2	Quite a lot	2.1	1.83	550
3	Not very much	2.7	2.44	344
3	Not at all	2.7	2.60	69
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
A v. C				0.0170
B v. C				0.0001
B v. D				0.0152

Table 23b: Confidence in the Police and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	97.098	3	32.366	7.087	<0.0001
Within Groups	4,663.001	1,021	4.567		
Total	4,760.099	1,024			

Relative Seriousness of Tax Evasion

The *World Values* surveys gathered data on several ethical issues. It was thought that comparing the mean scores on those issues to the mean score for the tax evasion question would make it possible to rank the relative seriousness of tax evasion. Tables 24a and 24b show the results.

Cheating on taxes ranked 5 out of 11 ethical issues. It was less serious than wife beating, claiming government benefits to which you are not entitled, accepting a bribe and avoiding a fare on public transit and more serious than suicide, abortion, prostitution, euthanasia, divorce and homosexuality. An ANOVA found the group difference to be significant at the 1 percent level ($p < 0.0001$). T-tests comparing the seriousness of tax evasion to the other ten acts found that the differences were all significant at the 1 percent level.

H24: Tax evasion is equally as serious as other acts.
H24: Rejected.

Table 24a: RANKING BY RELATIVE SERIOUSNESS OF TAX EVASION (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Seriousness of Tax Evasion	Mean	Std. Dev.	n
1	Wife beating	1.2	0.94	1036
2	Claiming government benefits to which you are not entitled.	1.5	1.36	1042
2	Someone accepting a bribe in the course of their duties.	1.5	1.35	1038

Table 24a: RANKING BY RELATIVE SERIOUSNESS OF TAX EVASION (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
4	Avoiding a fare on public transport.	2.0	1.84	1044
5	Cheating on taxes if you have a chance.	2.3	2.16	1035
6	Suicide	3.8	2.96	992
7	Abortion	5.5	3.04	1008
8	Prostitution	5.6	3.12	1005
9	Euthanasia	6.3	2.95	1008
10	Divorce	6.4	2.82	1025
11	Homosexuality	7.2	3.31	1015
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Cheating if you have a chance v. Claiming government benefits to which you are not entitled				0.0001
Cheating on taxes if you have a chance v. Avoiding a fare on public transport.				0.0007
Cheating on taxes if you have a chance v. Someone accepting a bribe in the course of their duties.				0.0001
Cheating on taxes if you have a chance v. Homosexuality				0.0001
Cheating on taxes if you have a chance v. Prostitution				0.0001
Cheating on taxes if you have a chance v. Abortion				0.0001
Cheating on taxes if you have a chance v. Divorce				0.0001
Cheating on taxes if you have a chance v. Euthanasia				0.0001
Cheating on taxes if you have a chance v. Suicide				0.0001
Cheating on taxes if you have a chance v. Wife beating				0.0001

Table 24b: Relative Seriousness of Tax Evasion and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	48,053.327	7	6,864.761	1,375.409	<0.0001
Within Groups	41,101.464	8,235	4.991		
Total	89,154.791	8,242			

Trend Analysis

The *World Values* surveys have been collecting data since 1981. The Netherlands participated in four of those surveys. Tables 25a and 25b show the data. The trend is clearly in the direction of more opposition to tax evasion over time. Each successive survey had a decreasing mean score. An ANOVA found the difference to be significant at the 1 percent level ($p < 0.0001$). T-tests of individual groups found that each difference was significant at the 1 percent level as well.

H25: People are just as averse to tax evasion now as they have been in the past.
H25: Rejected.

Table 25a: RANKING BY TREND (Cheating on taxes is: 1 = never justifiable; 10 = always justifiable)				
Rank	Trend	Mean	Std. Dev.	n
1	Wave 5 - 2006	2.3	2.16	1035
2	Wave 4 - 1999	2.7	2.22	1001
3	Wave 2 - 1990	3.0	2.38	1010
4	Wave 1 - 1981	3.1	2.45	1164
SIGNIFICANT DIFFERENCES IN MEAN SCORES				
				p value
Wave 1 - 1981 v. Wave 4 - 1999				0.0001
Wave 1 - 1981 v. Wave 5				0.0001
Wave 2 - 1990 v. Wave 4 - 1999				0.0035
Wave 2 - 1990 v. Wave 5				0.0001
Wave 4 - 1999 v. Wave 5				0.0001

Table 25b: Trend and Attitudes toward Tax Evasion ANOVA Analysis					
	Σ Squares	Df	Mean Squares	Fisher F-value	P value
Between Groups	412.873	3	137.624	25.785	<0.0001
Within Groups	22,448.918	4,206	5.337		
Total	22,861.790	4,209			

CONCLUDING COMMENTS

This study found several interesting relationships between attitude toward tax evasion and more than 20 demographic variables. It is perhaps the most comprehensive demographic study of Netherlands attitudes toward tax evasion done to date. The methodology used in this study can also serve as a template for studies of other countries and regions. Some of the demographic variables included in this study have not been used in prior studies, which break new ground and may serve as the basis for further research into these variables.

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A STUDY ON CORPORATE GOVERNANCE OF CHINA'S STATE-OWNED ENTERPRISES - FOCUS ON THE ROLE OF BAOSTEEL CCP ORGANIZATION

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ABSTRACT

This study is focused on Corporate Governance of China's State-Owned Enterprises(SOEs)in which research was studied on the role of State-Owned Enterprises(SOEs) under Corporate Governance of CCP(China Communist Party) organization that has been not studied a lot in previous research. As a result of the case study of Baosteel, though China's State-Owned Enterprises(SOEs) accommodated western corporate governance system, the CCP organization in the corporate has been carried out the role of internal control mechanism which complements weakness of governance structure, and is giving positive influence on governance structure of SOEs as a distinctive character of China's State-Owned Enterprises through performance of political core function.

Key words: China's SOEs, Governance Structure, the CCP organization, internal control mechanism, Baosteel.

Abbreviations: CCP, China Communist Party; SOEs, State-Owned Enterprises; COSO, Committee of Sponsoring Organizations of the Tread-way Commission; CICSC, China Internal Control Standards Committee; SASAC, State-owned Assets Supervision and Administration Commission; PSC, Party Standing Committee; CPCC, China Party Central Committee;

INTRODUCTION

There is a common understanding that the economic development of China has been commenced since the Third Plenary session of the 11th Central Committee of the China Communist Party, and at the same time initiating open door policy from that time Chinese Government launched the first step of reformation targeting SOEs. The history of Chinese economic development acquires brilliant record of economic growth at this time, could be said fairly that it was the reforming history of China's SOEs. Before reform and opening-up policy was launched, all the corporations in China were owned by the Chinese government, for the reason that the productivity of SOEs was declined and the financial performance of the SOEs

was in deficit in many years. Since 1978 Chinese government considered economic growth as the major issue to reflect the Advanced Socialist, and started process of structure renovation in versatile perspectives including ownership, management pattern, supervising and incentive mechanism of SOEs. Having proceeded reforming measure for SOEs for several times gradually for 30 years, and it looks China's SOEs have formed management structure as modern enterprise, but undeniably there is the fact that those are still behind management efficiency than western enterprise, and have many problems in ruling structure. Also because there is political peculiarity as socialist system, we could understand that China's SOEs has distinctive characteristics apparently different from the moment western countries accommodate the Capitalism. Due to these distinctive characteristics and because achievement and problems occurred in China's SOEs cannot be explained by theories of management formed based on western enterprise, so to explain the record and problems occurring from China's SOEs it is necessary to complement strategic management theories developed by other countries to adjust the Chinese situation.

This study commenced by the analysis of reforming history of ruling structure of China's SOEs which tries to find discord with strategic management theories developed previously through the case study on the ruling structure of Chinese style SOEs. Especially it aims to examine the role of CCP organization which the portion is never been discussed in the existing study on the ruling structure of China's SOEs. The interesting thing is that China's SOEs didn't remove CCP organization already in the inside the corporation during in the process of accommodating the modern enterprise system, and enforced structure renovation by strengthening the systematic function of this part's role. Therefore, it needs to investigate not only the role play of CCP organization the characteristics of China's SOEs but also what sort of relationship CCP organization has with other organizations among the system, and what kind of influence it gives to achievement of the corporation, and it is assumed by this approach it will help to understand the characteristics of ruling structure of China's SOEs more clearly.

The structure of this study is as followings. Theoretical background of governance structure was investigated, and reformation of governance structure of China's SOEs was reviewed. Case study of Baosteel the number 1 steel manufacturing company in China has been provided, propositions for empirical study on the basis of case study, and finally the conclusion of the study, suggestion of the study and limitation were provided.

THEORETICAL BACKGROUND

Corporate governance structure

For the study of governance structure theoretical background varies according to how to look at the corporation. If we see corporation in perspective of Static Contract Theory it is asserted representing body and minimization of transaction costs would be the biggest issue of

corporation in relation with resource distribution for maximization of the corporation values(Williamson, 1985; Coase, 1989). Instead, in theory of Property Theory which sees corporation as complex of property assets owned by joint union, distribution of ownership and residual claims shall be considered important(Hart & Moore, 1990).

In relationship between corporate governance structure and corporate achievement major study theories are developed as 3 as followings. First, convergence of interest hypothesis based on Agency Theory of Berle & Means(1967) or Jensen & Meckling(1976). This is the advocacy if stock ownership of corporate management is getting increased, activity costs having no relation with corporate values, so to speak, agency costs will be reduced and it forms the same interest with owners. Second, managerial entrenchment hypothesis in opposition to Agency Theory, if stock ownership of management is getting increased, then business owner tends to obtain private interest than maximization of the corporate values and values of the corporation getting decreased. Third, compromise hypothesis between Agency Theory and the managerial entrenchment hypothesis asserts that stock proportion of management and corporate values are not in linear relationship but non-linear relationship where the positive and the negative coexist according to stock holding rate(McConnell & Servaes, 1990).

According to western literature study, corporation with good governing hierarchy deals better with agency issues(Aoki & Qian, 1995). Cochran & Wartick(1988) claims that central issues of corporate governance structure derives from the facts that those should take the profit does not coincide with those taken the profit actually by strategic behavior of top management. Problems to be solved basically from the governance structure is how to secure the interest of capital supplier of the corporation and governance structure should protect the interest of capital investors of capital(Heier, Dugan & Sayers, 2004).

When considering the study of Chinese scholars on governing hierarchy of China's SOEs, due to extraordinary social and political circumstances of China, there are many asserts that stockholders-proxy representative issue of western market economy have appeared different pattern in China(Fu, 2006; Ouyang, 2003; Zhang & Han, 2008). Fu(2006) argued that the problem of governance structure of China's SOEs comes directly from characters of China's SOEs and reforming process of SOEs. They assert China's SOEs during economy transformation period due to its abstractive ownership of national property and it lacks corporate ownership which causes agency problem, and they claim ownership of national property should be clarified to solve such problem(Ouyang, 2003; Zhang & Han, 2008). Also for reformation of governance structure of China's SOEs there are claims which assert proper outside circumstance(Zou & Hu, 2004; Lv, 2008).

Also some experts claim when discussing governance structure of SOEs, problems of governance structure would be improved only when internal control mechanism of the corporation and external control mechanism of the corporation work together at the same time(Guo, 2004; Zhu, 2005). In case of the U.S. due to corruption of Enron in 2002 when the administration announced Sarbanes-Oxley Act which enforces internal control mechanism of

corporation to respond the problems of governance hierarchy unbalance of American enterprise and defects of external control system, then it became a case control mechanism has drawn attention not much dealt in previous study so far.

Internal control mechanism

The concept of internal control originates from when "Internal accounting control system" was defined for the first time in <Securities Exchange Act> of U.S. in 1934. However it was defined as definition of accounting at that time and had no organizing meaning. In 1992 the United States established Committee of Sponsoring Organizations of the Tread-way Commission(COSO), and announced Internal Control- Integrated Framework which is the professional study report on internal control. According to the report COSO Committee prepared, internal control can be defined as followings: " Internal control is a process, effected by entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding achievement of objectives in the following categories. Combining with business management internal control mechanism includes control environment, risk appraisal, control activity, information and communication and monitoring, and in modern corporate system soundness of corporate governance structure could be evaluated by internal control mechanism" (COSO, 1994).

Though China became to have interest in internal control mechanism lately since 2005 compared to western countries, they attracted worldly attention by its rapid legalization process. Chinese finance department incorporated "China Internal Control Standards Committee(CICSC)" on July 15th in 2005, and acknowledgement was spread out fast during 2005-2007, and Basic standard for enterprise internal control was into effectuation on July 1st in 2009 legally prepared by CICSC since March 2007.

By developing standards of corporate internal control mechanism in such a short period of time, obviously China is still in immature situation, and has many difference from internal control mechanism western scholars claimed (Liu, et al., 2009). Though there are many problems in China's SOEs, but what is the reason for China's SOEs not only achieved brilliant economic growth and gave positive social influence? To explain these questions let us take a look at unique organization of China's SOEs only had, the role of CCP organization performed in corporation.

REFORMING GOVERNANCE STRUCTURE OF CHINA'S SOES

By In later 20th centuries, governments around the world initiated reforming SOEs to cope with fiercely increased market competition. To face this confrontation each government by enlarging operational autonomy used various resolving methods including renovation of corporate management mechanism. By launching reforming open door policy since 1978, China has pushed firm reforming policy of SOEs by targeting effective union between state economy

and market economy continuously. Reforming SOEs since 1993 has focused on systematic renovation, initiated by launching the reformation on the ownership introduced modern corporate system into SOEs. By this measure China's SOEs could develop capability according to law, make their own decisions regarding their operations, be responsible for their own losses and profits and be capable of expanding or contracting themselves to compete international enterprise, and corporate management mechanism became systemized also. To summarize reforming history of China's SOEs would be divided as followings.

Table 1: Reforming Process and Reformation Results of China's SOE's

Reformation Time	1978-1985	1986-1991	1992-2002	2003-Now
Main Contents	Delegate the decision right to factory director holding profit into SOEs Expanded management autonomy	Management responsibility system Separation of Ownership & managerial authority	Modern Corporate System Incorporation introduced reformation, Laws Strengthening	The SASAC (State-owned Assets Supervision and Administration Commission) Establishment. Enhance supervision and service of State-owned assets
Reformation Results	Performance Evaluation System inexistence External Environment Shortage of reformation State-owned Assets Invasion victims	Short-term performance Excessive pursuit Government administrative department Corruption deepening	Despite some achievements, owner of state-owned assets is still issue	Emphasize the political core role of the CCP organization for the corporate governance structure

Though reformation of China's SOEs since 1978 has not ended yet, but acquired much achievement. Those are summarized as 3 points as followings. First, governance structure of SOEs has been improved. More than 50% of major SOEs achieved stock share system. Especially in case of SOEs directly controlled by central government of China, more than 65% among those achieved in inducing modern corporation system successfully. Second, it improved influence of state-owned economy. Total amount of State-owned capital by 2007 was 11,620 billion RMB, and total assets of SOEs was 29,464 billion RMB, and tax payment of SOEs in

2007 was 880 billion RMB which acquires 17.6% among national fiscal income reporting, and 20 China's SOEs have been grown as the Fortune 500 companies. Third, by establishing State-owned Assets Supervision and Administration Commission (SASAC), and supervised investors of State-owned assets, supervising management for State-owned assets was strengthened.

Though China's SOEs achieved great results in systematic and economic perspective for 30 years reforming drive, still there are problems remained. In legal modern enterprise system at SOEs it shows shortcomings at supervising mechanism for corporate directors due to functional absence of board of directors , and this is an assignment to be resolved by SOEs in the future. Though it is required for China's SOEs legal governance system to be adjusted to market economy to achieve target of continuing operation, but legal governance system is stationed at early primary stage so the development of SOEs is being restricted.

Wu (2008) claims the process of systematic change of China's SOEs has been restricted by political circumstance of SOEs is faced. He suggested when talking systematic reformation of China's SOEs, involvement of CCP and Chinese government, and political precondition like Socialism are operated as indispensable elements of environment, and when political roots of SOEs behind governance structure change, then we could understand the changes of governance structure in SOEs. Therefore, on the issue of what kind of role CCP organization does in China's of SOEs, and what sort of role CCP organization does in governance structure shall be investigated in details by the case study of Baosteel, the biggest Chinese steel company.

CASE STUDY OF BAOSTEEL

Introduction of company

Baosteel is Chinese representative State-owned Enterprise which is directly controlled by the SASAC what is the subsidiary department of State Council in Chinese government execute the responsibility as owner for Baosteel.

Baosteel is the most competitive steel company in China, and obtained No. 3 position in world steel industry by acquiring 38,870 thousand ton(2009) in steel production. According to survey of National Bureau of Statistics of China, Baosteel accomplished No. 1 among Chinese engineering enterprise for consecutive 6 years, and annual corporate income in 2009 was 195.3 billion RMB, and net profit was 14,900 million RMB, total assets amount 402 billion RMB, number of employee was 106,914, and ranked 220th in Fortune500.

Baosteel invested R&D budget focused into high additive value steel products and produced steel products requiring to industry as automobile, home electronics, petroleum chemistry, space aircraft and electronics, and selling those steel products by exporting to 40 countries and regions through global sales network.

In recent years Baosteel by establishing strategy which integrates steel supply chain, technological chain and resource chain and stationed itself as competent excellent corporation based on steel industry by unifying external materials through M & A.

In reforming China's SOEs Baosteel became a model enterprise inducing modern corporate system like outside director for the first time as central enterprise in October, 2005, and improved system of board of directors continuously. At the same time SASAC provided strategic reforming mission as "Combining the system of board of directors and the political core function of the CCP organization" to Baosteel and Baosteel performed reformation by focusing on relation and connection of the CCP organization and corporate governance structure continuously for that.

Furthermore, we'll take a look at governance hierarchy of Baosteel, and will analysis what kind of role the CCP organization played in the governance structure.

Baosteel started to apply modern corporate system by introducing board of directors from October in 2005. Though governance structure of Baosteel is similar to western enterprise as composed of board of directors and top management team, Party Standing Committee(PSC: top Party organization in corporation) which is the CCP organization exist both at board of directors and top management team included by overlapping, so this is different from that of United States and Europe. Detailed governance structure is as following <figuer1> and <figure2>.

Figure 1: BOD Members Of Baosteel (2009)

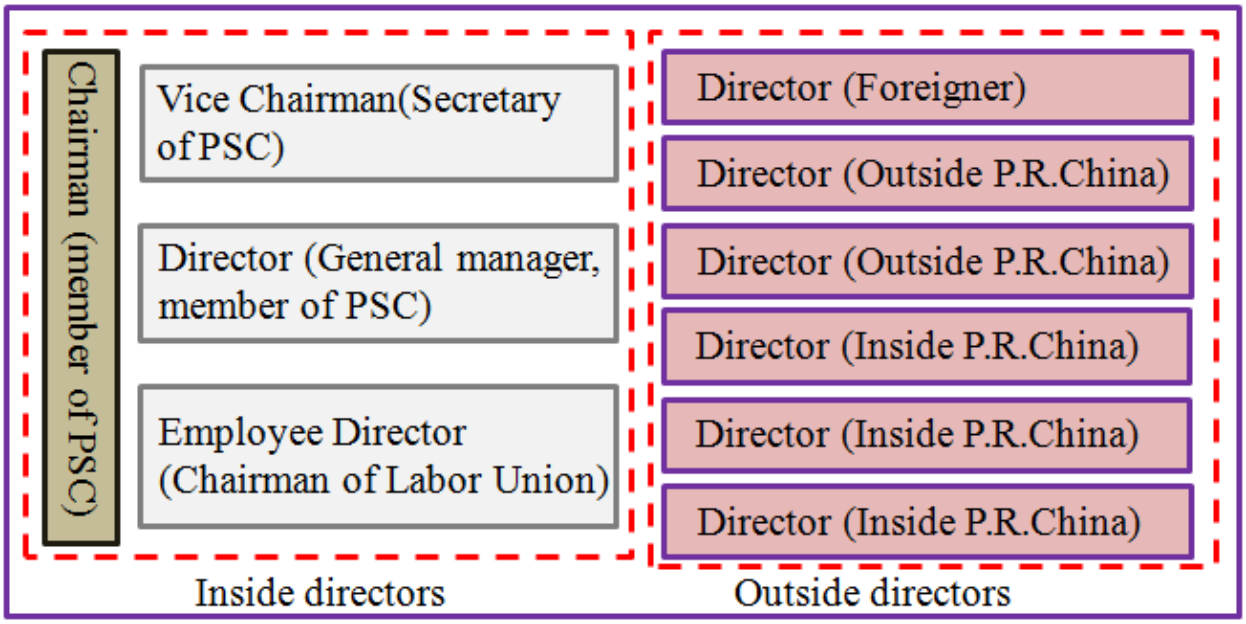
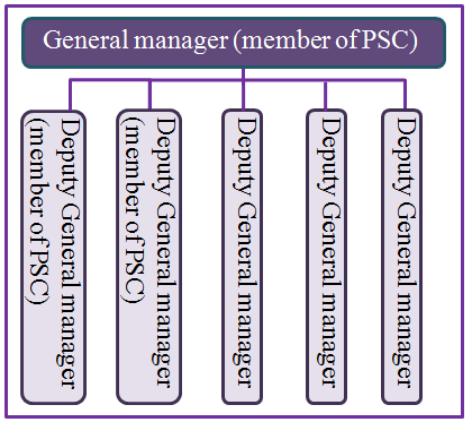


Figure 2: TMT Members Of Baosteel (2009)



As in above figure 1 and figure 2, member of the PSC of Baosteel seated member of board of directors and also participates top management as "Cross into each organization, holding two positions at the same time". This is the result after Baosteel induced system of board of directors members of PSC were reorganized to meet modern corporate system again. Contrary to top administrators executing strategy in SOEs or board of directors deciding the strategy, the Party organization of SOEs exist as role player of supervising the policy and guidelines of the State or CCP accommodated by SOEs and applied practically, PSC of Baosteel placed members of PSC into both board of directors and top management in the formation of holding additional position of board of directors and top management team from the judgment that it is not necessary to institute PSC in addition to board of directors and top management in the corporation. Therefore, though it is less than 5 years since board of directors of Baosteel instituted, and no matter what shortage of experience and know-how to perform the role of board of directors actually, because PSC developed continuously since incorporation of Baosteel exists there, so it is considered it performed as the role of supervision and assistance in some extent to top management team. And let us take a look into what kind of role the PSC does when detailed decision is made at Baosteel.

Political Core Function of Party Organization

Party organization of corporation has similarity and difference comparing to that of non-profit organization like local community and school. As a common element party organization in all organization has responsibility to preach communist philosophy and policy to lower organization and does the role of supervising whether such cell organization learn the thoughts of the China Party Central Committee(CPCC), and whether they follow administration and policy of CPCC. Difference between Party organizations in other organization, in the corporation the CCP organization provides Communism philosophy learning activities with the view to getting

economic profit. So to speak, the PSC in the company not only play the role of supervising in modern corporate system but also provide support and assistance. Vital obligation of corporation is defined to create national economic interest by achieving economic effects, and accordingly corporate PSC not only provides support to corporate economic production activities but also provides necessary support and assistance to corporate administrators through unifying with national interest in the limits not violating policy principles of CPCC and central government.

There is complicated issue that "whether the PSC make a decision directly?" in case of strategic decision making process for corporation. Actually before Chinese reforming open door policy in 1978 all the Chinese enterprises belonged to state, and it can be said top corporate administrators and the Party committee were overlapped and all the strategic decision making of corporation was decided by the CCP organization. But from early stage of open door policy Deng Xiaoping pointed it was not effective for the CCP organization to manage the corporation directly, after that the role of the CCP organization was changed to focusing political core function(Deng, 1994). The CCP organization was required to promote spiritual attainments of the corporate members and do function as political brain to moderate purpose conflict between corporation and government. Actually the CCP organization on the matter of corporate management and production perform not a decisive opinion but an assistant or supervising role. Especially in the process of introducing board of directors which is a modern corporate system the CCP organization does not replace the function of board of directors but provide assistance and support to board of directors to promote the function of supervising and decision making process. And for top management teams it does not provide intervention and policy pressure from the CCP organization, instead it would be proper interpretation for political core function of the CCP organization in SOEs to be understood as perform assistant job for administrators to establish harmonious strategy with State progress.

