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Editorial on Globalization

From Dr. Gurumurthy Kalyanaram

We are delighted to present to you six excellent research articles in this Special Issue, “Globalization of Markets and Workforce.”

The article by Ford and Whaley addresses two important elements in work force, particularly in private sector and academe: collegiality and perception of justice. The analyses and recommendations are based on data from US. However, there is an evident level of generalizability. Complementing this work, Srivastava examines specific challenges of job-related anxiety and stress among professionals in Mumbai. While the work by Ford and Whaley is broader about the global work force, the work by Srivastava is very focused and specific. The findings reported in both the articles are applicable and appropriate.

The articles by Paul and Pellissery, and by Bamber, Phadke and Jyothishi nicely juxtapose two interesting and fundamental markets in Indian economy. Paul and Pellisary present theory and data on network effect on very small businesses, namely, street vendors who constitute a significant component of the rural and urban society not only in terms of economic metrics but also social identity. Bamber et. al. ask a fundamental question: how does the country of origin (in this instance, India) affect consumer perceptions and purchase intentions. Of course, this study is more relevant to branded and middle- and upper-scale Indian markets and export markets.

The articles by Ghosh, Arize and Ghosh, and Patel are respectively technical and empirical analyses of trade and financial markets. The data employed by Ghosh et. al. is from United States, but it is focused on trade and export markets. Patel's empirical analysis on Indian equity market offers a different perspective.

So, in this issue we present six important research articles that address various challenges related to global markets and work force. These issues assume special importance and interest as we face a global economy that is fragile and uncertain.

The