To consider above, corporate PSC exist having connection with organization of the modern corporate system as board of directors, top management teams and audit committee, at the same time it exists as independent political hierarchy, the role of PSC is distinctively different from those of other organizations'. Especially while audit committee does provide supervision function to administrators and board of directors, the PSC is difference from audit committee that it provides support and assistance required to top management teams and board of directors while it supervise them simultaneously.

PSC and Internal Control Mechanism

The PSC of Baosteel provides following 4 function in performing the political core function:

First, the PSC supervises the corporation whether they actually practice principles and policy of CCP and government.

Second, the PSC provides support and assistance in the realms of political authority to board of directors, meeting of stockholders and management team according to the law.

Third, the PSC participates in major important decision making of corporation and mitigates discord between board of directors and top management teams, also reports and advises negative opinion to top management teams on corporate strategy disagreement with management principles of State or CPCC. Important corporate decision makings the corporate PSC participate includes, for example, corporate development strategy, important personnel movement, management of human resources, salary distribution related to employees benefit, strategy on production and important decision making for corporate reformation.

Fourth, the PSC provides ideological and political education to enhance the Socialism construction of ideological infrastructure, and leads the management of constituent members including Labor Union and Communist Youth League which are the subsidiaries workers organization of corporation.

Considering above, the PSC of Baosteel is functioning organizing structure which proceeds performing of control environment the elements of internal control mechanism, risk evaluation of important corporate strategy and control activity, sharing the information of corporate top management team and board of directors with interactional communication, and supervising the top management teams, so the PSC of Baosteel could be understood it performs the role of internal control mechanism.

PSC and External Control Mechanism

As discussed above the CCP organization of Baosteel, PSC performs as corporate internal control mechanism. According to previous study most desirable governance structure is combination of internal control mechanism and external control mechanism, and this structure could remove agency problem most effectively. Actually considering external control mechanism of Baosteel the SASAC positioned as an owner and external circumstances which Baosteel is faced with. Therefore, the government has more tendencies to involve and advise on corporate strategic decision making process through SASAC to supervise Baosteel. If governing administrators get much restriction and intervention from SASAC. It is getting difficult to establish optimal strategy for growth of the corporation. At this time the PSC motivated as internal control mechanism connect with the CCP organization of SASAC which as external control mechanism for the corporate in order to accomplish mutual understanding and communication between Baosteel top management and SASAC to provide pleasant development environment to prevent collision between corporate and government. And at the same time it transmits policy and principles of government to top management through the PSC, it could prevent management to establish strategy which are disagreement with State or CPCC.

Human Resource Training as Basic Obligation of CCP Organization

It is true that China's SOEs is inferior to foreign enterprise on capital, technology, management know-how and etc. However one of the extraordinary superiority that they have CCP organization causes the human resources who have strong will. Party member could be described as excellent man power because they have definite confidence and excellent organization management ability. This excellent human resource is the characteristics that only China's SOEs could have. The fundamental reason Baosteel could achieve great progress as the world most competitive firm in such a short period of time by 30 years history can be found from the fact that they converted promotion and excellent organization management ability of party members into corporate competitive capability.

> *"As difference of 'Hard Capability' among enterprises is getting reduced day by day, the role of 'Soft Capability' gets more important. Soft capability has been recognized as heart of corporate core competition, and leadership of top manager can be considered as the most important 'soft capability' among them. This could be established through performance of political priority of CCP organization which conceived man as basis." -By CCP's secretary Liu*

The CCP organization of Baosteel executed decisive role in leadership training for top management team. In details it did versatile roles including capability enhancement of TMT members of PSC, formulation of responsibility, and supervision of practice process. Theoretical study of the PSC center group ("PSC Center group studying" for short) which head of by CCP organization in Baosteel, established the theme as "discussing important corporate strategic issues based on progress theory of CCP, and implementing creative idea considering overall national economy". Through the PSC center group studying, the PSC top administrators of Baosteel and staff members of board of directors not only enhance individual moral attainments but also promote acquiring capability on corporate strategy, management know-how, government policy regulations. Therefore, we see that the CCP organization provides positive influence on the concept of sustainable management of TMT members and training their leadership competence.

There are 3 major patterns among the PSC center group studying. First, it is held to deliver important document or conference spirit of CPCC and State Council. Second, it is held to report success stories of main company or subsidiaries in regular basis. Third, it is held to discuss some specific issues of corporate development regularly in seminar style. Among these three patterns, the last one "Specific issues discussion" is the most important. For example in 2009, the PSC center group studying discussed for specific issues of Baosteel was held 6 times in regular basis. In the conference active discussion was proceeded among board of directors, top managers and the PSC members in free atmosphere on the issue of future vision or facing structural problem. This has been a help for communication between board of directors and TMT to be in

accord each other, and became effective pattern for PSC to participate important strategic decision making process of corporation.

ANALYSIS OF CASE STUDY AND PROPOSITION SETTING

As studied above the CCP organization of Baosteel has been concluded promoting as internal control mechanism in corporate governance structure which coordinates relationship between top management team and board of directors. Accordingly in governance structure of China's SOEs, the PSC which is the highest organization in CCP organization performed the role of right supervision and recommendation to strategic decision making of top management teams by complementing the role of imperfect board of directors in the process of corporate modernizing process for China's SOEs. Through this it is possible for SOEs to have more rational and long-term base decision making which promote corporate values. Through this case following proposition is available.

Proposition 1 *As relationship among the PSC, board of directors and top managers get closer, interest of corporate board of directors and top management team is in accord with each other and it will give productive influence to corporate performance.*

Prop. 1-1 *If communication among the PSC, board of directors and top managers get increased, collision of opinion will be reduced, and diminishing conflict shall result positive influence to corporate performance.*

Prop. 1-2 *If cross-overlapping members are increased among the PSC, board of directors and management, top managers will consider corporate interest than individual profit, and agency problems of management will reduce which will cause positive influence for corporate performance.*

In the case of Baosteel, China's SOEs once exposed to external environment, the supervision and intervention of State Council or SASAC, in this circumstance SOEs could not only overcome restrictions of external environment by extending the connection of CCP organization but also could establish strategy to face the change of external situation. Ultimately there has positive influence to corporate performance. Therefore, the relationship between the PSC and CCP organization of SASAC as external state organization of supervision provides important element for corporate success. Upon this agenda following proposition could be drawn.

Proposition 2 *The relationship between the PSC and CCP organization of SASAC is getting intimate, external uncertainty of corporation will be reduced and shall give positive influence for corporate performance.*

Prop. 2-1 *If official communication between PSC and CCP organization of SASAC gets increased, intervention of external supervision agency will reduce and that will bring positive influence to corporate performance.*

Prop. 2-2 *If non-official communication among between PSC and CCP organization of SASAC gets increased, interest of the corporation and external supervision agency shall be in accord and will bring positive influence to corporate performance.*

CONCLUSION

This study investigated CCP organization the characteristics of Chinese State-owned corporate governance structure compared to governance structure of advanced Western Corporation not dealt with previous studies by focusing on the Chinese State-owned corporate governance structure. Specifically through the case of Baosteel we've discussed what kind of role does CCP organization in the SOEs. Looking at the case study result, PSC, the highest CCP organization of China's SOEs promote complementary role for imperfect board of directors in corporate which induced modern enterprise system, and provide supervision and assistance role to corporate top management as internal control mechanism, and also connected to SASAC, the external environment supervising the corporation as the external control mechanism. Through this it has been known that providing unified internal/external circumstance toward management of SOEs, it coordinates corporate strategy and surrounding circumstance for State and CPCC and purpose of corporation to be in accord each other. Through the case study of Baosteel on the issue of reforming governance structure of China's SOEs, the answer has been found why corporate CCP organization should be kept although modern enterprise system induced, and we could affirm the importance of role of CCP organization in the China's SOEs.

To discuss with implications of this study, first, this study is an investigative research by strategy management perspective to the role of CCP organization and it suggests we must consider the role of CCP organization of the China's SOEs when investigating their success. Second, among our study on the governance structure of China's SOEs, it could be a meaning of this study which suggested internal control mechanism the party organization performs for which previous study didn't treat much CCP organization in the SOEs has been analyzed as doing the role of internal control mechanism in the stage of present state of board of directors not mature yet. Finally it provided analysis of the role of CCP organization of China's SOEs as external circumstance coordinate mechanism. This investigated the CCP organization gave positive influence to corporate success by make it possible to respond external environment in a fast and active way. In overall sense, this study has the meaning through making comprehensive pioneer research on governance structure of China's SOEs.

To summarize limitations of this study, it is less persuading for this study to suggest Baosteel the only one case due to versatile administrative environment, industrial environment,

regional circumstance and internal situation faced with China's SOEs, so it is necessary to provide empirical study by collecting more cases of China's SOEs in the future. Also there are many difficulties to generalize the role of corporate CCP organization in Socialist country because of the shortage of previous study on the role of corporate CCP organization of other Socialist state other than China. Therefore, in the future we could proceed comparative study on governance structure of China's SOEs with that of other countries by taking SOEs of other Socialist countries as a research target and find some difference among them.

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A COMPARATIVE STUDY OF NEGOTIATION STYLES: AFGHANISTAN, IRAN AND SYRIA

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ABSTRACT

This paper examines the cultural influence on negotiation styles. The study employs comparative and corroletional empirical methods to test Casse and Deols' model on relation of negotiation styles and culture. The data used in this study was collected from three groups of Muslim university students with different cultural backgrounds. The findings of the study includes that the negotiation styles of Muslim university students from Afghanistan, Iran and Syria are not significantly different. The study concludes that the impact of national culture on negotiation styles of the Muslim students is not significant. The results of this study reinforce the findings of previous studies that the religious culture is the factor in shaping the negotiation styles of Muslim students.

INTRODUCTION

Culture and it's role in international negotiations have been the focus of many studies. The absence of cultural awareness can slow down or stop communication between a group of negotiators from different cultures and could result in failing to reach agreements. Culture includes many elements, among them nationality and religion. Previous studies have shown that people with different religious affiliations employ different negotiation styles. The purpose of this study is to examine the impact of national culture on negotiation styles of people with the same religious affiliation. The negotiation styles of three groups of Muslim university students from Afghanistan, Iran and Syria have been compared. Exploratory comparative and explanatory correlational designs have been employed.

LITERATUE REVIEW

Global economic integration in the 21st century has necessitated dialogue among public officials and private citizens of the world. However, objectives, attitudes, approaches, beliefs, values, norms and customs of negotiators vary around the negotiation table at the global level. Differences in a set of values and beliefs that characterize the behavior of negotiators from different nationality and ethnicity reflect their cultural differences (Faure & Sjostedt, 1993; Craig

& Douglas, 2006; Adapa, 2008). Culture has been defined as a pattern of shared basic assumptions that a group learns as it successfully resolves its problem of external adaptation and internal integration, and is therefore taught to new members as the appropriate means to perceive, think, feel and behave in relation to those problems (Schein, 1997; Simintiras & Thomas, 1998). Barbash and Taylor (1997) indicate that culture includes religion, gender, language, class, ethnicity, and sexual orientation.

Lack of cross cultural knowledge and understanding could be obstacle to successful inter country negotiations. Negotiation is the iterative process of communication among two or more parties that have different objectives or interests in order to reach an agreement that is satisfactory to all the parties involved (Gulbro & Herbig, 1994; Foroughi, 1998; Fraser & Zarkada-Fraser, 2002; Manning & Robertson, 2003; Wheeler, 2004a). However, the cultural background influences the way of thinking and communication of each party, as well as their values, norms, behaviors and negotiation styles (Simintiras & Thomas, 1998; Hung, 1998; Woo & Pru'homme, 1999; Chang, 2003).

Gulbro and Herbig (1994) stated that different cultures are associated with different styles of negotiation. These differences in style are the product of differences in means of communication, protocols, strategies of persuasion, and personal characteristics including accommodation, determination, flexibility and adaptation (Hung, 1998). Those who specialize in negotiation must learn to understand the styles of negotiation of foreigners by studying their cultural beliefs and norms (Chang, 2003). In order to succeed in any process of negotiation, it is therefore necessary to fully comprehend the cultural values and assumptions of all the parties involved. In addition, negotiators must view the process from the perspective of the other party in order to understand their goals as fully as possible (Fisher, 1980). Wheeler (2004b) suggested that negotiation can be fruitless if the parties have no shared notion of the objectives of the process. Janosik (1987) added that an approach informed by shared values is the method most frequently used in the process of negotiation.

Cross-cultural negotiations are made more complicated as a result of a range of factors involved, such as those relating to environment, language, ideology and customs (Mintu-Wimsatt & Gassenheimer, 2000; Hoffmann, 2001). Gulbro and Herbig (1995) stated that "when negotiating internationally, this translates into anticipating culturally related ideas that are most likely to be understood by a person of a given culture" (p.3). A number of authors have demonstrated that culture is one of the most important factors involved in cross-cultural negotiation (Gulbro & Hrbig, 1994; Schein, 1997; Hofstede, 1980; Salacuse, 2005). However, when conducting business in a cross-cultural setting, negotiation is a great deal more complex. Because of the level of sophistication of the knowledge that is required to conduct these exchanges, many negotiators are unsuccessful in reaching agreements as a result of the challenges involved in overcoming cultural differences, as opposed to any economic or legal problems (Gulbro & Herbig, 1995).

With the goal of helping individuals to distinguish between the cultures of different countries, Hofstede (1980, 1994) formulated the theory of cultural dimensions. This theory identifies the major variables of cultural difference, which consist of power distance, uncertainty avoidance, characteristics of individualism/collectivism, and masculinity/femininity. Hofstede proposes that cultural differences influence conduct, decision making and communication in business, and that collectivist and individualist values play a prominent role in the important areas of cross-cultural psychology, international management and religion (Hofstede, 1993; Kim et al., 1994; Triandis, 1995). Of Hofstede's four cultural dimensions, it is the individualism/collectivism contrast that is most often employed in cross-cultural studies of negotiation (Bazerman et al., 2000).

Casse and Deol (1985) discuss four styles of negotiation as Factual, Intuitive, Normative and Analytical Styles. They define each negotiation style as follows:

> *FA or Factual Style: people using the factual style are cool, collected, patient, down-to-earth, present-oriented, precise, realistic, able to document their statement, sticking to the facts that speak for themselves. IN or Intuitive style: this style is characterized by a charismatic tone, a holistic approach a strong imagination, a tendency to jump from one subject to another, a lot of ups and downs, a fast pace, a deductive way to approach problems as well as a future orientation. NR or Normative Style: For those who use this style negotiating is basically bargaining. They judge, assess and evaluate the facts according to a set of personal values. They appeal to feelings, offer bargains, propose rewards and incentives. They look for compromises. AN or Analytical Style: The basic assumption that underlies this style is that "logic leads to the right conclusions". These people from reasons, analyze each situation in terms of cause and effect, put things into a logic order weight pros and cons, and use a sort of linear reasoning. They are unemotional and focus upon the relationship of parts*
>
> *(Casse & Deol, 1985, p. 77-78).*

Farazmand, Tu and Danaeefard (2010) discuss the impact of religion on negotiation styles of Iranians, Taiwanese and Americans. They use a sample of university students from Iran, Taiwan and the United States of America and compare the negotiation styles of Muslim, Buddhist and Christian students. Their findings reflect significant relationship between the negotiation styles and religious beliefs of Muslim, Buddhist and Christian students. However, the study does not discuss the impact of national culture on negotiation styles of people with the same religious affiliation. The current study attempts to examine the impact of national culture on negotiation styles of Muslims. A sample of undergraduate and graduate Muslim students from Iran, Syria and Afghanistan has been surveyed and the impact of nationality on negotiation styles has been investigated.

SAMPLE AND METHODOLOGY

The present study was conducted with a sample of 150 undergraduate and graduate university students studying in Iran. The sample consisted of 50 Iranian, 50 Syrian and 50 Afghan students. The Afghan and Syrian students had a residency of 2 – 8 years In Iran. The students were enrolled in Tehran University, Ghazvin University, Tarbiat Modares University, Ferdosi University and Shahid Beheshti University. All the participants could read and write in Farsi (Persian) and survey was conducted in Farsi.

This research is a comparative exploratory and correlational explanatory study, and intended to examine, the impact of national culture on negotiation styles of Iranians, Syrians and Afghans. The objective of this study is to explore and compare the negotiation styles of the three groups of Muslim students from three different national backgrounds. Farazmand et al. (2010) show the impact of religion on negotiation styles of Muslim Iranians, Buddhist Taiwanese and Christian Americans. However, as the authors point out the results of their study does not necessarily apply to all Muslims, Buddhist or Christians. As a matter of fact the negotiation styles might vary among people with the same religious affiliation but different national or ethnicity culture. The aim of this study is to investigate the impact of national culture represented by nationality and collectivist attitude on negotiation styles of Muslim students.

A three-part questionnaire was adopted from Farazmand, Tu and Danaeefard (2010) to measure variables related to socio-demographic characteristics, collectivist attitude and negotiation styles. The first part of the questionnaire is the Socio-Demographic Profile. The second part addresses Collectivism and the third part addresses negotiation styles. The socio-demographic characteristic part included nationality, religion, educational level, gender, age and work experience, as additional explanatory predictors. For the data collection of demographic variables, the participants provided self-reported responses. These socio-demographic questions and the coding schemes included Religion: 1= Muslim, 2=Non-Muslim; Nationality: Syrian=1, Afghan=2, Iranian=3; education level: 1= Associate's degree, 2= bachelor degree, 3: Graduate degree program; Gender: 1=Males, 2=Females; Age: 1= under 18, 2= 18-28, 3= over 28; Work experience: 1= 0, 2= 1-3, 3= more than 3.

The second part of the questionnaire has been based on Hofstede's model. Hofstede (1980) noted that one unique negotiation style is to share disparate cultural values, such as Collectivism-Individualism characteristics. Among Hofstede's cultural dimensions, Collectivism-Individualism characteristics are most frequently applied in the study of cross-cultural negotiation (Bazerman et al., 2000).

The collectivist characteristic reflecting cultural differences is one of the independent variables of our research model. Second part of the questionnaire with eight questions is designed to measure the Collectivist attitude of the participants. For the second part of the questionnaire also a five-point Likert scale was utilized with 5 = "Always" (100% of the time); 4

= "Often" (75% of the time); 3 = "Occasionally" (50% of the time); 2. ="Seldom" (25% of the time); and 1 = "Never" (0% of the time).

The third part of the questionnaire consists of twenty four questions and based on Casse and Deol (1985) model. Each of the four different negotiation styles (factual, intuitive, normative, and analytical) were measure with six questions on the five-point Likert scale. There were five options for each question: 5 "Always" (around 100% of the time); 4 "Often" (around 75% of the time); 3 "Occasionally" (around 50% of the time); 2 "Seldom" (around 25% of the time); and 1 "Never" (around 0% of the time). In total, there were 24 questions for the four negotiation styles.

The internal consistency reliability of the collectivist characteristics and four negotiation styles questionnaires have been reported as: 1) collectivist characteristics (8 items); Cranach's alpha =0.81; 2) analytical negotiation styles (6 items): Cronbach's alpha =0.87; 3) normative negotiation styles (6 items): Cronbach's alpha =0.83; 4) factual negotiation styles (6 items): Cranach's alpha =0.85; and 5) intuitive negotiation styles (6 items): Cronbach's alpha =0.82 (Farazmand et al., 2010).

The negotiation styles for three groups of Iranian, Syrian and Afghan students were measured and compared. The differences between negotiation styles of the three groups analyzed with $p \leq 0.05$ as indicating statistical significance. Further, regression analysis with $p \leq 0.05$ significant level was also employed to test the correlation between negotiation styles and cultural backgrounds measured by nationalities and collectivism among the Muslim students.

RESEARCH QUESTION AND HYPOTHESIS

Farazmand et al. (2010) examined the impact of religious beliefs, collectivist characteristics, and socio-demographic characteristics on the negotiation styles between people from Iran, Taiwan and the United States. The authors show that the negotiation styles of Muslim students were significantly different from Buddhist Taiwanese and Christian American and found religion significantly affecting the negotiation styles. However, the authors address the need for further investigation to examine the differences in negotiation styles of Muslims from different cultural backgrounds. The current research focuses on the impact of national culture on negotiation styles of Muslims from three different countries. The research aims to provide an answer to the following questions: Are there differences in negotiation styles of Iranian, Syrian and Afghan Muslims? Do cultural characteristics represented by nationality and individualistic-collectivist attitude of Iranian, Syrian and Afghan Muslims affect their negotiation styles? Therefore, the current research hypothesizes that the negotiation styles employed by Iranian, Syrian and Afghan Muslims are significantly different. Second, nationality and collectivist characteristics of Iranian, Syrian and Afghan Muslim have significant effects on negotiation styles employed. Third, demographic characteristics, level of education, age, gender and years of

work experience of Iranian, Syrian and Afghan Muslims have significant effects on their negotiation styles.

RESULTS

Hundred fifty university students completed the anonymous three part questionnaire. Of the 150 students 50 (33.33%) were Syrian, 50 (33.33%) Afghan and 50(33.33%) were Iranian. Of the 50 Syrian students 78% were Muslim, 52% graduate students and all were male, of 50 Afghan students all 50 were Muslim, 52% graduate students and 90% male, and of 50 Iranian students 96% were Muslim, 64% graduate students and 94% were male. Of 150 participants 91.3% were Muslim, 56% graduate students and94.67% were male as shown in Table 1.

Table 1. Frequency Distribution of Socio-demographic Characteristics

	Syrian	Afghan	Iranian
participants	50 students	50 students	50 students
Muslim participants	78%	100%	96%
Graduate students	52%	52%	64%
Male participants	100%	90%	94%

Looking at how nationality affected the Muslim participants' collectivist attitudes, responses of the Muslim Syrian, Afghan and Iranian students for the six items of collectivism questionnaire reveal no significant differences ($p < 0.05$). As it is shown in Table 2, for Collectivism(IC) the mean difference of the three countries are not significantly different. This might indicate the cultural similarities regarding individualism/collectivism characteristic of Muslim students in this sample. Regarding the religious nature of Iranian Islamic Republic government and the possibility of religious Syrian, Afghan and Iranian students of this sample, culture is not a significant factor in affecting the collectivist attitudes of the participants. However, this result might be generalized to religious and devoted Muslims, but not to all Muslims or Muslim countries.

Table 2. Comparison Results between Collectivism and Negotiation Styles of Syrian, Afghan and Iranian Muslim Students

		Sum of Squares	df	Mean Square	F	Sig.
IC	Between Groups Within Groups Total	.102 20.446 20.547	2 133 135	.051 .154	.331	.719
Analytical	Between Groups Within Groups Total	.305 34.543 34.848	2 134 136	.152 .258	.591	.555

Table 2. Comparison Results between Collectivism and Negotiation Styles of Syrian, Afghan and Iranian Muslim Students

		Sum of Squares	df	Mean Square	F	Sig.
Normative	Between Groups Within Groups Total	.588 31.801 32.389	2 134 136	.294 .237	1.239	.293
Factual	Between Groups Within Groups Total	.419 25.315 25.734	2 134 136	.210 .189	1.109	.333
Intuitive	Between Groups Within Groups Total	1.751 31.731 33.482	2 134 136	.876 .237	3.698	.027
Note: $p<0.05$ indicate significance differences.						

Table 3 shows the comparison results regarding Muslim students' responses to 24 questions of the negotiation styles questionnaire. The results indicate no significant differences between the Analytical, Normative and Factual negotiation styles Syrian, Afghan and Iranian students. The results for the Intuitive negotiation style show significant differences between the three groups of students. However, the Post Hoc analysis for intuitive negotiation styles of Syrian, Afghan and Iranian students (Table 2) shows that only Syrian and Afghan students Intuitive negotiation style are significantly different at $p < .05$.

This last result might indicate that Syrian are slightly more flexible than Afghan in negotiations. But, the overall results regarding the three groups of Muslim students from Syria, Afghanistan and Iran did not show significant differences between their negotiation styles. In other words, the results of this study reject the hypotheses that:1) the negotiation styles employed by Iranian, Syrian and Afghan Muslims are significantly different, 2) nationality and collectivist characteristics of Iranian, Syrian and Afghan Muslims have significant effects on their negotiation styles employed.

Farazmand et al. (2010) found a significant relationship between negotiation styles and religious belief and significance differences between negotiation styles of Christian Americans, Buddhist Taiwanese and Muslim Iranians. The results of the current study show that there are no significance differences between negotiation styles of Muslim students with three different national cultural backgrounds. One might conclude that the strong religious or ideological beliefs of negotiators might be a determining factor in forming their negotiation styles.

Table 3. Post Hoc Analysis for Intuitive Negotiation Styles of Syrian, Afghan and Iranian Muslim Students					
Dependent Variable	(I) nationality	(J) nationality	Mean Difference (I-J)	Std. Error	Sig.
Intuitive	Syrian	Afghan	.27718*	.10396	.031
		Iranian	.20246	.10490	.159
	Afghan	Syrian	-.27718*	.10396	.031
		Iranian	-.07472	.09833	.750
	Iranian	Syrian	-.20246	.10490	.159
		Afghan	.07472	.09833	.750
* The mean difference is significant at the .05 level.					

Regarding gender, age, education level and experience of the participants, the mean scores of the 139 Muslim students' responses to the 24 negotiation styles questionnaires were significantly different only for the gender. In Table 4 and 5, the results of comparing the mean scores of male and female responses to the negotiation styles questionnaire shows that male Muslim students' means for the normative, factual and intuitive negotiation styles are significantly different from females' Muslim students. The higher mean scores for the male students might indicate that male Muslim students employ normative, factual and intuitive negotiation styles more than Muslim female students. However, considering the unequal proportion of 8 females to 131 males in this sample lowers the validity of the gender effects on negotiation styles for this sample and requires a more equally gender oriented sample. The comparison of mean scores of the analytical negotiation styles of the two groups did not show a significant difference.

Table 4. Comparison Results between Female and Male Muslim Students				
	Gender	N	Mean	Std. Deviation
Analytical	Male	129	2.2196	.49695
	Female	8	1.9792	.63269
Normative	Male	129	2.1318	.48711
	Female	8	1.6667	.23570
Factual	Male	129	2.0517	.42635
	Female	8	1.6875	.45806
Intuitive	Male	129	2.3385	.49561
	Female	8	1.9375	.34431

Table 5. Independent Sample T-test for Gender						
		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Analytical	Equal variances assumed Equal variances not assumed	.405	.526	1.307 1.055	135 7.545	.193 .324
Normative	Equal variances assumed Equal variances not assumed	4.454	.037	2.674 4.963	135 11.156	.008 .000
Factual	Equal variances assumed Equal variances not assumed	.076	.783	2.335 2.191	135 7.771	.021 .061
Intuitive	Equal variances assumed Equal variances not assumed	1.750	.188	2.251 3.101	135 8.906	.026 .013

The regression analysis was also conducted to test the affects of nationality orientation, collectivism attitude, gender, age, education and experience on four negotiation styles of 139 Muslim students of this sample. The results of the regression analysis did not show a significant relationship between the nationality and the negotiation styles of the Muslim students as shown in Table 6. This supports the prior research results (Farazmand et al., 2010) that religious belief is a significant variable affecting the negotiation styles. This research found that the negotiation styles of graduate and undergraduate Muslim students are not significantly affected by their different nationalities.

The regression results in Table 6 also found collectivism as a significant variable affecting normative and intuitive negotiation styles of Muslim students. The results also showed gender variables significantly affecting the normative and factual negotiation styles of Muslim students. Finally, the regression results showed a significant relationship between the educational level measured by undergraduate and graduate level and Intuitive negotiation style of Muslim students.

Table 6. Multiple Regression Results of Negotiation Styles							
Dependent Variable		**α**	***B***	**Std. Er.**	**Std. β**	**t**	**Sig.**
Analytical	(Constant)	2.147					
	gender		-.239	.191	-.111	-1.254	.212
	education		-.027	.089	-.026	-.300	.765
	age		-.101	.111	-.086	-.912	.363
	experience		.009	.061	.014	.148	.882
	nationality		.073	.056	.115	1.297	.197
	IC		.182	.114	.140	1.602	.112

Table 6. Multiple Regression Results of Negotiation Styles							
Dependent Variable		**α**	***B***	**Std. Er.**	**Std. *β***	**t**	**Sig.**
Normative	(Constant)	2.101					
	gender		-.421	.176	-.203	-2.398	.018*
	education		-.127	.082	-.129	-1.554	.123
	age		-.054	.102	-.048	-.533	.595
	experience		.026	.056	.041	.462	.645
	nationality		.063	.052	.103	1.222	.224
	IC		.298	.104	.237	2.849	.005**
Factual	(Constant)	2.574					
	gender		-.328	.160	-.178	-2.047	.043*
	education		-.135	.075	-.154	-1.809	.073
	age		.106	.093	.105	1.143	.255
	experience		-.070	.051	-.123	-1.361	.176
	nationality		-.052	.047	-.095	-1.097	.275
	IC		.061	.095	.055	.642	.522
Intuitive	(Constant)	2.108					
	gender		-.261	.174	-.125	-1.498	.137
	education		-.169	.081	-.169	-2.079	.040*
	age		.106	.101	.092	1.051	.295
	experience		.027	.056	.042	.483	.630
	nationality		-.090	.051	-.145	-1.749	.083
	IC		.339	.104	.267	3.268	.001**
*p=<.05; ** p=<.01; *** p=<.001							

CONCLUSION

The impact of culture on negotiation styles have been supported by different studies. However culture includes many factors such as environment, language, ideology, beliefs, customs, power distance, uncertainty avoidance, characteristics of individualism/collectivism, and masculinity/femininity. Farazmand et al. (2010) found that religious beliefs of negotiators affect their negotiation styles. This paper examined the negotiation styles of a sample of university students with the same religion but from three different countries and different national cultural background. The study found no significant difference between negotiation styles of 139 Muslim university students from Syria, Afghanistan and Iran. Furthermore, the study found that the nationality factor has no significant affect on negotiation styles of Muslim students.

The findings were limited to Muslim university students from Afghanistan, Iran and Syria, and it adopted only a quantitative research method and employed a self-reporting questionnaire. Furthermore, although Hofstede's model of cultural dimensions has been widely used to examine cultural issues, only one factor was examined here. The sampling plan could be expanded to a broader population and cultural dimensions in the future.

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POSSIBILITY OF DUMPING IN A MIXED DUOPOLY MODEL

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ABSTRACT

The primary objective of antidumping regulations was to identify and to prevent predatory pricing. However, use of an antidumping duty to prevent alleged dumping has historically given producers relief from foreign products that could, in fact, be competitively and fairly priced. One potential case of dumping involves public enterprise and private firm-the so-called mixed duopoly. This paper examines likelihood of taking predatory pricing as a long term strategy in mixed duopoly model. Demand and cost functions were assumed in their general functional formats with some common assumptions made for the sake of profit maximizing. The developed model is then solved using backward-induction in a two-stage profit maximization process. The results indicate that, for the private firm, setting price below cost may be optimal, but predatory pricing is not an optimal strategy for a public enterprise. Yet, the public firm's product may be treated as unfairly priced under the current legal definition of dumping.

INTRODUCTION

In the era of no-tariff, dumping is known as the only remaining powerful instrument of protectionism in international trade. While there are controversies about the current legal definition of dumping to what is dumping and what is not, predatory pricing is distinguished as a genuine dumping practice in international trade. In fact, the primary objective of all antidumping regulations was to identify and to prevent predatory pricing.

The possibility of dumping and predatory pricing as two closely related phenomena received attentions in early 1900's. For predatory pricing, the starting point was 1911 when it was believed that the Standard Oil Company established an oil refining monopoly through the use of predatory price discrimination by shutting down its rival, (McGee, 1958). While the Standard oil price cut in New Jersey was a benchmark in developing the US antitrust law, at the time it was believed that this case could be considered as a typical example of predatory price discrimination. Furthermore, McGee (1958) concluded that achieving a significant level of market power, as in the case of Standard Oil, cannot be explained by predatory price-cutting, and the actual variation in price among markets can be viewed as the difference in the demand elasticities. Therefore, any type of price discrimination due to different degrees of elasticity cannot be classified as predatory. Analysis of predatory pricing goes far beyond that of the static

framework. Williamson (1977) pointed out that all works on predatory pricing up to that point were missing a crucial point. He argues that this type of pricing policy involves strategic behavior in which intertemporal considerations are essential. In this paper, an intertemporal price setting will be developed in which the conditions under which predatory pricing can take place.

For predatory pricing to be taken place, however, it must stand for firms that setting price below cost in one period to enjoy the monopoly extraordinary profits in the second period by driving the rival out of the market. In other words, dumping and predatory pricing should be targeted to monopolize a market. Dumping has been analyzed theoretically in duopoly and oligopoly models. In this paper, setting price below marginal cost as a clear sign of predatory pricing is analyzed for two firms within a mixed duopoly model. Conditions under which such practices may take place in international setting are the focus of this paper.

The objective of this paper is twofold. First, it briefly looks at the legal definition of dumping and contrasts it with the profit maximization principle in a static framework. Second, it examines likelihood of taking predatory pricing as a genuine dumping within an international mixed duopoly model. Specifically, the paper analyzes the behavior of a domestic public enterprise and a foreign private firm that compete for a differentiated product when market share is important for future demand. Public firms are assumed to maximize social welfare function, while private firms maximize their own profits. In this paper the social welfare function is assumed to be the sum of domestic consumers' surplus and profit. Public firms' objective functions are assumed differently. In case of State Trading Enterprise (STEs), such as Canadian Wheat Board-CWB- with more that 20 percent of international wheat market share, it is assumed as to maximize producer's welfare plus all transferred income generated from sales to farm sectors via pooling[1]. The objectives of public firm may even be considered as maximization of returns to domestic produces or reducing price variability to domestic consumers. In this paper the public firm objective function includes consumer surplus along with the public firm profits.

It is believed that when consumers experience a significant amount of switching costs, cost-based dumping can be adopted as a profitable pricing policy (i.e., predatory pricing)[2]. As introduced by Klemperer (1987), contracts are also known as a source for such switching costs[3]. Thus, in the developed model, consumers are assumed to face switching costs when their demands shift from one firm to another.

The paper is organized as follows. Following the introduction, legal definition of dumping is described. Then, selling below costs and price discrimination policies, as two types of legal dumping, are considered and the inconsistency between these practices and the legal definition of dumping is discussed. In the next section, controversies about dumping are pointed out followed by a review of literature. The next section develops an international mixed duopoly model by which the possibility of predatory pricing will be examined followed by a concluding remark.

LEGAL DEFINITION OF DUMPING

According to the WTO, 2100 antidumping actions have been initiated and notified to the GATT/WTO over the past decade[4]. Moreover, the number of anti-dumping measures rose steadily. Imposing antidumping duty against foreign rivals can be more problematic when the current legal definition of dumping is considered. The legal definition of dumping is derived from the antidumping laws. Article VI of GATT and the Antidumping Code defined dumping as a situation in which products of one country are introduced into the commerce of another country at less than the normal value of the products (GATT, 1947). According to this Article, dumping will occur if the price of the product exported from one country to another is less than the comparable price, in the ordinary course of trade, for a like product when destined for consumption in the exporting country, or in the absence of such a domestic price, is less than either:

- the highest comparable price for the like product for export to any third country in the ordinary course of trade or;
- the cost of production of the product in the country of origin plus a reasonable addition for selling cost and profit (GATT 1947, Article VI:I).

This definition is widely applied by countries around the world. In 1982, the definition of dumping in the US was changed from less than the normal value into the Less Than Fair Value, LTFV. The fair value is defined as the price in the home market of the exporter or the price based on the cost of production. The easy use of the antidumping duty and the vague interpretations resulted from these definitions and procedures have made it difficult for firms, whose products are competitively and fairly priced, to get access to other countries. Thus, as more courtiers open up their economies in the era of globalization, the current definition of dumping may prevent exporting firms and consumers in the importing countries to get benefit from the low priced products.

According to the legal definition, dumping is either price discrimination or below cost pricing[5]. In the history of dumping and imposing antidumping duty, stopping the practice of predatory pricing may have been targeted as the initial purpose for establishing any allegation against a foreign rival's pricing policy[6]. Predatory pricing and price discrimination are believed to be closely related phenomena in international trade[7]. The seminal work by Viner (1966) on dumping as a trade issue was the starting point for economists. Although dumping is referred mostly to as price discrimination, price discrimination is not necessarily predatory pricing. A firm must practice price discrimination in order to engage in predatory pricing, but there are many theoretically justified reasons for firms to price discriminate that are not related to predatory practice. Theoretically, predatory pricing can be defined simply as a situation in which

a producer is harmed by a rival's strategic use of low price. (Tivig, 1998). Nevertheless, there must be a clear distinction made between predatory pricing and price discrimination.

CONTROVERSIES ABOUT DUMPING

As a trade issue, dumping can have different impacts on the foreign rival's market. The flow of cheap imports may increase uncertainty in foreign markets for firms that produce like domestically produced commodity. Yet, consumers will enjoy the lower price of the commodity. The decreased import prices might simply represent changing international competitiveness that threatens firms in the importing country. Consider a firm that is exporting a product to a foreign country and facing a less than perfectly elastic demand curve. There may be a considerable incentive to export the product into the foreign country at the lower domestic price. Given the new no-tariff era, on the import side, a lower price, which means better terms of trade, will not be welcomed by import-competing firms. The obvious result of this situation is the like product producers will argue for protection. Antidumping measures emerge as a key instrument for protection when other avenues of protection are constrained by international trade rules.

The substantial concerns about the classical definition of dumping in Article VI GATT 1947 and 1994 are based on the measurement of dumping. The point here is that the two criteria for comparison between the export price and the highest comparable price for the like product (the so-called third country and constructed cost measures[8]) would lead to diverse results. As discussed by Schmitz, *et al* (1981), using the constructed value in a case, where there is no domestic market for the exported commodity, may lead to an affirmative finding of dumping, while using the third country standard may not. The final point is that the economics of the constructed cost measure are questionable. As pointed out by Gruenspecht (1988), applying the constructed costs in the US market may lead to a determination of dumping due to low profit gained by foreign producers. More fundamentally, pricing below constructed value does not always indicate anything other than that an industry is not profitable in the short-run. That is, firms do not always make a profit.

Using antidumping duties as a measure of protectionism may impose enormous costs on the economy in the importing country. Devault (1996) found that the US welfare was reduced by $271 million annually due to the imposition of antidumping orders. Moreover, the results showed that US consumers were paying more for such import relief programs than US producers received. For instance, each dollar gained by US producers costs consumers about $3.20, and reduced total welfare by $1.1. Gallaway, Blonigen and Flynn (1996) showed in another study that the net economic welfare costs in 1993 were up to 4 billion dollars. Anderson (1993) analyzed welfare effects of antidumping duties for eight cases during 1989-90. Anderson's investigation indicates that the consumer cost per dollar of increased profits ranged from 2.40 to 2.10 dollars. Analyzing antidumping laws without considering the collective economic costs of the use of such duties is not a complete economic analysis.

The time schedule in antidumping investigations may create another significant cost to the exporting firm. In an environment where firms compete for market share, the investigation schedule in the antidumping process from initiation of the investigation through placement of a duty is long enough to be used as an instrument to change the current market share. This timing plays out in favor of firms that file a petition in order to either keep or increase their current market share, and constitute harassment.

BACKGROUND LITERATURE

In order to analyze likelihood of predatory pricing in a two-stage game, on the demand side, the intertemporal link between demands over the two periods of the game is assumed based on the switching costs. Analyzing a firm's behavior in the situation where consumers have substantial costs of switching was first proposed by Klemperer (1987). He argued that homogeneous products may become differentiated when consumers have purchased them already in the first period. Repeated purchasing will lead firms to some degree of market power in the next stage. Moreover, he divided these significant switching costs into three categories: learning costs, transaction costs, and contractual costs. The obvious result of the existence of switching costs will be a change in the nature of a product from a homogeneous to a heterogeneous commodity. This, in turn, gives the firm a degree of market power to capture the potential monopoly rent. Theoretically, and in its simplest fashion, this phenomenon can be analyzed using a single-period duopoly. However, if market share in the first period is valuable, firms will compete for this as well. It is customary to view such competition using a two-period game approach. The idea of having a publicly owned firm as an instrument to improve resource allocation in an imperfectly competitive market was proposed by Cremer. *et al*. (1989). Most examples of such oligopolistic industries existed in Western European countries and, at that time, in Canada the railroad industry. They asked the question: is it socially optimal to have any public firm in a Cournot oligopoly? If so, how many such firms should there be? The model is a mixed duopoly with one private and one public firm. Their simple analysis consists of a linear demand, constant marginal cost, and an additional fixed cost. The public firm is assumed to maximize consumer surplus only. They developed this model to an m public firm and n-m private firms. The conclusion of the model was that for a given value of marginal cost, nationalization of a single firm in an industry with only private firms is often socially the best policy.

DeFraja and Delbono (1989) modeled a mixed oligopolistic situation in which there were n private firms and a public firm. The objective function of the public firm is to maximize the sum of consumer and producer surplus. Similar to the case of Cremer. *et al.* (1989), they assumed a linear demand and a quadratic cost function. They considered four different cases. In a Stackelberg leader-follower case the public firm acts as a leader and all private firms are assumed to be followers. A common Cournot-Nash equilibrium is assumed as another possibility. Pure oligopoly, in which the public firm also maximizes its profit, named as the

entrepreneur case, is considered. Finally, if the government decided to nationalize the entire sector and maximizes the public welfare function, it is named as the public monopoly case. The results of the analysis, which depends on the assumptions of linearity of demands and quadratic cost function, indicate that nationalization is always socially superior to the Stackelberg case. The leader-follower case is also better than Cournot-Nash behavior. They end with a conclusion that if the private firm had no choice other than to compete with a publicly owned firm, they would prefer to be a follower to the public firm that behaves as a Stackelberg leader to them. In this case, none of the firms would price at marginal cost.

In a slightly different view of mixed duopoly, Delbono *et al.* (1996) modeled a mixed duopoly under the assumption of vertically differentiated products. Their model tried to analyze pricing policy for each firm. In doing so, they assumed a mixed duopoly with two commodities with a high and low quality. As in other works reviewed here, Delbono *et al.* (1996) assumed a linear demand and a quadratic cost function. A two-stage game is proposed. In the first stage of the game, firms compete in the quality levels, and in the second stage they compete for prices. Since the firms are not competing on prices over the two stages, they found that if the goods are substitutes and the private firm sets price above marginal cost, the public firm should set price above marginal cost as well. Each firm may choose the higher quality product; therefore, they considered two cases. In one case, the high quality product is produced more by the private firm than by the public firm. In another case, the high quality product produced by the public firm is greater than that produced by the private firm. This will conclude their second stage optimization that is solved first. In the first stage of the game, firms choose quality levels. They conclude that the presence of a public firm will indeed improve social welfare by either reducing the inefficiency or by decreasing product diversity.

Tivig (1998) has incorporated the existence of switching cost, which induces the future demand to be affected by the current market share, within a duopoly framework. Making steps towards a new direction in international duopoly literature, Tivig (1998) assumed a general functional format for demand and costs. In order to measure cost-based dumping and predatory pricing, he applied a two-stage game by which price and marginal cost can be compared in each stage. In period one, two firms compete on first period prices, to maximize the present discounted payoffs. Using backward induction to solve the two-stage game, the second period profits, which are a function of first period market shares, are maximized. The result of this stage will be response functions that are still a function of first period prices. Solving these response functions simultaneously gives us the optimum points of second period prices that are functions of market shares. Substituting these prices back into the first period profit functions give new profit functions that are defined merely as a function of the first period prices. These functions, in turn, can be maximized for the first period prices. If these prices are substituted back into the second period response functions, the result will be the second period prices.

To simplify the analysis, Tivig (1998) assumed a set of conditions for second order conditions. He assumed that the first order own price effects dominate the respective cross price

effects. Moreover, he made an assumption that the own price dependence of second period demand does not change with variations in the own first period market share. Under this set of assumptions, Tivig (1998) concludes that predatory pricing as an optimal pricing policy can occur in the first period of the game.

Tivig and Walz (2000) considered the occurrence of price discrimination and selling below cost dumping practices, and the implications of antidumping duties in the same category of the duopoly model described above. For simplicity, they assumed linear demand and cost functions. Their significant findings are that firms may set price below marginal costs despite the duty that must be paid according to the antidumping regulations. Furthermore, it is even possible that both firms are better off with the antidumping duty in place. In other words, both firms may be better off as their first period equilibrium prices increase in the presence of antidumping duty. Moreover, Tivig and Walz (2000) showed that these prices could increase even if the imposed antidumping duty was effective in preventing dumping. Thus, it is more profitable for firms to produce when the antidumping duty is in place. Finally, they conclude that these outcomes provide a valuable rationale for lobbying towards antidumping allegations by domestic firms.

In searching for more evidences whether government or private enterprises are more likely to engage in predatory behavior, Lott (1995) and later Lott (1999) argued that established evidences for predation suggest that government enterprises are more of a threat compared to private firms. He showed that between 54% and 100% of affirmative dumping decisions against exporting firms from nonmarket economies are attributable to those firms' publicly owned status. Sappington and Sidak (2000) argued that although Lott suitably highlighted the importance of long-run profit maximization in determination of predatory pricing, his conclusion that possibility of such action exists only for a private firm may be true if the long-run profit maximization for public enterprise is dropped.

ANALYTICAL FRAMEWORK

Following Tivig (1998) and Tivig and Walz (2000), and in order to examine how predatory pricing as the only genuine dumping could take place in a mixed duopoly case; a two-stage game is applied. Unlike the previous works, we develop a mixed duopoly model with general functional formats for demands and costs functions. In a particular instance of oligopolistic industry, publicly owned firms may compete with private firms[9]. In this framework, switching costs are involved as the key reason for intertemporal link between demands. Then, a two-stage game is employed to maximize firms' payoffs over two periods of time. Consequently, the process of setting price below cost through profit maximization is examined. The game is solved using backward induction. In this regard, a mixed duopoly model is proposed. It is also assumed that two firms are competing with each other in the domestic market. One is a public enterprise denoted by (D), which is a domestic firm in our case. The other firm, which is a foreign firm and denoted by (F), is privately owned. The difference between a public firm and a

private firm is that the public firm maximizes domestic consumers' surplus plus profits while the private firm maximizes only profits. A two-stage game is used to investigate the behavior of firms over time. The price competition lasts for two periods. The two stages are sequentially linked through first period market shares. These periods are denoted by 1 and 2. The timing of the game is as follows. First, the private and public firms decide whether to set the price at or below marginal cost. Second, the firms maximize their new pooled objective function. This new pooled objective function consists of two components. One is the regular first period objective function and the other is a discounted value of the second period objective function. The intertemporal link[10] between two periods can be made through switching costs and/or network externalities[11].

The objective function (W) of the public firm (D) during the two periods of the game is to maximize social welfare including domestic consumer surplus plus standard profits (i.e., revenue minus costs)[12]. Therefore:

$$W = CS + \pi_D$$

where consumer surplus is given by :

$$CS = \int_{p^D}^{\infty} q_D(x, P^F, \sigma^D)\, dx$$

and σ^D indicates the public firm's first period market share and is defined as $\sigma^D = \frac{q_1^D}{Q}$. Q is the total output produced by firms (i.e., $Q = q_1^D + q_1^F$).

The public and private firms' profit functions are also defined as:

$$\pi_i = P_i.q_i - TC_i \qquad i = D, F$$

Using backward induction, the second stage is solved first. The objective function of the public firm in the second period is given by the following function[13]:

$$W_2^D = \int_{P_2^D}^{\infty} q_2^D(p_2^F, \sigma_1^D; x)\, dx + p_2^D q_2^D(p_2^F, \sigma_1^D, p_2^D) - TC_D^2[q_2^D(p_2^F, \sigma_1^D, p_2^D)] \qquad (1)$$

In case of private firm the usual profit function is assumed:

$$\pi_2^F = p_2^F q_2^F(p_2^F, p_2^D, \sigma_1^F) - TC_2^F[q_2^F(p_2^F, p_2^D, \sigma_1^F)] \qquad (2)$$

$$\text{F.O.C.}\begin{cases}\dfrac{\partial W_2^D}{\partial p_2^D} = -q_2^D + q_2^D + p_2^D \cdot \dfrac{\partial q_2^D}{\partial p_2^D} - \dfrac{\partial TC_2^D}{\partial q_2^D} \cdot \dfrac{\partial q_2^D}{\partial p_2^D} = 0 \\ \dfrac{\partial \pi_2^F}{\partial p_2^F} = q_2^F + p_2^F \cdot \dfrac{\partial q_2^F}{\partial p_2^F} - \dfrac{\partial TC_2^F}{\partial q_2^F} \cdot \dfrac{\partial q_2^F}{\partial p_2^F} = 0 \end{cases} \tag{3}$$

Solving the system of equations (3) gives us two response functions in the second period, which are the function of the rival's price in the second period and its first period market share.

Arranging the system of equation (3), the following simplified F.O.C. are:

$$\begin{cases}\dfrac{\partial W_2^D}{\partial p_2^D} = (p_2^D - \dfrac{\partial TC_2^D}{\partial q_2^D})\dfrac{\partial q_2^D}{\partial p_2^D} = 0 \\ \dfrac{\partial \pi_2^F}{\partial p_2^F} = q_2^F + (p_2^F - \dfrac{\partial TC_2^F}{\partial q_2^F})\dfrac{\partial q_2^F}{\partial p_2^F} = 0 \end{cases} \tag{4}$$

The system of equations (4) implies that the firms' behavior in the second period will not be the same as in conventional duopoly. While a public firm sets price equal to marginal cost, a private firm will set the price above marginal cost, an indication of predatory pricing.

From equation (4):

$$\begin{cases}(p_2^D - \dfrac{\partial TC_2^D}{\partial q_2^D}) = 0 \\ (p_2^F - \dfrac{\partial TC_2^F}{\partial q_2^F}) = -q_2^F (\dfrac{\partial q_2^F}{\partial p_2^F})^{-1} \end{cases} \tag{5}$$

Thus, the private firm sets the price above marginal cost as the right hand side of the equation (5) is positive. This means that in the second period, the only condition for the private firm to set the price above marginal cost is to have a downward sloping (i.e., $\dfrac{\partial q_2^F}{\partial p_2^F} < 0$). The public firm will always set price at marginal cost in the second period.

The second period response functions, which depend on the rival's second period price and their first period market shares, can be written as:

$$P_2^D = F(P_2^F, \sigma_1^D)$$
$$P_2^F = G(P_2^D, \sigma_1^F)$$

Like in a simple duopoly, one may solve the two response functions simultaneously to get the equilibrium prices. Unlike the simple duopoly, these prices will not be function of some known parameters. They remain unknown since these prices will be a function of their first period market shares. For simplicity, these market shares may be replaced with the first period prices. The results will be the firm's second period prices as a function of first period prices:

$$\widetilde{P}_2^D = f(P_1^D, P_1^F)$$
$$\widetilde{P}_2^F = g(P_1^D, P_1^F) \qquad (6)$$

Finally, substituting equations (5) and (6) back into the welfare and profit functions introduced in (1) and (2), will result in objective functions of the public firm $\widetilde{W}_2^D$, and the private firm $\widetilde{\pi}_2^F$. Both these new objective functions will be merely functions of the first period prices. These functions can be written as:

$$\widetilde{W}_2^D = \int_{\widetilde{p}_D^2}^{\infty} q_2^D(p_1^F; x)\,dx + \widetilde{p}_D^2 q_2^D(p_1^F, p_1^D) - TC_D^2[q_2^D(p_1^F, p_1^D)] \qquad (7)$$

$$\widetilde{\pi}_2^F = \widetilde{p}_2^F q_2^F(p_1^F, p_1^D) - TC_2^F[q_2^F(p_1^F, p_1^D)] \qquad (8)$$

Firms non-cooperatively choose first period prices in the first stage of the game. The first period optimization problem for both firms can now be set up. Introducing a discount factor λ<1, for the public firm, the optimization problem of maximizing the total first period and the discounted second period welfare is as follows:

$$\underset{P_1^D}{Max} \quad W^D = W_1^D + \lambda \widetilde{W}_2^D .$$

Likewise, the private firm will maximize the first period profit plus the discounted second period profit at the first period. Assuming $\theta < 1$ it follows that:

$$\underset{P_1^F}{Max} \quad \pi^F = \pi_1^F + \theta \widetilde{\pi}_2^F .$$

More specifically, in the case of a public firm, the optimization problem can be written as the following:

$$\begin{aligned} Max_{P_1^D} \quad & W^D = \int_{P_1^D}^{\infty} q_1^D(p_1^F; x)\,dx + p_1^D q_1^D(p_1^F, p_1^D) - TC_1^D[q_1^D(p_1^F, p_1^D)] + \\ & \lambda\{\int_{\tilde{p}_D^2}^{\infty} q_2^D(p_1^F; x)\,dx + \tilde{p}_D^2 q_2^D(p_1^F, p_1^D) - TC_D^2[q_2^D(p_1^F, p_1^D)]\} \end{aligned} \tag{9}$$

and in the case of private firm as:

$$\begin{aligned} Max_{P_1^F} \quad & \pi^F = p_1^F q_1^F(p_1^F, p_1^D) - TC_1^F[q_1^F(p_1^F, p_1^D)] + \theta\{\tilde{p}_2^F q_2^F(p_1^F, p_1^D) \\ & - TC_2^F[q_2^F(p_1^F, p_1^D)]\} \end{aligned} \tag{10}$$

In a mixed duopoly both functions (9) and (10) need to be maximized together. In doing so, first order conditions are obtained for the first stage. These functions will be:

$$\text{F.O.C.} \begin{cases} \dfrac{\partial W^D}{\partial p_1^D} = -q_1^D + q_1^D + p_1^D \dfrac{\partial q_1^D}{\partial p_1^D} - \dfrac{\partial TC_1^D}{\partial q_1^D}\dfrac{\partial q_1^D}{\partial p_1^D} + \lambda \dfrac{\partial \tilde{W}_2^D}{\partial p_1^D} = 0 \\ \dfrac{\partial \pi^F}{\partial p_1^F} = q_1^F + p_1^F \dfrac{\partial q_1^F}{\partial p_1^F} - \dfrac{\partial TC_1^F}{\partial q_1^F}\dfrac{\partial q_1^F}{\partial p_1^F} + \theta \dfrac{\partial \tilde{\pi}_2^F}{\partial p_1^F} = 0 \end{cases} \tag{11}$$

The discounted value of the second period profit (in the case of private firm) and the discounted value of social welfare (in the case of the public firm) depend on the first period market shares, which in turn are functions of first period prices. These F.O.C. functions can be solved for first period prices as functions of the behavioral parameters.

$$\text{F.O.C.} \begin{cases} (p_1^D - \dfrac{\partial TC_1^D}{\partial q_1^D}) = -(\lambda \dfrac{\partial \tilde{W}_2^D}{\partial P_1^D})(\dfrac{\partial q_1^D}{\partial p_1^D})^{-1} \\ (p_1^F - \dfrac{\partial TC_1^F}{\partial q_1^F}) = -(q_1^F + \theta \dfrac{\partial \tilde{\pi}_2^F}{\partial p_1^F})(\dfrac{\partial q_1^F}{\partial p_1^F})^{-1} \end{cases} \tag{12}$$

In order to understand when the two firms choose predatory pricing as their optimal pricing policy, the sign of the two terms $\dfrac{\partial \tilde{\pi}_2^F}{\partial p_1^F}$ and $\dfrac{\partial \tilde{W}_2^D}{\partial P_1^D}$ need to be determined[14].

Having applied comparative static analysis to determine the sign of all terms in (12) the following conditions can be achieved. For the private firm, the first part of equation (12) can be used to draw the conclusion:

$$(p_1^F - \frac{\partial TC_1^F}{\partial q_1^F}) = -(q_2^F + \theta \frac{\partial \widetilde{\pi}_2^F}{\partial p_1^F})(\frac{\partial q_1^F}{\partial p_1^F})^{-1}. \qquad (13)$$

The key term here is $\frac{\partial \widetilde{\pi}_2^F}{\partial p_1^F}$. If this derivative reacts negatively to the first period own price and makes the value of first parenthesis of the right hand side of (13) a negative number, the private firm will set price below marginal cost. This could be assumed as a necessary condition of predatory pricing for the private firm. A zero value for $\frac{\partial \widetilde{\pi}_2^F}{\partial p_1^F}$, indicating that the second period profit dose not react to change in first period price, will put the private firm in a situation in which predatory pricing is not optimal. As was previously shown, the partial derivative term, $\frac{\partial \widetilde{\pi}_2^F}{\partial p_1^F}$ may be zero. This may occur if, and only if, the effect of a change in the first period price on the second period private producer's demand curve through the market share effect is equal to the same change through second period price of the public firm;

That is, $\frac{\partial q_2^F}{\partial \sigma^F}\frac{\partial \sigma^F}{\partial P_1^F} = \frac{\partial q_2^F}{\partial P_2^D}\frac{d(\widetilde{P}_2^D)}{dP_1^F}$.

Thus, certain conditions for the private firm to take predatory pricing as an optimal policy in the second period of the game can be concluded as:

if the comparative static term is zero or positive, $\frac{d(\widetilde{P}_2^D)}{dP_1^F} \geq 0$,

the market share effect through first period price dominates its comparative static effect through second period public firm's price that makes $\frac{\partial \widetilde{\pi}_2^F}{\partial p_1^F} < 0$, and/or

if this negative effect dominates the positive value of the second period quantity.

The only case where the public firm predatory pricing is an optimal pricing policy is where the term $\frac{\partial \widetilde{W}_2^D}{\partial P_1^D}$ becomes negative. Explicitly, if the derivate of the optimal second period

welfare reacts oppositely to the first period own price, the public firm will set price below marginal cost.

This may occur in the following situations:

if the comparative static term $\frac{d(\widetilde{P}_2^F)}{dP_1^D}$ is less than or equal to zero, predatory pricing will be optimal for the public firm.

if the comparative static term $\frac{d(\widetilde{P}_2^F)}{dP_1^D} > 0$, then predatory pricing will be an optimal policy for the public firm if, and only if, the effect of a change in the firm's first period price through market share on consumer surplus is greater than the effect of such a change through the rival's second period price, $\frac{\partial CS}{\partial \sigma^D}\frac{\partial \sigma^D}{\partial P_1^D} > \frac{\partial CS}{\partial P_2^F}\frac{d(\widetilde{P}_2^F)}{dP_1^D}$.

Other than these situations, the public firm will either set price at or above marginal cost in the first period of the game.

As it is shown, for the public firm setting price below marginal cost is not optimal. Further, there is no intention for the public firm to do so as its optimal pricing policy in the second period is to set price at marginal cost. In this setting, under specific conditions and in the second period of the game it may be plausible for the private firm to choose above marginal cost as an optimal pricing policy, an indication of predation behavior.

CONCLUDING REMARKS

The first objective of this paper was to review controversies about the legal definitions of dumping. There are two general categories of criticism regarding current antidumping laws. In the first category, critics of antidumping duties argue that this instrument has a negative impact on the economy through changing current prices, and therefore the current trade flow[15]. In other words, it restricts trade flows and is known as a measure that facilitates rent-seeking behavior by vested interests. The second category includes the high economic cost imposed on the economy when domestic producers file a petition against rivals and result in a lengthy timetable of investigations.

Theoretically, dumping cannot be applied to the short run profit maximization when firms face some degree of market power. Depending on the nature of the demand and cost structures, firms decide how to price their products in both the domestic and foreign markets. The situation in which firms intend to use differentiated pricing policy in separated markets or sell products below cost is only a necessary condition. Other sufficient conditions need to be

satisfied before any allegation of dumping put forward. While price discrimination and selling below cost pricing policies may be considered as necessary conditions for predatory pricing due to possible loss for the domestic firm, they cannot be considered as sufficient condition for predatory pricing. Moreover, neither of these policies is considered "unfair" in domestic markets. Normally, for firms to be involved in predatory pricing, maximization of profits in the short run should not be considered as their objectives. Instead, another pricing strategy may be chosen. As pointed out by Kerr (2001), giving up short term profits for a reliable long term stream of extraordinary profits may be known as a sufficient condition for predatory pricing. Furthermore, the sufficient condition for predatory practice must discover the existence of any intended strategy by firms that are indeed foregoing short run profits and/or not maximizing profit at all. This, in turn, must result in driving rivals out of the business in the foreign market

The second objective of the paper was to examine the possibility of predatory pricing as a genuine dumping within an international mixed duopoly framework where market shares matter. In this paper, we showed that under certain conditions predatory pricing as an unfair pricing policy may be optimal for private firm. The result of the theoretical developed mixed duopoly model indicates in maximizing long run profit, unlike the private firm, it is not optimal for the public enterprise to set the price above marginal cost in the second period of the game. As a result, the public firm's pricing policy will not lead to a supernormal gain of monopoly profits as it could be the case for the private firm. Therefore, predatory pricing is not an optimal strategy for the public enterprise. Yet, the public firm's product could be treated as unfairly priced under the current legal definition of dumping. Consequently, if the future legal definition of dumping is to detect the unfair pricing strategy of a firm, it must include a mechanism other than just to consider the firm's short run behavior.

ENDNOTES

1 For more examples see Agriculture and Agri-Food Canada publication # 1998E, Trade Research Series by Fulton, *et al* (1999b). See also Schmitz *et al* (2002).

2 See Tivig and Walz (2000).

3 From the point of view of importing countries, there are political protocols and/or other bilateral contacts that can be thought of as a new source of switching costs, especially when importing firms are also operated by governments.

4 See the WTO report available online at http://www.twnside.org.sg/titile/adcv.htm. This is just the number of Antidumping Duties. The number of countervailing duties has not been included in this data.

5 Dumping may also be a combination of both.

6 Although Canada passed the first antidumping law in 1904, which was surrounded by anti-predation rhetoric, the real motivation was the Canadian manufacturing firm's concern about low import prices. In the United States, the 1916 *Antidumping Act* directed at predatory pricing. This law was replaced by the 1921 *Antidumping Act* which was based on Canada's *Antidumping Act.*

7 Predatory pricing and dumping, as a price discrimination practice, are most likely adopted within oligopolistic industries. In a competitive industry, where the number of firms is large enough such that

none of the firms has a significant market power, using predatory pricing and/or dumping will not be an intended business practice. The growing number of antidumping allegations issued against oligopolistic industries is known as clear evidence of this phenomenon.

[8] The current legal definition of dumping quoted in Article VI of the GATT 1947 and GATT 1994 defines dumping depending on whether or not the like product exists. Generally, there are two different cases. If a like product exists in the home market, then the comparable home price in the ordinary course of trade can be applied. If there is no such like product in the home market, then two more criteria may be used. First, the highest price in a third country can be used as a cost measure. Second, constructed cost is used where the cost of product in an exporting country is estimated plus administration costs and profit.

[9] For more examples see Delbono, Denicolo and Scarpa (1996).

[10] Following Klemperer (1987), Tiving (1998) and Tivig and Walz (2000) in order to make an intertemporal link between the two periods, it may be justified to use two different approaches to link the two phases in a two-period game. Costs and demands are known as two bases for such links. In both cases, the result is that firms' second period demand or cost depends on the first-period state of these functions (Froot and Klemperer, 1989). On the cost side, as discussed by Vosgerau (1993), the learning effect can be justified for such intertemporal optimization. On the demand side, brand loyalty may be known as another source of switching cost that induces such dependence. This will arise in two cases. First, consumers may experience a considerable amount of switching costs, even if the products are identical. Klemperer (1987) proposed that switching costs make firms' demand more inelastic, and segments the market into submarkets. Therefore, switching costs can do influence demand.

[11] Katz and Shapiro (1985) defined a situation in which utility that a consumer derives from the good depends upon the number of other users who are in the same "network".

[12] The public firm in this paper will maximize only the domestic consumer's surplus.

[13] In this paper, general functional forms are used. See Barcena-Ruiz and Garzon (2002) for specific functional forms in case of merger in a mixed duopoly model.

[14] For the complete sign determinations, see Mahbobi (2003).

[15] The impact of antidumping duty on the current trade flow was examined separately. See Mahbobi (2003).

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A SELECTIVE STUDY OF EXPORTS OF MANUFACTURED GOODS FROM INDIA: AUTO PARTS AND PHARMACEUTICALS

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ABSTRACT

In a globalized world where products and markets are becoming increasingly knowledge based, India has been a late starter. Manufacturing industry happens to be employment multiplier in a developing country. Contribution of manufacturing in India's GDP is not even 20% and needs to be increased. The value addition in this sector is quite low, which is reflected in the merchandise export basket. However India is in a position to establish a competitive edge over the coming decades in two areas of manufacturing sector – pharmaceuticals and auto parts.

INTRODUCTION

"The world is too much with us", said the famous English poet Wordsworth. Perhaps very few words match the inevitability of globalization in the world. The history of mankind bears to the continuous search for improvement in his economic lot. With economics, comes trade i.e., two-way movement of goods and services. Trade has long since been recognized as the best and the most endurable way to growth and prosperity (Terpstra and Sarathy, 2004).

India is among the top 10 industrialized nations in the world having approximately 16% of the world's population. But its contribution to the world trade has just touched the 1% mark (Nath 2006). However, recently India has made significant strides in increasing its contribution to world trade and currently contributes over 7% to the increase in world trade. The external environment remains conducive to growth for the past few years; however global macro economic imbalances, protracted WTO (World Trade Organization) negotiations, volatile international crude oil prices and creeping inflationary trends signify a challenging phase especially for India (Banerji 2008). In the fiscal year ending 2009, contribution of merchandise trade was 1.3 percent of global merchandise trade (Economic Survey of India 2010-11).

India has come a long way from the Balance of Payment crisis of 1991 and till December 2010, the foreign exchange reserves had reached US$ 297 billion (Economic Survey of India, 2010-11). This has happened because of opening of the Indian economy in 1991 which resulted in generation of the entrepreneurial spirit of the people. The mindset of the Indian Government has shifted from Import substitution in pre 1991 era to that of integration with the World, post1991. The country is now trying to catch up with the rest of the world especially the East

Asian Tigers. It is a strange but true fact that all these East Asian Tiger countries faced protracted strife (causes being internal or external) for a long period of time during and after second world war, yet their strategy of export led growth had given them growth rates of over 6 per cent on a 30-year period ranging from 1960 to 1990. This single-minded pursuit has enabled the citizens of these countries to raise their incomes by 72 to 638 percent between 1960 and 1990 (Michael S, 1996).

India too has been pursuing Export Led Growth for the past twenty years and has achieved considerable success in it. As per the Economic Survey Report for Financial Year (FY) 2010 –11, exports reached US$ 183 billion and in the first half year (April – September 2010) of FY 10 – 11, with US$ 111 billion in the corresponding previous period (April – September 2009).

Classifying Manufacturing Goods on the Technological Scale

Classification of Low, Medium, Medium – Low, Medium – High and High Technology has been given by OECD (Table 1) in Science, Technology and Industry Scorecard 2003 for the manufacturing sector. Technology intensive exports are exports of such products/plants/equipments wherein the value of technology input, R & D, knowledge, design, drawings, and expert technical services is much higher than the value of capital inputs and raw materials (Aggarwal et al 2004 and Roessner 1999).

As per the World Investment Report 2002 (UNCTAD), India has been ranked 17th in Medium Technology Export performance (for the period 1985-2000) and 9th in Low Technology performance respectively. Overall ranking was 14th in a list of twenty countries. In 2003, India's contribution to high technology exports was a miniscule 0.22 percent (Technology Exports 2007).

Table 1: Technological Classification of Manufacturing Industry(Abridged Version)

Technology Category	Industry
1. Low	Food, beverages & tobacco products; Textiles, leather & footwear; Wood, paper & paper products; Rubber & plastic products.
2. Medium – low	Other non metallic mineral products; Cement & glass; Basic metal & metal products; Chemicals; Electrical machinery.
3. Medium – high	Non electrical machinery; Transport equipments
4. High	Pharmaceuticals; Electronics

(Source: OECD 2003)

In India's export basket, the share of technology intensive component had shown an eight fold growth from FY 1994-95 to FY 2002 -03 in absolute Indian Rupee terms and the subsequent

percentage increase was from 8.38 to 18.73 in the corresponding period of the export of *manufactured goods*. It is noteworthy that the corresponding figures (technology intensive goods) for Brazil and China were 18 and 20 percent of the manufactured goods export (Aggarwal et al 2004). As per Economic Survey of India 2010-11, among global exports of engineering goods, India's contribution was 0.80 percent placing it at thirtieth rank among engineering goods exporters. Between 2001 and 2007, engineering exports grew at a CAGR of over 25 percent, though due to recession, its rate came down to 19 percent in the last FY (Economic Survey of India 2011).

Among merchandise exports, largest value addition comes in engineering goods and among them, technology intensive exports tend to have the highest value addition. There is therefore an urgent need to increase rapidly the contribution of manufactured goods, especially technology intensive products so as to increase India's exports.

Technological Intensive Exports

Some of the areas in **technology intensive exports**, where India is making impact are computer software, automobiles and auto components and pharmaceuticals. India is increasingly being viewed as a global destination for high end R & D, prototype development, manufacturing hub for high end products (Aggarwal et al 2004). In recent years R & D investments have increased especially in pharmaceuticals, automobiles and auto parts manufacturers.

According to a study done by Georgia Technical School, USA (Porter et al 1999); India's present high tech production capability on a scale of 10 to 50 is 30 (10 being none and 50 implying capable of producing state of art products) and by 2015 should reach 44. For this to achieve, there should be high degree of Public – Private partnership supported by conducive government policies. The trend shown in 1999 is being maintained as per the latest report released in 2008.

In the next few pages, a brief description on exports of the two identified Technology sectors (manufacturing) are mentioned. They are:

1. Auto components (Hi-Medium)
2. Pharmaceuticals (Hi – Tech)

Auto Components Industry

The Indian auto sector has been experiencing high growth for quite some time. By 2020, passenger car sales in India are set to touch nine million, with auto component industry set to grow to US$ 113 billion (IBEF 2011).

Table 2: Indian Auto Components Industry			
Financial Year	**Annual Sales (in US$ Billions)**	**Exports (in US$ Billions)**	**Investments (in US$ Billions)**
2004-05	8.70	1.70	3.75
2005-06	12.00	2.47	4.40
2006-07	15.00	2.68	5.40
2007-08	18.00	3.52	7.20
2008-09	19.0	3.80	7.30
2009-10	22.00	4.30	9.0
2010-2011	26.00 (estimated)	5.00(estimated)	12.00 (estimated)
(Source: http://www.ibef.org/industry/autocomponents.aspx, retrieved on 7 March 2011 and "Indian Auto Component Industry an Overview", Auto Component Manufacturers Association of India (2011), www.acmainfo.com, retrieved on 7 March 2011)			

The industry has shown a growth rate with CAGR of over 16 percent in the six year period mentioned in table 2, which is commendable taking in to account economic recession post subprime crises of 2007, which put a dampener on the automobile sector in advanced countries. In the corresponding period, exports also showed approximately the same CAGR. It is anticipated that India's share of global auto parts' business would rise from 0.9 percent (2008-09) to 2.5 percent by 2015**.** Investments too have kept their pace, showing a healthy CAGR of approximately 18 percent (Indian Auto Component Industry an Overview 2011, ACMA). It is observed that overall growth, investments and exports are moving in tandem.

Exports of auto parts are expected to touch US$ 40 – 45 Billion by 2020 (more than a third of output in revenue terms). Major destinations are Europe and USA. More than 70 percent of auto component exports from India are directed to famous names like General Motors, Daimler and Ford Motor among others (Dun and Bradstreet 2006). The said report listed 22 auto component manufacturers among the top 500 companies in India with combined turnover exceeding US$ 3 billion. The industry is geared to meet the entire needs of the automobile industry like body and chassis parts, suspension and braking parts, engine parts, drive transmission parts and electrical parts. Some of the leading manufacturers of auto components in India are Bosch Industries, Motor Industry Company of India, Bharat Forge, Sundaram Fasteners, Wheels India, Amtek Auto, Motherson Sumi, Rico Auto and Subros.

The auto component industry has established sophisticated engineering skills, production lines, a thriving domestic sector and a competitive cost structure. Due to these developments, in the export sector, the ratio of OEM (original equipment manufacturer) to aftermarket has changed from 35:65 in 1990s to 75:25 by 2006 and 80:20 by 2010 (Indian Auto Component Industry an Overview, 2011, ACMA). Globally the auto parts industry is expected to shift towards Asia (Frost and Sullivan 2010), with Asia contributing the largest by 2015. Table 3 illustrates the expect shift.

Table 3: Shifting Trends in Global Auto Parts Industry (Monetary figures in US$ billions)		
Trade Region	**Size of the Market (2005)**	**Estimated size of the Market in 2015**
North America	268	327
Europe	300	365
Asia	294	435
(Source: - Key Trends in Global Auto Component Industry and its Implication on Regional Players." Whitepaper, Frost and Sullivan, April 2010)		

The direction of exports is an important indicator of the quality acceptance of a product, with reference to country of origin (of export). In FY 2008, two-thirds of exports were to the demanding markets of North America and Europe (Indian Auto Component Industry an Overview 2010). The product portfolio of auto parts' exports is also expected to change by 2020 (table 4).

Table 4: Product Portfolio of Indian Auto Parts' Exports		
Products	**Product Profile in 2009 in %**	**Product Profile in 2020 in % (estimated)**
Body & Structural	40	31
Transmission & steering	10	16
Suspension & breaking	10	11
Interiors	10	8
Engine & exhaust	20	18
Electronics & electrical	10	16
(Source: - "Indian Auto Component Industry an Overview."Retrieved from www.acmainfo.com on 9th March 2011)		

India enjoys a cost advantage to the tune of 25 to 30 percent as compared to the Western companies even though the productivity is lower by 50 to 75 percent. The competitive advantage does not come from cost alone, but from its full service capability. The quality standards of the Indian auto ancillary companies have improved significantly. Large numbers of companies have obtained quality certifications and recognition as seen from table 5.

Table 5: Quality Certifications in Indian Auto Parts Sector	
Quality certifications	**Number of companies**
ISO 9000	552
TS 16949	438
QS 9000	33
ISO 14001	204
OHSAS 18001	95
JIPM	3
Deming Award	11
TPM Award	15
Japan Quality Medal	1
Shingo Silver Medallion	1
(Source: - "Indian Auto Component Industry an Overview."Retrieved from www.acmainfo.com on 9th March 2011)	

Global major General Motors (before being taken over by USA government) had decided to source OEM parts worth US$ 1 billion by 2010. Likewise Ford Motors has also decided to scale up imports from India for its global operations. In this industry also with globalization has come consolidation. Indian auto component companies have started setting up bases in emerging/developed economies by buying up small to medium sized specialized firms. In the recent few years India has emerged as the global R & D hub for General Motors, Daimler, and Bosch etc (Dun and Bradstreet 2006). Perhaps the most important factor in the development of auto part sector is the growth of car sales in India and the successes achieved by foreign companies (Suzuki, Hyundai, Ford, and Volkswagen etc.). This led to growth as well as quality improvements in auto parts. Table 6 shows the growth in exports of auto parts and annual car sales in India since 1997-98. Correlation coefficient between annual car sales (independent variable X) and exports of auto parts (dependent variable Y) is calculated by the equation Y = MX + C, where M is the slope, which gives per unit change in X with Y and C is the intercept. The result is

$$Y = 2.88 \pm 0.13\ X - 953807\ \{R^2 = 0.9770,\ SD = 230959,\ n = 13\}$$

Table 6: Annual car sales and auto parts exports

Financial year	Annual car sales (units)	Exports of auto parts (in US $ billions)
1997-98	401,002	0.33
1998-99	390,355	0.35
1999-2000	574, 369	0.46
2000-01	517,907	0.63
2001-02	564, 052	0.58
2002-03	608,851	0.76
2003-04	843,235	1.27
2004-05	1,027,858	1.69
2005-06	1,112,542	2.47
2006-07	1,322,728	2.87
2007-08	1,521,813	3.62
2008-09	1,516, 967	3.80
2009-10	1,926,484	4.30

(Source: - Industry Statistics of vehicle and auto components, "Indian Auto Component Industry an Overview."Retrieved from www.acmainfo.com on 9th March 2011)

Thus almost 98% of exports of auto parts can be explained by the growth of overall car sales only. India has progressively started becoming an export base of automobiles (Society of Indian Automobile Manufacturers, www.siam.com), which has necessitated a commensurate improvement in quality and hence acceptability at the global level. It must be understood that car manufacturing signifies a high level of technology absorption and technical maturity (Mayer et al 2003). In India the growth of automobile sector was due to greater freedom given to MNCs, which led to an endogenous growth of the sector. Diffusion of technology from automobile

sector to parts and also between the various Indian conglomerates involved in automobile sector (Tata group, Mahindra & Mahindra) has helped in growth of auto parts sector. The low base of domestic automobile demand forced the auto parts sector to look aggressively for exports. (Richet and Ruet 2008) Table 7 gives an idea about the concomitant growth in exports of auto parts and automobiles (including passenger vehicles, commercial vehicles, three wheelers and two wheelers). Correlation between automobile exports (including all types of vehicles) and exports of auto parts produces the following result.

$$Y = 422080 + 2.2752X \ \{R^2 = 0.9756, n = 7\}$$

Thus almost 98 percent of exports of auto parts in the period FY 2003-04 and 2009-10 can be explained by export figures of automobile sales only.

Table 7: Exports of Auto Parts and Automobiles

2003-04	479,919	1.27
2004-05	629,544	1.69
2005-06	806,222	2.47
2006-07	1,011,529	2.87
2007-08	1,238,333	3.62
2008-09	1,530,594	3.80
2009-10	1,804,619	4.30

(Sources: http://www.siamindia.com/scripts/export-trend.aspx, retrieved on 22 March 2011 and Industry Statistics of vehicle and auto components, "Indian Auto Component Industry an Overview."Retrieved from www.acmainfo.com on 9th March 2011)

To present a clear picture of relationship between automobile exports and auto parts exports, multiple correlation analysis has been done between individual categories viz., passenger vehicles, commercial vehicles, three wheelers (a public transport vehicle, meant for three passengers and quite common in South Asia and in some African countries) and two wheelers and auto parts exports (taken as y in the equation). Table 8 presents exports of each vehicle category.

Table 8: Individual Vehicle Category (numbers) Exports

Category	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Passenger Vehicles	129,291	166,402	175,572	198,452	218,401	335,729	446,146
Commercial Vehicles	17,432	29,940	40,600	49,537	58,994	42,625	45,007
Three Wheelers	68,144	66,795	76,881	143,896	141,225	148,066	173,282
Two Wheelers	265,052	366,407	513,169	619,644	819,713	1,004,174	1,140,184

(Source: http://www.siamindia.com/scripts/export-trend.aspx, retrieved on 22 March 2011)

Result of multiple correlation with four independent variables with auto parts exports (in thousand US$) comes out to be

Y = 137311 + (0.113 +/- 1.56) x1 + (19.9 +/- 6.56) x2 - (0.217 +/- 2.25) x3 + (2.81+/- 0.68) x4

R^2= 0.9980, SD = 86813, constant = 137311, Y = export of auto parts in thousand US$ and x1, x2, x3 and x4 are exports of passenger vehicles, commercial vehicles, three wheelers and two wheelers respectively.

With reference to the above mentioned few factors need to be considered.

1. Data set is too small for any significant correlation analysis. Ideally there should be 5 data points for every independent variable i.e., there should be 20 data points for 4 independent variables.
2. X1 and x3 seem to be insignificant as the error in the values of m1 and m3 are more than 10 times of the value of the coefficient. The values of m2 and m4 seem to be significant.
3. The results of correlation in terms of 2 parameter equation involving x2 and x4 are given below:

   R^2 = 0.9980, SD = 61589 and constant = 144444
   M2 = 19.40 +/- 2.51 and m4 = 2.85 +/- 0.10

The values of coefficients are almost constant but errors in them have reduced drastically. This indicates that the other two parameters are redundant. Again it seems that there is significant collinearity between the independent variables. Reduction in the values of m2 and m4 shows that.

Collinearity of Independent Variables

X1 vs. x2	-	r^2 = 0.16 (no collinearity)
X1 vs. x4	-	r^2 = 0.87 (totally not acceptable)
X1 vs. x3	-	r^2 = 0.67 (not acceptable collinearity)
X2 vs. x3	-	r^2 = 0.54 (marginal collinearity, may be accepted)
X2 vs. x4	-	r^2 = 0.45 (acceptable collinearity)
X3 vs. x4	-	r^2 = 0.85 (totally not acceptable)

From the above, it can be inferred that,

X1 can be used with x2 only. X2 can be used with x1, x2 and x4. X 3 can be used with x2 only. X4 can be used with x2 only.

Two Parameter Equations

1. $Y = (6.57 +/- 0.78)\ x1 + (43.4 +/- 6.49)x2 - 470559$ $\{R^2 = 0.9797, SD = 195985\}$
2. $Y = (18.10 +/- 20.30)x1 + (19.50 +/- 6.12)x2 - 150217$ $\{R^2 = 0.8921, SD = 452298\}$
3. $Y = (19.4 +/- 2.51)x2 + (2.84+/- 0.10)x4 + 144444$ $\{R^2 = 0.9980, SD = 61589\}$

Single Parameter Equations

4. $Y = (8.69 +/- 2.22)x1 + 787582$ $\{R^2 = 0.7528, SD = 612279\}$
5. $Y = (65.90+/- 23.0)x2 + 197877$ $\{R^2 = 0.6194, SD = 759769\}$
6. $Y = (23.50+/- 4.05)x3 + 113500$ $\{R^2 = 0.8705, SD = 113500\}$
7. $Y = (3.39+/- 0.28)x4 + 568973$ $\{R^2 = 0.9681, SD = 219977\}$

As stated earlier the correlation with x2 and x4 (eq.3) is excellent. However, x4 seems to be most important factor. It alone explains ca. 97% of data (eq. 7). Correlation with x1 and x2 is good, explains 98% of the data. Correlation with x2 and x3 is also satisfactory, explains ca. 90% of the data.

The negative value of m3 indicates an inverse relationship between three wheeler exports and exports of auto parts (y). To get an insight in to this unusual result, one needs to look closely in the performance of Bajaj Auto Ltd, one of the oldest automobile companies in India. It happens to be the largest producer of two wheelers (scooters and motorcycles) and also of three wheelers (IBEF September 2009). Table 9 provides details of exports of two and three wheelers of Bajaj Auto Ltd between FY 2003-04 and 2009-10.

Table 9: Figures of Bajaj Auto's two wheeler and three wheeler exports

FY	Exports (in million Rs.)	Bajaj two wheeler exports (x1)	Overall two wheeler exports	% contribution	Bajaj three wheeler exports (x2)	Overall three wheeler exports	% contribution
2003-04	5560.3	90210	265052	34.03	65797	68144	96.50
2004-05	6949.5	130945	366407	35.73	65765	66795	98.46
2005-06	8990.3	174907	513169	34.08	75297	76881	97.93
2006-07	16884.9	301766	619644	48.69	140645	143896	97.74
2007-08	20458	482026	819713	58.80	136315	141225	96.52
2008-09	26384	633463	1004174	63.09	139056	148066	93.91
2009-10	324575	726115	1140184	63.68	164887	173282	95.15

(Source: Annual statements of Bajaj Auto Ltd, www.bajajauto.com)

The multiple regression equation comes out to be

$$y = -40494 + 0.35371x1 + -0.26019x2$$

If x1 and x2 = 0, then y = -40494, i.e., net outgo of foreign exchange, which can perhaps be explained by the fact that the company had invested significant amount in last five years in gaining IP assets to compete against Honda group in motorcycles (two wheelers), a product category, which Bajaj Auto dominated for decades (Annual Statements, Bajaj Auto Ltd, 2003-04 to 2008-09).

It is evident that even though Bajaj Auto has almost 100% share of India's three wheeler exports, yet it moves in opposite direction to its foreign exchange earnings, which means that in the overall export performance of auto parts exports, three wheeler exports act as drag. Why? It is mentioned in the company's Annual Report of 2004-05 that a significant shift in favor of production motorcycles and away from three-wheelers increases raw material and components cost as a percentage of sales. Moreover from the technological point of view, two wheelers (basically motorcycles, since Bajaj Auto Ltd has discontinued production of scooters) require technologically more complex and more expensive auto parts.

But can all the above relational analysis lead to any significant conclusion. They need to be seen in conjunction with the composition and trend of auto parts exports as mentioned in table 10 and depicted graphically in figure 1.

Table 10: Break Up of Exports of Auto Parts from India (in US$ millions)

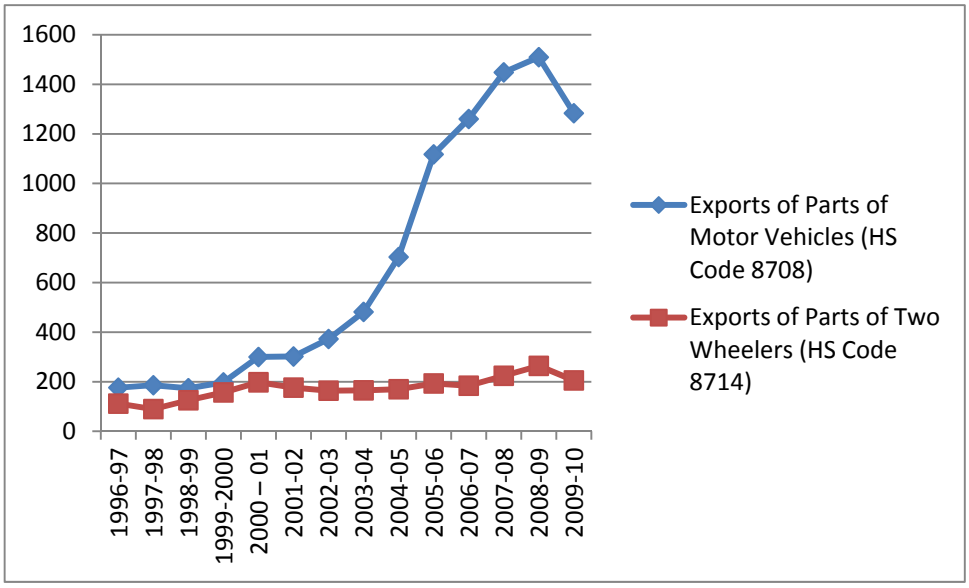
S. No.	Financial Year	Exports of Parts of Motor Vehicles (HS Code 8708)	Exports of Parts of Two Wheelers (HS Code 8714)
1	1996-97	176.17	111.67
2	1997-98	186.0	89.43
3	1998-99	173.79	125.42
4	1999-2000	197.26	156.59
5	2000 – 01	299.82	197.87
6	2001-02	301.88	176.22
7	2002-03	372.58	164.03
8	2003-04	481.74	165.34
9	2004-05	703.21	169.59
10	2005-06	1117.44	193.14
11	2006-07	1260.27	183.69
12	2007-08	1448.22	223.96
13	2008-09	1509.55	263.92
14	2009-10	1283.40	205.17

(Source: Export Import Databank, Ministry of Commerce and Industry, Govt. of India)
{Note: Each HS code figures have been taken up to 8 digit levels.}

Exports of motor vehicle parts have grown with CAGR of 15.24% between 1996 and 2010, whereas exports of parts of two wheelers have shown a much lower CAGR of 4.44%

between 1996 and 2010.It is apparent that exports of two wheeler parts have stagnated. *This is contrary to what can be inferred from correlation analysis done*.

Figure 1: Exports of Parts of Motor Vehicles and Two Wheelers



To understand the divergence, clarity can be obtained by observing the direction of exports of automobiles and auto parts.

Table 11: Top Five Destinations of Auto Parts' Exports (FY 2009-10)in US $ millions	
Country (HS Code 8708)	**Country (HS code 8714)**
USA	Bangladesh
Thailand	Italy
Germany	Egypt
U.K.	Sri Lanka
Italy	Columbia
(Source: Export Import Databank, Ministry of Commerce and Industry, Govt. of India)	

However the export breakup of various vehicle categories presents a clearer picture in understanding the relationship between automobile exports and auto parts exports.

Major Export Destinations for Indian Automobile Industry

Table 12 depicts the top five export destinations of Indian automobiles in FY 2009-10

Table 12: Top Five Export Destinations of Indian Automobiles	
Countries	**Exports (US$ million)**
U.K.	481.02
Italy	433.77
Germany	233.22
Netherland	217.51
South Africa	209.95
(Source: FICCI Study on India's Automobile Exports: *Is India a Significant Global Player*? October 2010 and Export Import Databank, Ministry of Commerce and Industry, Govt. of India)	

In fact passenger vehicles constituted 72% of total automobile exports from India (in value terms) in FY 2009-10. Most of the passenger vehicles were exported to European countries, with U.K. registering maximum imports of passenger vehicles from India (FICCI 2010). Table 13 gives the top five export destinations of passenger vehicles in FY 2009-10.

Table 13: Top Five Export Destinations of Indian Passenger Vehicles	
Countries	**Exports (US$ million)**
U.K.	475.94
Italy	406.88
Germany	231.89
Netherland	41.40
South Africa	105.10
(Source: FICCI Study on India's Automobile Exports: *Is India a Significant Global Player*? October 2010 and Export Import Databank, Ministry of Commerce and Industry, Govt. of India)	

In contrast, exports of two wheelers have primarily been to developing countries. Table 14 gives the major destinations of exports of two wheelers in FY 2009-10.

Table 14: Top Five Export Destinations of Two Wheelers from India	
Countries	**Exports (US$ million)**
Nigeria	103.54
Colombia	80.30
Sri Lanka	63.91
Bangladesh	61.37
Philippines	40.33
(Source: FICCI Study on India's Automobile Exports: *Is India a Significant Global Player*? October 2010 and Export Import Databank, Ministry of Commerce and Industry, Govt. of India)	

In commercial vehicles (excluding tractors), Singapore emerged as the top most destinations during FY 2009-10 as mentioned in table 15.

Table 15: Top Five Export Destinations of Commercial Vehicles (Excluding Tractors) from India	
Countries	**Exports (US$ million)**
Singapore	85.66
Bangladesh	37.21
Sri Lanka	26.85
South Africa	17.11
Tunisia	15.20
(Source: FICCI Study on India's Automobile Exports: *Is India a Significant Global Player*? October 2010 and Export Import Databank, Ministry of Commerce and Industry, Govt. of India)	

With regard to parts used in commercial vehicles including tractors, in a previous study (BIRD International IMRB 2009), undertaken, it was observed that parts manufacturer of commercial vehicles in India can be categorized in to following two segments.

(a) A niche player focusing only on parts for commercial vehicles and tractors.
(b) A large player operating across all segments – two wheelers, passenger vehicles and commercial vehicles & tractors.

Analysis of tables 11, 13 and 14 show that exports of auto parts and respective automobile categories mirror each other to a large extent –

1. Exports of two wheelers and auto parts of two wheelers are mainly directed towards developing and under developed countries.
2. Exports of motor vehicles (passenger and commercial) and their auto parts are mainly directed towards the developed countries.

Therefore taking in to account following indications

1. Significant correlation (r^2 = 0.9884) between annual car sales and auto parts exports (table 6).
2. Significant correlation (r^2 = 0.9756) between automobile exports and exports of auto parts (table 7).
3. Mirroring of export destinations of two wheelers and motor vehicles with their respective destinations in auto parts exports.
4. Incongruence of correlation analysis of categories of vehicles with auto parts with respect to individual parts exports (table 10 and fig. 1), thus reducing the various statistical results to statistical artifacts.

It can be stated with reasonable certainty that continuous expansion in automobile industry in India will lead to growth of exports of auto parts. The drivers for growth in auto parts exports are going to be

1. Growth of automobile sector as a whole.
2. Growth in passenger cars in India and their exports. This particular reasoning is important because a matured and diversified car manufacturing ability signifies a high level of technology absorption (Mayer et al 2003).
3. Increased indigenization (local content) in automobile sector, which will ensure quality compliance in auto parts sectors (CMIE March 2011).

Pharmaceuticals

Indian pharmaceutical industry had reached a size of US$ 24 billion, with exports touching US$ 8.30 billion by 2009 (Economic Times 8 July 2010). Globally Pharmaceutical industry touched US$ 776 billion in 2009 and is expected to maintain growth rate of 15 percent for the next five years (Global Pharmaceutical Industry 10 November 2010). The pharmaceutical industry in India meets more than two-thirds of the country's requirement. India now ranks third in volume of production and fourteenth in terms of value (Economic Survey of India 2010-11). Table 16 depicts the growth in production of bulk drugs and formulations over the last few decades.

Table 16: Growth of Indian Pharmaceutical Industry (In Rs. millions)

Year	Bulk Drug	Formulation
1950 –51	20	80
1965-66	180	1,500
1975-76	1,130	5,440
1980-81	2,400	31,480
1991-92	9,000	48,000
1999-00	37,770	1, 58,600
2000 –01	43,440	1, 78,430
2007- 08	1, 98,000	3, 28,000

(Source: Lalitha, N."Indian Pharmaceutical Industry in WTO regime: A SWOT Analysis," *Economic & Political Weekly*, 24th August 2002, p. 3452-55 & www.http//: info.shine.com/Industry Information/Pharmaceuticals/819 retrieved on 15 August 2009)

Today, India is a net exporter of bulk drugs and exports almost 60 percent of its production output. Looking into the industry structure, over the last almost forty years the dominance of multinational companies has declined to such an extent that by March 2005 there was only one MNC in the list of top ten companies (Cygnus 2006). This was perhaps the first

industry in the High Technological Intensity classification (Porter et al 1999), where the Indian companies could surpass the MNCs in both the domestic and the export sectors. From being a heavy importer of pharmaceutical products less than four decades back, India is now considered to be threat to the various global giants in this industrial sector. Table 17 gives an indicator about the progress in pharmaceutical exports made in the last forty years in this area.

Table 17: Growth in Indian Pharmaceutical Exports (in million Rs.)	
Financial Year	**Export figures**
1965-66	31
1980-81	460
1993-94	19,920
2000-01	47,270
2006-07	2, 49,420
2007-08	31, 13,000
2008-09	3, 84,000
2009-10	3, 60,960
(Source: "Competitiveness of the Indian Pharmaceutical Industry in the New Product Patent Regime", Report for the National Manufacturing Competitiveness Council, FICCI, March 2005; Economic Survey of India, 2007-08, "Pharma Exports Hit by 1%: IDMA" Business Standard 4 May 2009 and "India Coming in to its Own as Global Pharma Hub: Strong Patent Laws, Cost Pressures on Drug makers in West & Wariness About Chinese Products Boost Growth." *Economic Times*, 8 July 2010.	

Table 17 is an indicator of how the Indian pharmaceutical industry adapted to the impetus provided by national and international trends. The figures for 1965-66 indicate the period when India was largely import dependent in this sector for domestic consumption, so obviously exports were not possible in a larger context. Pharmaceutical industry was dominated by Pharma MNCs. However it must be mentioned that the impetus was provided by Indian Patent Act 1972, which prohibited Product Patent in pharmaceuticals and allowed only Process Patent (Banerji 2009)

Till the year 1992, pharmaceutical exports (mainly formulations) were directed towards the erstwhile Union of Soviet Socialist Republic (Ganguly 2006, CII 1998), where India had the facility of doing Indian Rupee exports so as to conserve foreign exchange. The disintegration of the system of governance there did affect the industry but it showed resilience as evident from Table 11. This can perhaps be explained by the fact, that by then the Indian Pharma industry had mastered the process of reverse engineering and started exporting on cost competitive basis to unregulated markets of CIS (Commonwealth of Independent States – ex-USSR countries other than Russia), Africa (other than South Africa), Vietnam, Cambodia, Indonesia and some South American countries (Joshi 2003).

Apart from growth coming through organic means, Indian pharmaceutical companies have been very active in mergers and acquisitions, both at national and international levels. Some of the possible key reasons for these activities are: -

- Acquiring competitiveness
- Desire to move up the value chain
- Explore new markets
- Expanding the product portfolio
- Acquire specialized firms to complement their business
- Market share strategies
- To counter high competition in the domestic market.

India, as of today, has the largest number of USFDA (United States Food and Drug Authority) approved plants for the manufacture of APIs (active pharmaceutical ingredients, i.e. bulk drugs) and formulations (consumable product e.g., tablets, injections, syrup etc) outside of USA (Greene 2007); it has already crossed 100 (Business Standard 27 April 2010). The cost of manufacturing in India is less than half of what it is in USA. The cost of conducting clinical trials and contract R & D varies from one-eighth to one-tenth of American costs. Incidentally Indian pharmaceutical industry provides the highest per capita intellectual per dollar of value addition globally. In no other country and in no other industrial sector in India, the broad basing of exports of a technically complex commodity has been observed. In the times to come, it is estimated that significant share of growth for the Indian pharmaceutical companies is most likely to come through off shoring (CII 1998). Off shoring in the global pharmaceutical business will comprise mainly of: -

1. Contract manufacturing
2. Contract research (combinatorial chemistry and high-throughput screening)
3. Global generics business
4. Clinical trials

Some of the reasons for the possible growth of off-shoring among the domestic pharmaceutical companies are: -

1. Low cost but highly skilled human resource base.
2. WHO cGMP and GLP compliant manufacturing units.
3. Already well known in generics business.
4. Strong financial positions for scaling up operations.
5. Sound technological base.
6. Well versed in regulatory aspects of major trading countries.
7. Recognition of product patents since January 2005.

Today, India produces more than 20 percent of global generic medicines (pharmaceuticals, which have come out of patent protection). Having built huge capacities in bulk drugs/APIs, it is obvious that Indian companies would be the ideal partners for Contract

Manufacturing for the MNCs, with a potential of US$ 50 billion by 2020, showing a CAGR of around 10% in recent years (Express Pharma May 2010).

Currently the investments required in developing a new drug is around US$ 1.50 billion, with an average time of 11 years for successful commercial launch, which needs to be done within twenty years of the patent period (Shika and Sangal 2009). Globally the pharmaceutical industry is under tremendous pressures from regulators, governments and non-governmental agencies to rein in costs along with stringent new regulations in clinical phase trials. One of the major reasons for hectic activity in mergers and acquisitions at the global level is the issue of declining numbers of new drugs in the pipeline and rising costs in drug development. Between 2004 and 2009, in USA alone drugs worth US$ 50 billion came off patent leading to a rise in generics share to almost 70 percent. Another US$ 70 billion worth are expected to go off patent by 2013-14 (Times of India 4 May 2009)

India, with its strength in numbers of scientists with background chemical science R & D (about 1,500 PhDs are generated in this area per annum) and proven expertise in R & D associated with scaling up to plant scale in process chemistry, is an ideal candidate for contract R & D (Ganguly 2006 and Joshi 2003). Globally big Pharma MNCs have started trimming their R & D budget. US based Pharma companies spent more than US$ 65 billion but the number of new drug approvals (NDA) has fallen by 44 percent since 1997 (Economic Times 17 June 2010). Compounding this decrease are two other problems, which are mentioned below.

- Out of 30 approved drugs, only one of them has a chance of being a blockbuster i.e., generating global annual sales of more than US$ 1 billion (Ahmed 2004).
- Existence of price controls and regulations in forty two countries including those in Western Europe and Canada (Kyle 2007)

The changed scenario has led to reduction in P/E ratios of most big Pharma companies from 30 to 10 in the last one decade (Economic Times 17 June 2010). So with falling number of new products, declining P/E ratios, generics competition from India and China and increasing cost of new drug launches (from basic R & D right up to successful clinical trials), big Pharma companies have increasingly taken the route of merger & acquisitions (corporate restructuring) to stay competitive. Table 18 gives an idea about the corporate restructuring in pharmaceutical sector in the last few years. In the decade 2000 – December 2009, a total of 1345 mergers took place globally in the pharmaceutical industry. Global ranking of pharmaceutical companies in terms of annual sales turnover as on March 2009 is mentioned in Table 19.

Table 18
(Incidents of Corporate Restructuring in Global Pharmaceutical Industry)
(All Monetary Terms In Billion US $)

Companies Involved	Type of Restructuring	Value of Deal	Type of Firms	Plausible Reasons
Daichii Sankyo-Ranbaxy	Acquisition by Daichii	5.90	Big Pharma & generic	For Daichii controlling stake in an important global generics player
Pfizer – Wyeth	Acquisition	68	Big Pharma & big Pharma	To acquire complimentary product lines
Pfizer-Pharmacia	Acquisition	59	Big Pharma & big Pharma	To acquire complimentary product lines
Pfizer-King	Acquisition	3.60	Big Pharma & specialty Pharma	To acquire complimentary product lines
Merck-Schering Plough	Merger	43	Big Pharma & big Pharma	To acquire complimentary product lines
Bayer AG – Schering AG	Acquisition	22.00	Big Pharma & big Pharma	To acquire complimentary product lines
Abbot – Pfizer's consumer healthcare	Acquisition	16	Big Pharma & OTC product lines	Pfizer divesting non core product lines
Teva – Ivax	Acquisition	8.96	Generic Pharma & generic Pharma	To gain entry in generic market segment in USA
Sanofi Aventis – Zentiva	Merger	2.90	Big Pharma & generic	To acquire product lines in generics
Abbot Lab – Nicholas Piramal	Acquisition	3.70	Big Pharma & generic	To gain market share in India

(Sources:http://www.thefreelibrary.com/Ten-Year+Data+on+Pharmaceutical+Mergers+and+Acquisitions%2c+from...-a0222033052 retrieved on 20 October 2010; "Pfizer buys drug maker King for US$ 3.60 bn" Times of India, 13October 2010)

Table 19
(Ranking of Pharmaceutical Companies Based on March 2009 revenues)
(All monetary figures are in billion US $)

Rank	Company	Country	Total Revenue	Net income	R & D expenditure
1	Johnson & Johnson	USA	62.00	12.30	7.0
2	Pfizer	USA	50	8.64	7.85
3	Roche	Switzerland	49	8.50	9.87
4	Glaxo SmithKline	United Kingdom	45.80	9.10	6.63
5	Novartis	Switzerland	44.30	8.45	7.47

(Annual Reports of companies, available at their respective websites)

The development of new drugs is a highly resource intensive activity and the R & D expenditure of the giant MNCs exceeds the annual sales turnovers of even the largest Indian origin firms in the pharmaceutical sector. However, leading Indian Pharma firms have increased

their R & D intensity and table 20 gives the comparative figures in percentage terms of the leading and well-known Indian pharmaceutical companies. The leading companies of Indian origin in this industrial sector are Dr. Reddy's Laboratory, Ranbaxy Laboratory, Nicholas Piramal and Zydus Cadila among others. Among the reasons for the growing interest/investment in R & D in the pharmaceutical sector (biotechnology as well) are (Bowler and Sulej 2005): -

1. Increasing public awareness of the importance of R & D.
2. Pressure from industry associations.
3. Return of highly skilled Indian immigrants mainly from USA.
4. Spiraling costs of R & D in advanced countries along with fierce competition.
5. Intellectual Property protections through grant of Product patent vide the amended Indian Patent Act, 2005.

Table 20: Firm Level Intensity in Research & Development (% of sales, approximates)

Company	2001-02	2004-05	2006-07	2008-09
Ranbaxy	3.8	9.0	10.50	10.90
Dr. Reddy's	6.13	18.30	13.40	6.30
Nicholas Piramal	1.06	7.81	6.70	3.70
Sunpharma	4.50	11.60	11.30	17.41
Torrent	5.08	14.30	13.0	16.0
Lupin	2.40	6.90	7.00	14.15

(Sources: Annual Reports of the organizations, available at their websites)

A contrast with the Indian companies is that the R & D expenditure of big Pharma MNCs (as given in table 19) *exceeds the turnover of the largest Indian firm,* which indicates the scale of intensity of innovation already existing in these MNCs.

As the Patent Laws of most countries are in compliance with TRIPs (of World Trade Organization), the patent protection is up to 20 years. After that, most often it is the lower cost suppliers selling unbranded drugs (called as generics), which dominate the market. The growth in generics is much faster than the patented drugs, which is growing at about 8%. Generic sales in countries like Germany, Spain, France, Japan and Italy have shown growth rates between 10 to 20% per annum (Economic Times 19 December 2008). Once the molecule loses the patent protection, the price of the drug falls rapidly to anywhere between forty to twenty percent in a period of six to twelve months. In fact most of the cross-border mergers and acquisitions, which many of the Indian firms have indulged, are in the generic space of pharmaceutical business. It is in this area that most MNCs will collaborate with Indian Pharma companies to contract manufacture their proprietary molecules (Banerji 2008). Generics are important for developed, developing and underdeveloped countries, but for different underlying reasons. An ageing population, which require prolonged medical care in developed countries coupled with high state

involvement in universal medical care leads to pressures of cost containment; in case of developing countries, increasing disposable incomes leads to greater accessibility to medicines leading to greater demand of generic medicines (patented medicines in the same therapeutic category are costly) and in case of underdeveloped countries, low incomes force greater consumption of generics (Sheppard 2010)

Human Clinical trials are next in line for out-sourcing from MNCs. The incentives for the MNCs are the availability of a large heterogeneous (due to a wider genetic pool as compared to Western countries) but treatment protocol naïve population and relative cost advantages. There has been a rush in this particular area both by existing players (Indian as well as MNCs) as well as many small and medium enterprises that wish to exploit this new area of Business Process Outsourcing. In fact, as per a research report by Frost and Sullivan (Financial Express 2006), India and China are expected to attract 20 to 30 percent of outsourced clinical trial business by 2015. The value in 2006 of this business in India was US$ 100 million.

A previous study undertaken by the author (Banerji 2008) on analysis of Indian pharmaceutical exports with the following methodology came up with some findings, which are mentioned in this paper.

Research Methodology of the Study Conducted

1. Indian owned Pharma firms having an export turnover of Rs. 250 million or more in FY 2004-05 were taken. The cut off was kept as March 2005, because from January 2005 Indian Patent Act was aligned with TRIPS (of WTO) and Rs 250 million was considered to be a medium level export turnover. With this benchmark, fifteen Pharma firms were short listed. The figure of Rs. 250 millions was chosen as a medium level turnover and it maintained a reasonable size of the sample. Lowering the limit would have increased the sample size and it would have become too unwieldy for a meaningful study. Increasing the limit would have decreased the sample size substantially.
2. MNC Pharma firms were not considered because their contribution to exports was negligible.
3. The time period of study was taken to be between FY 2001-02 and FY 2006-07. The choice of time period of the study to be between FY 2001-02 to FY 2006-07 was purposely chosen in view of liberalization, privatization and globalization process started in India since 1991, so that changes in firm's behavior and global performances could be studied with a decade's lag time. The fifteen Indian Pharma firms taken for the study were: -

(i) Ranbaxy	(ii) Cipla	(iii) Dr Reddy's Lab
(iv) Nicholas Piramal	(v) Lupin Labs.	(vi) Zydus Cadila
(vii) Aurobindo	(viii) Sun Pharma	(ix) Wockhardt
(x) Ipca	(xi) Biocon	(xii) Orchid Chemicals
(xiii) Matrix	(xiv) Alembic	(xv) Torrent

It is to be noted that some of the above firms have undergone corporate restructuring between 2008 and 2010, which have been widely reported in financial dailies and periodicals. Some of them like Ranbaxy, Nicholas Piramal and Matrix Lab are now owned by Pharma MNCs. Wockhardt is undergoing significant corporate debt restructuring, with some of the creditors having filed winding up / liquidation suits on account of loan defaults, especially on foreign currency borrowings (Economic Times 24 March 2011).

The research examined the following hypotheses:

1. Research and Development contributes directly to the increase in export earnings.
2. Indian pharmaceutical companies have gradually increased export to the regulated markets of North America and Europe,
3. Indian pharmaceutical companies have gradually moved away from export of bulk drugs to the more value-added exports of formulations.

RESULT AND ANALYSIS

Hypothesis 1

1. The leading Indian firms progressively increased their investments in R&D. The expenditure under this increased from 2.5-times to 55-times. The most striking increase in R&D expenditure was observed in Matrix, Zydus Cadila, Aurobindo and Biocon. Firms like Wockhardt, Sun Pharma, Ipca, Nicholas and Torrent have shown 5 to 6-fold increase in R&D expenditure. Though, firms like Ranbaxy and DRL (Dr. Reddy's Lab) invested huge amounts in R&D, the relative increase is small due to high base. The growth in R&D expenditure is reflected in the research output also. Till 2006-07, the fifteen firms, in all, had filed 636 ANDAs, 679 DMFs and had been issued 224 patents in USA alone. Ranbaxy and DRL were issued 79 and 73 patents respectively in USA alone. {*Explanatory note - Abbreviated New Drug Application (ANDA) is filed in USFDA for getting post patent marketing approvals of formulations. Drug Master Files (DMF) are filed in case of getting marketing of APIs post patent in USA}*
2. A correlation of the export earnings of the fifteen firms with their R&D expenditure of the respective year was attempted. Though the value of r^2 suggests that the correlation is just satisfactory, considering of the number of data points (ninety data sets), the correlation is good. This is also reflected in the relatively small error in the value of the regression coefficient (ca. 10%). The equation, given below, indicates these firms earned by export, on an average, between Rs. 4 and 5 on every Indian rupee spent on R&D.

   Export = $4.55 \pm 0.52 + 1379$
   $r^2 = 0.7965$, %sd = 13.5, n = 90

3. Individual firms show diametrically opposite results in correlation analysis. The values of $100r^2$ (representing percentage of data explained by the correlation) varied from 10 to more than 99%. The export earnings of Cipla, Lupin, Zydus Cadila, Aurobindo, Ipca, Biocon, Orchid, Matrix and Torrent showed a correlation of 80% or better with R&D expenditure. In case of Sun Pharma, the export data of the five years 2001-02 to 2005-06 showed an excellent correlation (94%). The R&D expenditure of the rest of the firms does not explain their export earnings to a significant extent.
4. Ipca, Cipla and Biocon have managed excellent returns from the R&D expenditure, in terms of export. In their case, an expenditure of Re.1/- in R&D brought a return of Rs. 11±2, Rs 10±1 and Rs. 9±2 respectively in exports. The returns earned by Aurobindo, Lupin and Sun Pharma are moderate (5 – 8 times of the R&D expenditure).
5. To conclude, it must be mentioned that companies like Ranbaxy and DRL have obtained between them over 150 patents in USA by 2007, meaning thereby that their R & D expenditure gets reflected in their international patenting activities.

Thus hypothesis 1 was validated.

Hypothesis 2

An analysis of the geographical distribution of the exports showed that the Indian pharmaceutical companies were making strong efforts to enter the lucrative but highly regulated market of North America and Europe. They have tested success in this venture. Most of the sample units have established subsidiaries or have acquired companies in these two trading block to further their business in these sectors. In absolute terms, the exports to semi- or un-regulated markets have not diminished but their share in total exports has gone down. The exports to semi-regulated and unregulated markets like CIS, Russia, Africa and South-East Asia have not diminished in real terms but their overall share in exports has gone down. Countries like Nigeria, Myanmar and Uganda constitute important market for Indian pharmaceuticals.

Thus this hypothesis 2 was validated.

Hypothesis 3

An analysis of commodity-wise break up of exports showed that overall this hypothesis stood validated. Gradually but surely, the formulation-component of the exports was observed to be increasing. Indian formulations are attractive in semi- or un-regulated markets for cost-competitiveness. Ranbaxy had a 2.4% share of generic formulation of USA by 2007. Cipla had shown a CAGR of 58% in formulation exports between 2001 and 2006. The formulation export by Lupin to the regulated markets had increased to 2.5 times that of APIs. For Sun Pharma, the rate of growth of formulation export had doubled than that of API. Ipca's export of formulations

constituted 52-58% of its total exports during the period of study. Orchid started with nil export of formulation but in the six year study period, the share had gone up to 45%. The contribution of formulations in the export by Alembic had increased from 33% to 45%. Certain firms like Nicholas, DRL and Matrix were, however, mainly in API export. By the second quarter of 2007, 701 ANDAs were filed in USA. The approval rate of Indian ANDAs had gone up from 7 to 21%. This showed that export of formulations increased with potential to contribute more substantially to the export efforts.

Thus hypothesis 3 was validated.

GENERAL EXPORT TREND AND COMPARISON WITH CHINA

Merchandise exports account for 15% of India's GDP. Under current account of the BoP (balance of payment), transactions are classified into merchandise (exports and imports) and invisibles. Invisible transactions are further classified into three categories, namely(a) Services– travel, transportation, insurance, Government not included elsewhere (GNIE) and miscellaneous, which latter encompasses communication, construction, financial, software, news agency, royalties, management and business services, (b) Income, and (c) Transfers (grants, gifts, remittances, etc.) which do not have any quid pro quo (Economic Survey of India 09-10). The negative growth in 2009 – 10 of exports (goods and services) was on account of recession. Software exports in 2008-09 accounted for US$ 43.50 billion (Economic Survey of India 2009-10) and account for a significant part of India's export basket. Table 21 presents a snapshot of external trade of India in recent years.

Table 21: (Snapshot of India's External Trade)

FY	Merchandise Export (in US$ M)	Merchandise Import (in US$ M)	Invisibles (net)	Current A/C Balance
2004-05	85, 206	1,18,908	31,232	-2470
2005-06	1,05,152	1,57,056	42,002	-9,902
2006-07	1,28,888	1,90,670	52,217	-9,565
2007-08	1,66,162	1,66,200	75,731	-15,737
2008-09	1,89,001	3,08,52	91,605	-27,915
2009-10	1,82,235	3,00,609	79,991	-38,383

(Sources: Economic Survey of India, 2009-10 and 2010-11)

The current account status, relative to GDP of a country is a better measure of a country's competitiveness in international trade. India's current account deficit has been persistently hovering between 2-3% of GDP (Economic Survey of India, 2008-09 and 2009-10), crossed 3%.level in December 2010, which is taken as the tolerance limit by Indian economic planners (Economic Times 1 April 2011). So far the balance has been maintained by capital inflows

{Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI) etc.}. However dependence on capital account transactions to balance the shortfall in balance of trade is fraught with danger, particularly with respect FPI. Table 22 presents the importance of foreign investment in capital account.

Table 22: (Capital Account Balance and Foreign Investments in India)

FY	Capital Account Balance in US$ M	FDI (net) in US$ M	FPI (net)in US M
2005-06	25,470	3,034	2,494
2006-07	45,203	7,693	7,060
2007-08	1,06,585	15,893	27,433
2008-09	6,768	19,816	-14,031
2009-10	53,397	18,771	32,396
(Source: Economic Survey of India 2010-11)			

It is evident that capital account transactions are quite fickle and in India's case, FPI seems to play a significant role in it.

There are few major points, which need to be looked in to:

1. Importance of international trade in India's economic basket has increased quite significantly. In 2005 it contributed 28.3% of GDP at current market price, which had risen to 48% by 2009. India's growth in international trade shows a strong correlation with the growth in global trade (Economic Survey of India 2009-10)
2. Contribution of merchandise exports to India's export basket is slowly decreasing and that of service sector contribution is increasing. Within the export composition, the contributions of manufactured goods' exports have steadily come down from over 81.3% in 1999 to 67.40% in 2007-08 (Banerji 2008).
3. The contribution of service exports is going to rise in consonance with the pattern of growth seen in India's GDP. Contribution of manufacturing sector in India's GDP is 16% whereas that of service sector is over 60%. Unlike other East Asian countries, which in their initial phase of growth period had major part of their respective GDP contribution from manufacturing, India leapfrogged from agriculture based economy to service sector dominance in GDP (Economic Times 7 March 2011).
4. As per recent UNIDO report, India's Manufacturing Value Added (MVA) per Capita in 2010 was US $ 107, compared to Brazil's US$ 648, China's US $ 842 and South Korea's US $ 4880 (all monetary figures at constant 2000 dollar). However in the decade 2000-10, India has shown the second fastest average growth rate in manufacturing of 7.10%, preceded by China's figure of 11.40%. Currently India's share of manufacturing globally is less than 2% (Economic Times 7 March 2011).
5. Along with the growth of Indian exports has come the widening of current account deficit (mainly on trade account), fueled primarily by the rise in imports

of capital goods, intermediate goods and petroleum, oil & lubricants (IBEF 2005). In fact, there exists a positive correlation between growth in merchandise exports and growth in the current account deficit thus signifying that a significant amount of imports is fueling the exports in manufactured goods, primarily growth in import of crude oil and capital goods (Economic Survey of India, 2007-08). To obtain a surplus current account, it is necessary that exports must grow even faster.

In case of merchandise exports, both the composition of exports and the direction of exports need to be looked in to, since they have undergone significant changes in the last 20 years. Some of the salient observations are: –

(a) In 1990-91, the erstwhile USSR was the topmost destination. Followed by USA, Japan, Germany and U.K. By 1995-96, USA has become the most preferred destination. By 2005-06, United Arab Emirates, China, Singapore and Hong Kong had become other next preferred destinations for merchandise exports, overtaking Japan, Germany and United Kingdom. By end of 2010, China was India's largest trade partner. Table 22 gives the relative positions over the period mentioned in the table.

Table 22: (Important Destinations of India's Merchandise Export)

S. No.	1990-91	1995-96	2002-03	2003-04	2004-05	2005-06	2010-11
1	USSR	USA	USA	USA	USA	USA	China
2	USA	Japan	UAE	UAE	UAE	UAE	UAE
3	Japan	UK	Hong Kong	Hong Kong	China	China	USA
4	Germany	Germany	UK	UK	Singapore	Singapore	Saudi Arabia
5	U.K.	Hong Kong	Germany	China	Hong Kong	UK	Germany

(Economic Survey of India 2009-10 and 2010-11)

Increased exports to the Emirates with a small population base and with minimal requirement for Indian goods are perhaps explained by the fact that a majority of Indian merchandise exports to UAE end up in Pakistan (Mukhopadhaya & Bandhopadhaya 2007). Pakistan has so far not given to India on a reciprocal basis the Most Favored Nation Status under WTO regime, probably due to political relations between the two countries (Economic Times 14 April 2011). The emergence of China with its growing appetite for imports to fuel its exports along with the 'Look East' Policy of the Indian Government has made it the most preferred destination along with its appetite for commodities (Lum & Nanto 2007). The fall in relative position of Japan is perhaps explained by the fact for the better part of 16 years from 1990 to 2006; the Japanese economy was in recessionary or stagnant phase. Russia, Baltic countries and countries belonging to CIS bloc no longer constitute important destination in India's

merchandise exports. Also in spite of policy initiatives like 'Focus Africa' merchandise exports to the African continent (except South Africa) have not picked up.

(b) The study of composition of exports along with their relative share constitutes an important point for study. It gives an idea about those industrial sectors in which a country is globally competitive. Table 23 gives the relative % of commodities of India's merchandise exports in this decade. The increasing share of petroleum and related products reflect the cost competitiveness of the huge refining capacities put up. Increasing contribution of engineering goods implies the success of heavy manufacturing industrial sector in producing quality products at competitive prices. Contribution from Chemicals & Allied products has remained constant in the entire decade, perhaps indicating presence of excess capacity globally.

Table 23: Commodity Composition of India's Major Merchandise Exports

Commodity Group	2000-01	2005-06	2006-07	2008-09
(*A*)**Primary Products**(Agriculture, minerals & Ores)	16.0	15.40	15.10	13.20
(B) Manufactured Goods (Major Constituents)	78.90	72.0	69.0	64.80
Textiles & apparels	23.60	14.50	12.50	9.20
Gems & jewellery	16.60	15.10	12.60	15.90
Engineering goods	15.70	20.70	23.30	21.30
Chemicals	10.40	11.60	11.20	11.50
(C) Petroleum & products (including coal)	4.30	11.50	15.0	17.80
(Source – Economic Survey of India, 2007 – 08 & 2010-11)				

Since India and China are often quoted in the same breath globally, it is necessary to briefly review the relative external trade performances of the two countries in selected years (Table 24).

Table 24: Comparison of Select Parameters of External Trade of India & China
(Monetary figures in billions US$)

Year	Exports	Global Trade Share (%)	Current A/C Surplus/deficit (%) of GDP
(For China)			
2006	969	8.0	9.10
2008	1,429	8.0	9.80
(For India)			
2006-07	126	1.0	(-) 2.20
2008	242	1.20	(-) 2.20
(Sources: Economic Survey of India 2007-08, 2009-10 & 2010-11 and Report of Central Statistics Organization, Peoples' Republic of China, "External Trade", 20th March 2008)			

It is evident that India has to go a long way to catch up with China. China has been consistently maintaining a favorable balance (Lum & Nanto 2005) of trade with the rest of the

world since 1987, whereas India has been able to do it only for three years in the same period. The composition of China's exports has changed dramatically over the last decade and half. The merchandise trade now includes more of manufactured goods than primary goods like agricultural products, minerals etc. By 2006, China's exports had greater contribution from even a select list of few manufactured goods like, light engineering goods, electronics goods and transport equipments than primary goods (Lum & Nato 2007).

India's manufacturing sector as a whole has been affected by the global economy. Between 2006-07 and November 2009, the growth rate in manufacturing has fluctuated from 12.5% to 0.3% (in Q4 2008-09) and stabilized at 11.9% in November 2009. A large part of this fluctuation was due to global economic crises in the period and the tightening of bank credit. Agriculture sector provides employment to 52% (2004-05) of the workforce but its contribution to GDP is barely 16%, with growth rate falling from 4.7% to 1.6% in 2008-09. Service sector contributes over 60% to GDP and has maintained a consistent growth rate of over 8% during 2007-08 and 2008-09(Economic Survey of India 2010-11).

CONCLUSION

Growth in manufacturing has a multiplier effect on a nation's economy, especially in case of a country like India. Some of them are: -

1. Manufacturing sector provides an alternate channel for low skilled labor, which needs to shift from agriculture because of the decline in it, and also it offers higher income.
2. Manufacturing act as a job multiplier in the service sector.

To increase the contribution of manufacturing in the GDP and in exports, it is necessary that apart from the traditional and labor intensive like textiles, gems and jewels, emphasis on higher value added goods is required. Among the recognized higher value added manufacturing items, India has the potential to be a leading player in two categories – Auto Components and Pharmaceuticals.

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CURRENCY OPTION PRICING MODEL RELEVANT TO THE JAPANESE YEN

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ABSTRACT

The currency option pricing follows the exchange rate on the daily basis. In this work we studied the exchange rate for one Dollar in terms of Yen from January 1960 through January 2011. Several models for regression analysis such as Linear, Logarithmic, Inverse, Quadratic, Cubic, Compound, Power, S or S-curve, Growth, Exponential, and Logistic were employed. The regression analyses for these models were studied. Among these models S-curve was selected due to number of reasons that will be discussed later. Then regression analysis was performed to provide prediction of the exchange rate through year 2020. During the first quarter of 2011 exchange rate for 76 Yen per Dollar was tested which is even lower than our S-curve prediction for year 2012 but higher than year 2011 for other models. Some of the external forces will be mentioned and a few recommendations will be made for stability of Dollar versus Yen.

INTRODUCTION

Currency option pricing has been studied by a number of researchers. As a result several theories related to the exchange rate have been established. We discuss two of these theories. Purchasing power parity (PPP) quantifies the relation between inflation exchange rates between two countries that are being studied. There are two types of PPP theories.

The absolute form of PPP states that given the fact that there are no international trade barriers, then the consumers will tend to shift their purchases to the country that offers lower prices (as measured by common currency). As the result the exchange rate will adjust so that the same items will cost the same in both countries as measured by the same common currency. On the other hand, relative form of PPP is the exchange rate that is adjusted based on the relative inflation in the respective countries.

The second theory of exchange rate determination is the interest rate parity theory (IRO). In this theory the major assumption is that one should not make a greater profit by taking advantage of an interest rate differential in these two countries since the currency for the country with the higher interest rate has a tendency to depreciate either in the forward market or appreciate in the spot market.

The interest rate parity must hold based on the following equation, where d_i = domestic rate and F_i = foreign rate.

$$1 + d_i = 1 + F_i \left(\frac{forward\ rate}{spot\ rate} \right)$$

The exchange rate must be a direct quote, that is, it must be yen per dollar. It must be foreign currency per unit of domestic currency. Here the U.S. is considered domestic and Japan is considered foreign.

Black and Scholes (Black & Scholes, 1973) indicated that in deriving their formula for the value of an option in terms of the price of the stock, they made an assumption of "ideal conditions" in the market for the stock and for the option:

a) The short-term interest rate is known and is constant through time.
b) The stock price follows a random walk in continuous time with a variance rate proportional to the square of the stock price. Thus the distribution of possible stock prices at the end of any finite interval is log- normal. The variance rate of the return on the stock is constant.
c) The stock pays no dividends or other distributions.
d) The option is "European," that is, it can only be exercised at maturity.
e) There are no transaction costs in buying or selling the stock or the option.
f) It is possible to borrow any fraction of the price of a security to buy it or to hold it, at the short-term interest rate.
g) There are no penalties to short selling. A seller who does not own a security will simply accept the price of the security from a buyer, and will agree to settle with the buyer on some future date by paying him an amount equal to the price of the security on that date.

There are external factors that cannot be predicted or be quantified to include in the prediction exchange rate model. However, these factors can have major influence in the exchange rates and consequently they make the forecasting of exchange rates more challenging. We will mention a few of these external factors next.

1. Internal Political Condition. Political condition in each country can have a major effect on the exchange rate. One of the examples for political conditions can be major policy decisions as well as election. In case of election, especially when there is no clear prediction for outcome of election for major candidates with very opposite policies and point of views. Participating in war(s) is very costly and historically can negatively influence an empire!

2. External Political Condition. Political conditions and instability in countries other than the two countries' that their currencies are under study can affect the exchange rate. This may be due to the uprising or revolution or other similar

conditions. For example, the event in Middle East and other oil countries during the first quarter of 2011 made a major effect on the price of gold and as the result exchange rate.

3. Budget Deficit. In case of Dollar versus Yen budget deficit for each of the related countries will be influential on the currency exchange rate. In 2009, Treasury Bill holdings (with maturity under one year) by China were at its highest and since then it is declining as the value of the dollar is declining.

4. Trade Deficit. In case of Dollar versus Yen, trade deficit for each of the related countries will be influential on the currency exchange rate. Volume of trade between the two countries and imbalance of such volume is effective in currency exchange rate. On the other hand the exchange rate will have affect on the volume of the trade between two countries.

5. Interest rate. The fluctuation of interest rate if it not predictable will be effective in currency exchange rate.

6. Inflation. This is one area that U.S.A has been actively working on. However, the commodity prices are rising with alarming rate, partly due to the increase in the gas price. This includes all items that are imported including imported from China. Increase of gold price is an indication of the decline in the value of dollar. Printing money is a short-term solution for the financial crisis that will result to inflation in long-term scenario. Historically, this has happened to Argentina, Austria, Brazil, Chile, Germany, Japan, Poland, Russia, and Ukraine.

In 1967 U.K devaluated their British Pound by nearly 15%, as the result inflation occurred in the following years. For example, in 1975 the inflation rate in U.K was reported nearly 27%. Moreover, businesses were working only three days and television broadcasting were halted at 10:30 p.m. to save energy and electricity.

7. Wars. An important factor in budget crisis is expenses from foreign wars. Haque and Boger indicated that during the nineteenth century London was the financial capital of the world. Its downfall was due to the large amounts spent on World War I which ultimately resulted in overvalued currency and the loss of credible gold convertibility. As the result UK fell into a great amount of debt. Now the question is that: is the U.S. in the same path due to its involvement in Iraq and Afghanistan? However, even if the U.S. struggles, the world still relies on the dollar base system Harold (2008).

8. International Currency Unions. Rose and Engel (2002) characterized the integration patterns of international currency unions (such as the CFA Franc Zone). They empirically explored different features of currency unions, and compared them to countries with sovereign monies by examining the criteria for Mundell's (Mundell, 1961) concept of an optimum currency area. Rose and Engel (Rose & Engel, 2002) concluded that members of currency unions are more integrated than countries with their own currencies. Moreover, they concluded that currency union members have more trade and less volatile real exchange rates than countries with their own monies and the business cycles are more highly synchronized across currency union countries than across countries with sovereign monies.

9. Monetary Policies. Engel (Engel, 2009) concluded that there is a case for policy to stabilize exchange rates. Moreover, large fluctuations in exchange rates—even if they are not "excessive" fluctuations due to market sentiment or bubbles—can lead to inefficient allocation of resources. He adds that unperturbed free markets in foreign exchange cannot be relied upon to arrive at exchange rate levels that deliver terms of trade and real exchange rates that reflect the underlying economic productivity, efficiency, and competitiveness of economies. He stated that probably the main case for freely floating exchange rates is a political one: Policymakers cannot be relied on to intervene in foreign exchange markets in a benign way. Furthermore, he adds that from a selfish standpoint, each country may have an incentive to devalue to gain a competitive edge. As an example he mentioned that the competitive devaluations of the Great Depression loom large in the memories of many economists and policymakers. Finally, he concluded that some effort to control exchange rate fluctuations is desirable, but that it is best achieved in the context of cooperation among policymakers.

10. Central Banks. Unpredictable decision making by central banks in each country can affect the exchange rate of respective countries.

11. Weather. Unpredictable weather changes and major destructions such as tsunami, hurricane that require enormous policy changes can be effective in exchange rate. In the first quarter of 2011 the result of tsunami and damages to the nuclear plant in Japan and exchange rate of 76 Yen for one dollar could not be predicted.

12. Financial System. Thus far U.S. dollar is the world's reserve currency and is the basis for the international banks to hold in reserve against their loans. In most occasions U.S pays for imports in dollars. Base for buying oil is dollar that make dollar in more demand. Some countries are talking about receiving other

currencies than dollar. It has been reported that countries such as China, France, Japan, and Russia are in discussion for using a basket of currencies including Japan Yen, Chinese Yuan, European Euro, and gold for oil (instead of dollar) for countries such as Abu Dhabi, Kuwait, Qatar, and Saudi Arabia. If such changes occur as the result the price of oil will dramatically will increase and as the result price of other commodities will increase dramatically. The International Monetary Fund (IMF) has discussed the possibility of a new worldwide currency other than dollar (IMF, 2010).

13. Exchange rate. The value of dollar in exchange rate has dropped by nearly 10% against Yen during the second half of 2010. This exchange rate continues dropping.

14. Any combination of the aforementioned factors will also affect the prediction of exchange rate.

15. Devaluation of Dollar. If the budget deficit in the United States continues to grow by the historical rate, devaluation of the dollar can have major affect on the Yen versus Dollar currency exchange rate.

We consider the following examples and related research results to support the aforementioned issues.

Interest Rate

Kanas (Kanas, 2008) found evidence of regime switching dynamics in the USA and the UK real interest rates during the period 1881–2003. In addition, for the UK, there is a regime in which the real interest rate displays a relatively stronger mean-reversion and a regime that it displays a relatively weaker mean-reversion. It was found that former regime is characterized by a relatively larger error in the estimation of the reversion parameter, and higher volatility. For the USA, the two regimes differ in volatility. Furthermore, the probability of transition from one regime to another is found to be significantly related to the inflation rate regime, and to the political regime. The results highlight the importance of regime switching in the dynamics of the real interest rate, as well as the role of inflation and political regimes in explaining this switching.

Kanas (Kanas, 2008) indicated that according to fisher effect, nominal interest rates move along with expected inflation on a one for one in the long run based on rational expectations. This implies that the real export interest rate should follow mean-reversion. However, empirical tests have shown no consensus to that theory.

Several studies for the USA indicate that the real interest rate does not show mean-reversion Schwert (Schwert, 1986), Antoncic (Antoncic, 1986), Rose (Rose, 1988) and Koustas and Serletis (Koustas & Serletis, 1999). However, several researchers concluded the opposite Mishkin (Mishkin, 1981), Huizinga and Mishkin (Huizinga & Mishkin, 1986) and Bonser-Neal (Bonser-Neal, 1990). Lai (Lai, 1997) explained that these conflicting results are due to the fact that USA real rate exhibits 'subtle mean-reverting dynamics', namely mean-reversion of a special manner that is not captured by the usual stationary process.

Time-variation of the real interest rate was studied by Bekdache (Bekdache, 1998) and Huizinga and Mishkin (Huizinga & Mishkin, 1986) found that the real rate process is instable and it should modeled using a time-varying model. Trehan and Wu, (Trehan & Wu, 2004) showed important policy implications and Alexius and Welz (Alexius & Welz, 2005) explained the excess sensitivity of interest rates. Garcia and Perron (Garcia & Perron, 1996) modeled the USA real rate by using Markov switching model that was developed by Hamilton (Hamilton, 1989) and they found some of the real rate characteristics.

Budget Deficit

The amount of short term loans by the government is reaching to amounts that even the interest on these loans cannot be paid.

Devaluation of Dollar

The looming crisis that is related to the financial crisis of 2008 is extremely dangerous (including largest mortgage bankers Fannie Mae, Freddie Mac, General Motors, General Growth Properties (the biggest owner of mall property in America). This brings a question that whether our monetary policy will fail or not. In these cases U.S government absorbed the losses.

Therefore, while considering analysis of currency exchange rate, the predictions related to the aforementioned factors must be kept in mind since these factors are correlated to deviation in the prediction of the exchange rates.

Statistical Analysis and Comparing Methods

In order to study the relative value of Dollar with respect to Yen and perform regression analysis several software such as SAS, MATLAB, and SPSS were selected and regression analysis were performed using each of these software. However, the results of using these software were not different significantly. Therefore, in the following the result of regression analysis will be reported using only one of these software namely MATLAB.

We consider several models for regression analysis such as Linear, Logarithmic, Inverse, Quadratic, Cubic, Compound, Power, S or S-curve, Growth, Exponential, and Logistic. Then for

each of these models the several parameters were calculated including Regression Coefficients, multiple R, R^2, adjusted R^2, and Parameter Estimates such as for b_1, b_2, and b_3. Finally, Standard Error of the Estimate, analysis-of-variance table, predicted values, residuals, and prediction intervals were constructed and presented. The following table presents some the results related to these models.

We studied the exchange rate for one Dollar in terms of Yen from January 1960 through January 2011. Then regression analysis will be performed to provide prediction of the exchange rate through year 2020.

RESULTS

Model Summary and Parameter Estimates									
Dependent Variable: Amount									
	Model Summary					Parameter Estimates			
Equation	R Square	F	df_1	df_2	Sig.	Constant	b_1	b_2	b_3
Linear	.811	159.088	1	37	.000	292.751	-5.911		
Logarithmic	.860	226.880	1	37	.000	392.203	-79.615		
Inverse	.503	37.442	1	37	.000	141.336	304.299		
Quadratic	.912	187.314	2	36	.000	349.445	-14.208	.207	
Cubic	.914	124.358	3	35	.000	339.503	-11.402	.034	.003
Compound	.837	190.392	1	37	.000	308.577	.968		
Power	.806	153.647	1	37	.000	505.354	-.419		
S	.408	25.460	1	37	.000	4.916	1.491		
Growth	.837	190.392	1	37	.000	5.732	-.033		
Exponential	.837	190.392	1	37	.000	308.577	-.033		
Logistic	.837	190.392	1	37	.000	.003	1.033		

In the next Figure we will consider:

Time Series Plot of Amount
Exponential growth
Trend Analysis for Amount
Data Amount
Length 39
NMissing 0
Fitted Trend Equation
Yt = 308.577 * (0.96785**t)
Accuracy Measures
MAPE 14.202
MAD 22.562
MSD 703.430

THE MODEL

MAXIMUM PUT OPTION PRICE: (Projected exchange rate – Strike price)
At expiration If strike price is lower, otherwise reverse
MAXIMUM CALL OPTION PRICE: (Strike price – Projected exchange rate)
If strike place is higher, otherwise reverse

At expiration the value of an American call option will be:

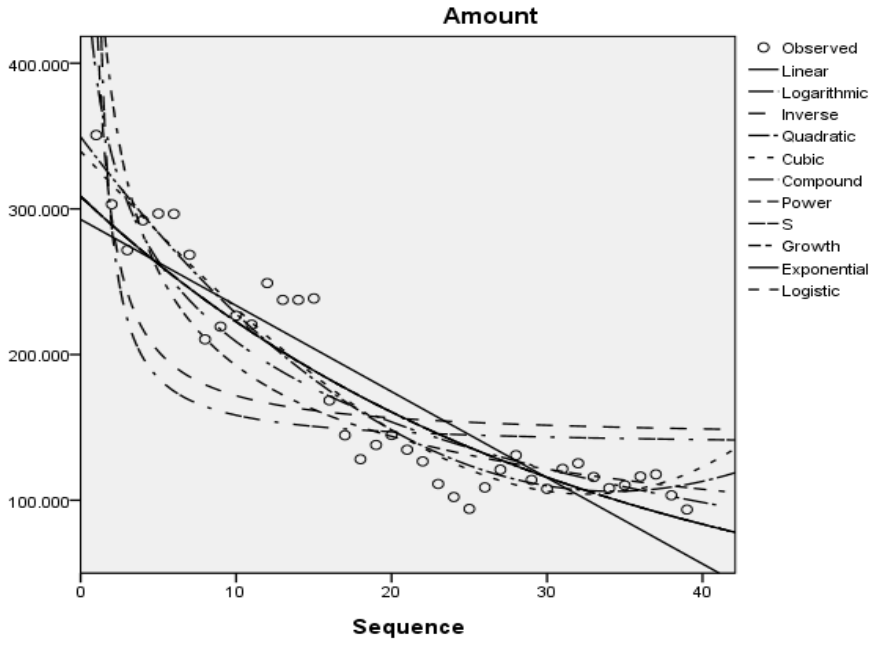
$V_{at} = C_{et}$ Max [ST – E,O]
E = exercise price of foreign currency per unit
ST is the expiration date spot price, Max denotes the maximum within the brackets.
If ST = E the option expires at the money
If ST < E (E < ST) the call (put) expires out of the money and it will not be exercised.

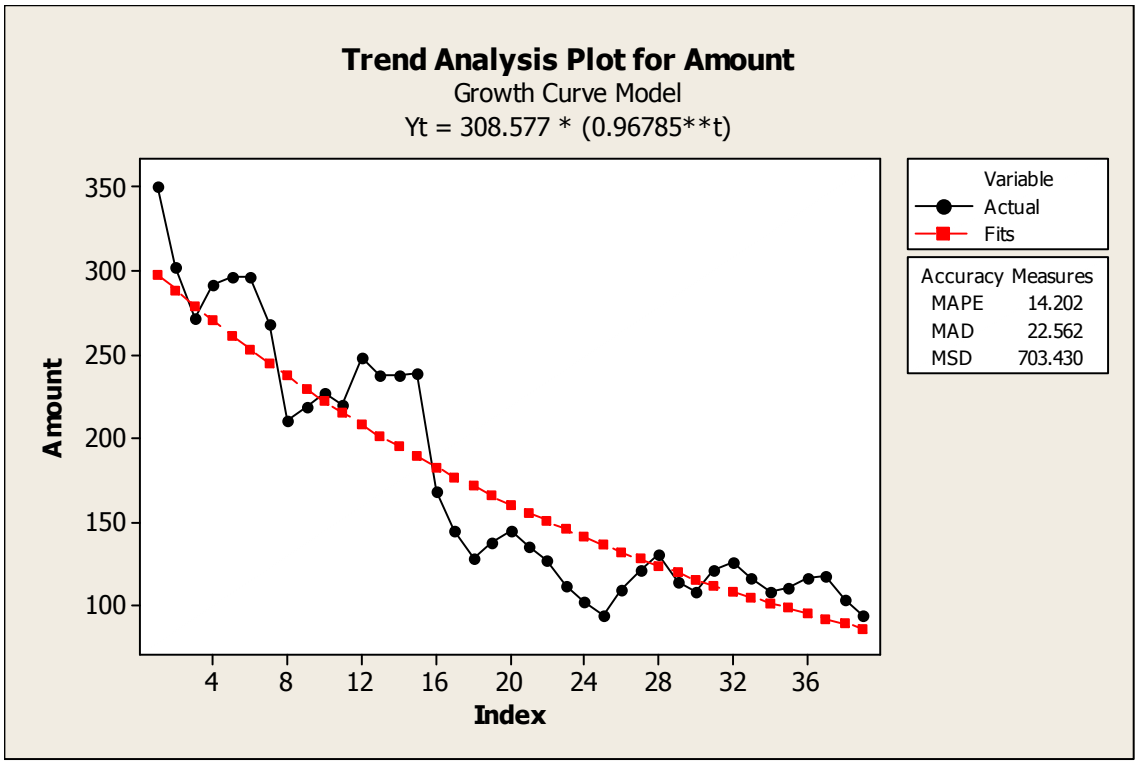
PROFIT TO CALL OPTION BUYER: $(F_P - E_P)$

PROFIT TO PUT OPTION BUYER: $(E_P - F_P)$

E_P = Exercise price

F_P = Forecasted exchange rate





The next table provides the result of regression analysis related to the exchange rate Dollar versus Yen during 2011 through 2020. Recently in March 2011 Yen tested 76 Yen per Dollar.

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
80.815	78.217	75.702	73.269	70.913	68.633	66.427	64.291	62.224	60.224

The result of regression analysis for Linear, Logarithmic, Inverse, Quadratic, Cubic, Compound, Power, Growth, Exponential, and Logistic showed in some cases a dramatic prediction of negative number for Dollar versus Yen therefore we did not use them and we selected S or S-curve which has a high correlation coefficient.

CONCLUSION

The value of Dollar Versus Yen Has declined since 1960 from the rate of 360 Yen per Dollar to nearly 83 Yen in the present time. According to several different models that are available in regression analysis the Dollar will continue its decline. This decline will prove to be detrimental to economy as well as export-import volume among many other factors.

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ISOMORPH
ISOMORPHIC INFLUENCES AND ASPIRATION: REFERENCE GROUP CHOICE IN ENTRY MODE DECISIONS

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ABSTRACT

Institutional theory and international business scholars have investigated the isomorphic influences on a firm's entry mode decisions. Previous research has shown the prevalence and importance of isomorphic influences from country, industry peers, and MNC parents when managers make entry decisions. Under conditions of uncertainty, firms could model themselves after behaviors of host country entrants, industry norms, or their own past behaviors. However, previous research has not discussed the relative significance of institutional influences exerted from those different reference groups. Our paper develops propositions regarding the firm's appropriate reference group when making entry mode choices into a new country based on the sources of institutional influence and the firm's own aspiration. The addition of the aspiration variable helps us understand the priorities of the reference groups. The paper contributes to institutional theory and international business literature by examining the interaction between institutional environments and the decision makers' preferences, emphasizing their varied options when facing institutional influences.

Foreign market entry is an important strategic decision for multinational corporations (MNCs) because of the implications on the firms' market presence, significant resource commitment, as well as risk level that it brings to the MNC system (including parent firm and subsidiary) (Caves, 1974). The process is fraught with ambiguities and uncertainties about market potential, rivalry behavior, country regulations, and customer preferences. Entry mode selection is one essential way through which MNCs could manage the uncertainties during the internationalization process, as they could manage their exposure to risk, and could control their local growth using different entry modes, ranging from exporting and licensing to forming joint ventures, acquiring other companies and setting up wholly owned subsidiaries (Buckley & Casson, 1985; Caves, 1974). Entry mode choice when firms are first entering a new country is of particular importance, as the success of the first foray into a new country could set the stage for capability-building through future entries (Chang, 1995; Chang & Rosenzweig, 2001). Researchers have tried to explain choice of entry mode from economic perspectives that emphasizes efficiency, transaction cost minimization, or utilization of resources/capabilities of MNCs (Aharoni, 1966; Dunning, 1995; Kogut & Zander, 1993; Vernon, 1979). More recently,

international researchers have broadened their scope to examine sociological influences in foreign entry, and investigated the isomorphic influences that firms face when choosing their entry mode. Researchers have underlined the importance of isomorphic influences at multiple levels of host country (Yiu & Makino, 2002), industry, and MNC parent firms (Lu, 2002).

As compared to economic perspectives, the institutional perspective views firms primarily as social actors who, because of the lack of information on the future implications of their current decisions, look for cues from their environments as to appropriate and legitimate actions (DiMaggio & Powell, 1983; Lieberman & Asaba, 2006). Managers may be unsure of the likelihood of possible outcomes, and they may have fundamental difficulties recognizing cause-effect relationships and the full range of potential consequences. In such environments, managers are particularly likely to be receptive to information implicit in the actions of others (Lieberman & Asaba, 2006). Firms often imitate other actors from their social environment to reduce the risk and uncertainty inherent in their own actions, hence the isomorphism. Different reference groups from host country, industry and MNC parents can provide guidance as to their own appropriate entry location (Guillen, 2002; Henisz & Delios, 2001) and entry mode (Guillen, 2003; Lu, 2002; Yiu & Makino, 2002). However, when a firm is imitating its reference groups, it is unusual for all its reference groups to be engaged in the same practice and processes all the time. The different reference groups therefore might exert pressures in different directions. For instance, when the host country norm of entry might be joint venture, the firm's own industry norm might be entry with a merger and acquisition. In those situations, how could an MNC choose its reference group? This was the case when Walmart entered China in 1996. While Walmart had entered several foreign countries previously, it had employed diverse foreign entry modes. For instance, for its first international entry to Mexico in 1991, it set up a 50-50 joint venture with CIFRA, a local retailer. Walmart Canada began in 1994 with the acquisition of the Woolco Canada chain of 122 stores. In 1995, it entered Argentina through a fully owned subsidiary. In the local Chinese environment, prior to Walmart's entry, Carrefour, the French supermarket chain has entered China in the previous year (1995) through a joint venture. Therefore, Walmart could have either followed the precedents of Carrefour, or chose to imitate its own experience in other countries. Which reference group would yield the most salient and prominent influence on the focal firm? Our paper tackles this question. We build on previous research on aspiration from organizational learning literature (Greve, 1996; 1998) to enrich institutional theory. We propose a framework to discuss the entry mode and reference group choice. We propose that the entry mode choice of a focal firm is under the combined influence of the institutional profile of the host country and the focal firm's own performance level prior to entry (whether it is below or at/above aspiration level) and such combined influences will determine how the focal firm gives preference and confidence to the choices made by its diverse reference groups.

This theoretical paper integrates the aspiration research with the isomorphism research and argues that the choice that firms make in relation to their entry mode will not only be

anchored on the strength and intensity of the isomorphic influences that they face in their external environment, but also on the risk preferences based on their own performance history. Our contributions lie in putting forward theoretical propositions that predict the entry mode choices of firms based on a country's institutional environment and the firm's own prior performance. By drawing attention to the role of the managers within MNCs and their role in dealing with the complex institutional environments, we extend previous work in two ways. First, we examine the premise that MNCs attempt to conform to institutional pressures by imitating the predominant mode of entry. Previous studies have examined the tendency of MNCs to imitate the prevalent mode of entry (Lu, 2002; Yiu & Makino, 2002), and have focused on the influence of either joint ventures or wholly owned subsidiaries that have been formed by other MNCs on the choice of the same mode of entry. Our paper introduces two additional important reference points: the norm of the country, and the MNC norm. Although we agree that the greater prevalence of a given organizational form in the industry enhances the legitimacy of that form, we argue that countries also hold important institutional power in determining the mode of entry.

Second, our paper introduces the level of aspiration into examination of foreign entry mode. Although aspiration level has been shown as a major factor in determining the probability of strategic change and market entry behaviors in organizational learning theory (Greve, 1996; 1998; Baum, Rowley et al., 2005), its influence has yet to be examined in the international business field when examining entry modes. Decision makers in organizations use an aspiration level to evaluate organizational performance along a set of organizational goals, making it the differentiator between the success and failure in their perceptions. Once decision makers are unable to reach their aspiration levels, doubt, conflict, and disagreements might set in organizations, influencing their search, risk taking, and organizational change behaviors (Greve, 2003). Thus, by introducing the influence of aspiration level on the change behavior such as foreign entry, our paper provides one of the first examples of examining the inter-organizational and intra-organizational influences in entry mode choice.

Our paper proceeds as follows: in the next section, we discuss the isomorphic influences on entry mode choice, and then we introduce the concept of aspiration. Afterwards, we develop our propositions and discuss their implications for future empirical research.

ENTRY MODE CHOICE AND ISOMORPHIC INFLUENCES

As a form of market entry, foreign entry offers opportunities such as potential new markets, new resources, and new relationships, but at the same time raises challenges regarding the uncertain sizing of the market, the regulations in the host country, as well as applicability of its resources and expertise in the new market. Once the managers have selected the target entry country, they could choose their international expansion through exporting, participating in licensing or franchising arrangements, forming strategic alliances and joint ventures, making

acquisitions, or establishing wholly own subsidiaries. The entry mode choice could be under influences of economic variables such as transaction costs, oligopolistic industry structures, and the nature of resources that the focal firm possesses (Buckley & Casson, 1976; Caves, 1996). While the economic perspectives focus on individual transactions and the appropriate methods to maximize economic gains and efficiency, or to minimize the transaction costs, such perspectives have been criticized as being under-socialized (Granovetter, 1985) and do not take into consideration the social perspectives of the managers (Guillen, 2001).

A fundamental assumption of foreign market entry is that "knowledge in a foreign environment is different from that accumulated in its home country" (Guillen, 2003). Because of such difference and disparity, in entering a new market, firms usually rely on external environment and social actors for guidance of appropriate behaviors. MNCs usually resort to signals from different aspects of environment to determine the appropriate actions to enter a new and unfamiliar country. Such isomorphic influences could be evident when managers choose the target country/location to invest in (Chan, Makino, & Isobe, 2006; Henisz & Delios, 2001), the type of investment plants (i.e., for distribution or manufacturing purpose) (Delios & Henisz, 2003), the choice of entry mode (Lu, 2002), and the sequence of entry mode (joint venture and/or wholly owned manufacturing plants) in a particular country (Guillen, 2003).

When making the entry mode choices, managers are under the influence of the broader social and institutional environment, and their decisions exist in the larger environment which is filled with the norms, standards, and expectations from the relevant parties. In conditions of uncertainty, managers cannot predict the consequences of their actions or behavior, lack information of the cause-effect relationship, and are unable to assess the full range of possible outcomes, states and the probabilities of each outcome (Milliken, 1987). As a result, firms look for external signals as for what the appropriate and legitimate actions are. A large number of peer organizations undertaking the same action could send signals that such actions are legitimate (Zucker, 1977); likewise, adoption of practices by big and successful corporations could legitimize certain behaviors (Haunschild & Miner, 1997). In some circumstances, repeated adoption by the MNCs themselves in previous entries would offer the practice internal legitimacy (Lu, 2002).

Three reference groups are particularly relevant when managers are making entry mode choices: the host country, the industry that the firm is in, and previous entries by MNC parents (Chan, et al., 2006). Those different reference groups send different types of signals of various strengths as to what the legitimate entry choices should be. The host country reference signifies the entry mode choices made by other firms in the same target country; industry reference signifies the entry mode choice made by other firms in the same industry in similar host countries; and MNC parent reference signifies the entry mode choices made by the same MNCs in previous entries. Host countries are the external institutional environments in which foreign entrants are embedded. They consist of various authorities and stakeholders, including governmental agencies, customers, suppliers, labor unions and trade associations, which shape

the social, cultural and economic environment in the host country. At the national level, each country has its own regulatory, normative, and cultural-cognitive institutions and varies in their degree of centralization of controls for political and economical activities (Mahmood & Rufin, 2005). Countries usually have their own distinct institutional profiles and certain expectations of the definition of legitimate behaviors in their respective countries. When entering a country for the first time, MNCs could follow the prior entry mode of foreign entrants in the host country, since the entry mode bestows legitimacy to what is acceptable in the target host environment.

Industry norms offer another benchmark for the investing MNCs. Industry fields are fields where different actors and firms could easily recognize other actors and their actions. Since firms in the same industry usually characterize environments similarly (Huff, 1982), they observe, perform comparisons with other industry actors, and are likely to imitate each other's strategic moves, processes, and mechanisms. They often have abundant information about each other's strategic moves, and engage in collective sense-making. Previous research has suggested that the institutional logic that provides the guidelines for business (e.g., industry standards, production commercialization, and supporting infrastructure) varies across industries (Makhija, Kim et al., 1997). The third area of legitimating power comes from internal sources – parent firm's previous entries. Parent firms form an internal institutional environment which connects foreign subsidiaries with headquarters, defines appropriate actions and behaviors, and form rules that make sense of their previous actions and guide their future actions (Francis, Zheng, & Mukherji, 2009; Scott, 2001). MNCs are the internal institutional environments in which subsidiaries are embedded and exert a high level of pressure on their foreign subsidiaries to conform to the norms and practices of the parent firm (Davis, Desai et al., 2000). As MNCs adopt a particular entry mode more frequently, the mode also gradually gains the status of "taken-for-granted" (Zucker, 1977). Managers making entry decisions are thus more likely to follow and adopt the same entry mode that has been used previously.

Even though previous research has documented the influences that various isomorphic forces exert on the entrant firms (Chan, et al., 2006; Guillen, 2003; Henisz & Delios, 2001; Lu, 2002), it has devoted little theoretical analysis as to which set of social actors will be imitated and have the most salience on entrant's decisions. When facing various reference groups, what is the foreign entrant's confidence level in imitating the reference groups? Tackling the issue of confidence in imitation, recent research has drawn attention to the issues of reference group characteristics (such as variance in behavior within the reference group and size of the reference group) and their influence on the imitation of behavior (Greve, 1996; Rhee, Kim, & Han, 2006). Those factors might influence decision makers' ability to interpret a reference group's behavior and decode the intention behind such behavior. We argue that the aspiration level of the foreign firm will influence the risk level that the firm will sustain, thus affecting how the firm chooses the most relevant reference groups to guide its behavior (Greve, 1998). Our main argument is that once firms satisfy country institutional influences, their reference group choice reflects their

own risk levels, which was determined by their performance level in relation to the aspiration levels.

To understand firm's entry mode choice to a target country, it is important to understand the sources of power for the host country. The institutional environment in the host country has three pillars: regulatory, cognitive and normative (Kostova & Zaheer, 1999; Scott, 2001), which draws their power from coercive, mimetic and normative mechanisms. The regulatory pillar refers to the rules and laws that exist to ensure stability and order in societies; the cognitive pillar refers to the established cognitive structures in the society, together with the "taken-for-granted" beliefs in the society; and the normative pillar refers to the widely shared norms and values that give rise to stable social and business arrangements. A country's institutional environment could either be restrictive or less restrictive, i.e., allowing a smaller or greater degree of economic freedom (Meyer, Estrin et al., 2009; Chan & Makino, 2007). A restrictive country does not possess market-supporting institutions and does not permit freedom of individuals and firms in the country to pursue business activities (Kane, Holmes et al., 2007). For instance, a restrictive country might have insufficient or defective rules and regulations in various aspects of starting and acquiring a business in that country, such as: receiving construction permits, employing workers, registering property, getting credit, protecting investors, paying taxes, trading across borders, and enforcing contracts and closing a business (World Bank, 2010). Foreign entry mode choice has to reflect the extent to which the foreign subsidiary conforms to the institutional domain of the host-country environment. At the national level, a foreign firm entering a restrictive institutional environment must comply with the local institutional environments since nonconformity can likely lead to penalties such as denial of entry, forced exit or demise of the subsidiary. For instance, Google's high profile exit from mainland China reflects fundamental differences between the firm and the country regarding their attitude towards censorship (Jacobs & Helft, 2010). Similarly, in a longitudinal study of entry and exit behaviors of UK firms, Requena-Silvente (2005) found that state dependence is the largest explanatory factor in explaining firm entry and exit behaviors among factors such as sunk cost, firm size, age, ownership, and industry structure. In a restrictive institutional environment, the reference group of the host country carries the most clear, un-complicated signal of what is acceptable, legitimate and appropriate in the host country, and offers decision makers the most uncomplicated signal as compared to any other reference groups of industry or MNC parent. So we hypothesize:

Proposition 1: In first entering a country with restrictive institutional environment, the multinational corporation is more likely to choose the entry mode choice most commonly used in the host country, as opposed to the entry mode of its industry peers or of its own entry in other environments.

Situations are more complex when a firm is entering a less restrictive country environment. In a less restrictive country environment, the host country's government most likely would not mandate the entry mode by foreign entrants; rather, it may allow a broader

scope of entry mode choices by them. In such an environment, a foreign entrant's choice of entry mode could be primarily influenced by its acceptable risk levels, which is determined by whether their performance is above or below their aspiration levels. The firm's foreign entry represents a critical and potentially risky change for the MNC (Haveman, 1993). Firms generally exhibit an aversion to change, which is similar to an individual's aversion to risk (Greve, 1998). Decision making research has shown that people prefer to gamble with lower variances of expected value and have an aversion to risk (Lopes, 1987). However, individual risk taking behaviour changes according to the context of choice and risk taking. An individual's risk taking appears to increase when he/she fails to reach a specific goal or aspiration level (Kahneman & Tversky, 1979). This is because an individual who fails to attain a goal (or a given aspiration level) might attempt to recover his/her loss and is more likely to engage in riskier choices than those who have already surpassed their goal or aspiration level. This risk-taking behavior at the individual level persists at the organizational level (March, 1988; March & Shapira, 1987; 1992). In business situations, similar to personal settings, managers tend to take fewer risks when performance surpasses their goals and aspiration levels, and take higher risks when performance is lower than their goals or aspirations.

Change, in the form of market entry or foreign entry, is often prompted by performance feedback from the environment and the managers' interpretation of this feedback (Milliken & Lant, 1991). When evaluating such feedback, aspiration level is an important benchmark. At the organizational level, an aspiration level has been defined as a "reference point that is psychologically neutral" (Kameda & Davis, 1990) or "the smallest outcome that would be deemed satisfactory by the decision maker" (Schneider, 1992). According to March & Simon (1958), an organization's aspiration level is a result of a bounded rational decision maker's attempt at transforming a continuous measure of performance into a discrete measure of success and failure. It is the dividing line between success and failure in the decision maker's perception, and interpretation of the results of a prior action or strategic move.

Decision makers generate an aspiration level from available information, most importantly from accounting and financial performance information such as return on sales or return on assets (Greve, 1998). One important way for decision makers to generate aspiration levels is to use the experience of the focal organization as the benchmark of historical aspiration levels. Past performance may be one way to indicate how well the organization can perform, and can be a natural reference point of how the organization should perform in the future. Alternatively, decision makers can use current performance of other organizations as a benchmark of social aspiration level.

We argue that firms are going to be influenced by whether they are above or below their aspiration levels when they are making foreign entry mode choices. Firms are more likely to choose the entry mode that has been used by their industry peers rather than their own internal entry mode (sanctioned by the MNC parents) when they are performing below aspiration levels. For those firms, their usual, taken-for-granted entry mode within the MNC system is likely to be

questioned because of the performance shortfall. As a result, managers are more likely to engage in problemistic search activities for alternative ways of doing business (Cyert & March, 1963; Greve, 2003). Problemistic search, as a response to an organizational problem, signifies the middle step of a sequential process of decision makers comparing the performance with an aspiration level, initiating search if the performance is low relative to the aspiration level, and making changes if they can find an acceptable solution to the performance shortfall (Cyert & March, 1963). As a goal-oriented behaviour, problemistic search increases when the organization performs below the aspiration level and decreases when organization performs above the aspiration level. In international entry, the entry mode of the industry peers offers the signal that it is not only a legitimate one but possibly a superior one. It may also send a signal to the firm that its peers have better information about the utility of entry modes and that the particular entry mode has technical value (Lieberman & Asaba, 2006). A firm that is performing below its aspiration levels is thus more likely to be aware of, search for and adopt such a technical superior practices. Thus, we propose:

Proposition 2: In first entering a less restrictive country environment, the multinational corporation that is performing below its aspirations is more likely to choose the entry mode that's used in its industry, as opposed to the modes most commonly used in the host country or its own entry in other environments.

On the other hand, the MNC's previous entry mode in other environments will offer a satisfactory and legitimate way if the firm is performing at or above its aspiration levels. MNC's norms are created through the process of its group members collectively defining what they do, identifying themselves, and establishing a cognitive base of their collective entity (DiMaggio & Powell, 1983). The literature of organizational theory suggests that once an organizational practice is in place, firms are likely to define it as an internally legitimate practice and to adopt similar practices in the future. This also contributes to the strategic inertia where as time proceeds, firms are less likely to make structural changes since firms face inter-organizational and intra-organizational constraints (Hannan & Freeman, 1977, 1984). For an organization contemplating foreign entry, we maintain that the most immediate, salient, central, and enduring normative characteristic is organizational identity, as opposed to industry identity or country identity (i.e. national culture) (Albert & Whetten, 1985). For a firm that's performing above its aspiration levels, it is less likely to question its identity and the internally legitimate way of entry, and is more likely to continue to use the same entry mode that has been used in its previous entries. Thus we propose:

Proposition 3: In first entering a less restrictive country environment, the multinational corporation that is performing at or above its historical aspiration level is more likely to choose the entry mode that's been mostly used in its own previous entries, rather than the entry mode most commonly used in the host country or the industry.

DISCUSSIONS AND CONCLUSION

We began this article by asking the following question: in situations where managers face varied, often conflicting modes of influence, how do they make sense of their complex institutional environment in choosing their entry mode to a new country? Specifically, which reference group offers the most salient influence when a firm is attempting entry to a new country? The issues of uncertainty, risk, and imitation are not unknown in the internationalization literature; however, the questions of how to deal with the combined isomorphic influences of the host country, industry, and the firm's own experience have not been elaborated upon. In this article, we address the uncertainty that is encountered by a foreign entrant when they are attempting first entry in a foreign market and how the firm chooses the appropriate reference group to model their behaviors by. We develop propositions to understand how a firm responds to uncertainty based upon the institutional profile of the target country, the industry norm, and the firm's own performance. We emphasize that the uncertainty being generated at the different levels of country, industry and firm has varying salience on a firm's decisions. A firm's response to those external influences is shaped by its own performance level at the time of foreign entry.

Countries have the most power over entry firms since they can impose laws, rules and regulations on firms. As a result, firms have limited choices when complying with host country institutional profiles: either they conform, or they exit and are forced to abandon potential gains from foreign investments. In comparison, an industry has relatively less powerful influence, but exerts powerful mimetic pressures on firms in the same industrial field in their entry decisions. An industry norm carries information as the modeled organizations are seen as legitimate or successful, providing good templates for firms with inferior performance or social position. Firm's own experience exerts the least amount of coercion and its normative power, the taken-for-granted way of business is likely to be questioned when firms are performing below their aspiration levels. When firms are performing above their aspiration level, however, they are less likely to change the existing way of doing business as managers consider previous actions to have been appropriate and suitable for the internal environments.

Our propositions are consistent with previous empirical research in the international entry literature and institutional theory. Previous research distinguished between firm-specific uncertainty, which refers to the "uncertainty derived from an organization's unfamiliarity with market characteristics", and policy uncertainty, which refers to "the uncertainty derived from characteristics of the policymaking apparatus of a market that make the characteristics of the market unstable or difficult to forecast" (Henisz & Delios, 2001). Research has found that imitation generally reduces uncertainty, particularly firm-specific uncertainty, but does not reduce political hazard-related uncertainty (Chan & Makino, 2007). Viewed from our framework, this finding is not surprising because the restrictive and coercive forces at the

country-level are most deterministic prior to first foreign entry, since they offer the strongest signal as to what is expected, appropriate, and legitimate in the host country.

We highlight the complexity of isomorphism and its varying influences on managerial decisions depending on the firm's performance levels (Kostova & Zaheer, 1999). Previous theoretical work in the foreign entry literature has highlighted the pressure of isomorphism and importance of legitimacy in MNCs. Kostova & Zaheer (1999) illuminate the environmental and organizational complexity in the legitimization process. We explore further in order to understand such "complexity" of isomorphism, and introduce the concept of aspiration level in determining the appropriate reference groups when making entry mode choice decisions.

The propositions presented here are part of a growing stream of institutional literature that investigates how the pressures of isomorphism influence firm behaviors and structures (Greve, 1996; Haveman, 1993; Strang & Meyer, 1993; Strang & Tuma, 1993). We emphasize the role of the decision maker when facing the constraints of isomorphic forces from multiple levels. Our work advances the stream of literature in institutional theory that stress social agents' role, their receptivity to institutional forces, and their heterogeneity (Strang & Meyer, 1993; Strang & Tuma, 1993). The stance of decision makers in the face of institutional constraints could be one of active choice, change, and challenge - not just conformity (Oliver, 1991). By choosing different reference groups, decision makers exert a certain level of agency and can achieve a degree of flexibility by complying with institutional influences of different levels of salience.

Our paper is one of the first to attempt to integrate institutional theory, which traditionally emphasizes the "have to" aspect of firm choices with the aspiration, learning, and risk preferences of the managerial decision makers. This intersection of constraints and choices is a fertile area for future empirical and theoretical work. We acknowledge that our paper is only a theoretical framework which needs to be further corroborated by empirical research. This article puts forward testable propositions that advance international business theory in the context of entry mode choice. Although some evidence exists regarding the effects of institutional influences on entry mode choice, such results have been subject to lack of data from firm performances before and after entry. We highlight the need for longitudinal studies that track a firm's performance and entry mode choices across different countries. Future studies may include matched-pairs panel data of companies in the same industry that allow a comparison of entry modes and behaviors of firms that perform above and under their aspiration levels.

In addition, future research can continue to investigate the following questions: How could a firm's organizational characteristics, such as size, age, reputation, network position etc. influence the firm's propensity to choose relevant reference groups? How does the reference group choice change with a firm's experience in a particular country, i.e., how does the reference group change when firms are making repeated entry in the same host country? How does the reference group choice affect timing of the entry or sequence of entry (i.e., through licensing/franchising, or establishing distributing or manufacturing plants)? The research on

institutional theory and organizational learning shows great promise for helping us understand these fundamental questions.

In conclusion, we believe that our theoretical paper contributes to the foreign entry mode literature by offering a new perspective on institutional influences: namely, that decision makers are under the combined influence of institutional pressures and internal organizational pressures when making entry mode choices. Decision makers are liable to take different levels of risk following prior performance levels and such risk preference may evidence in their entry in a different market. Our investigation is one of the first papers to examine the role of aspiration in shaping institutional influences of organization, and we hope that our study will motivate others to extend this interesting line of research.

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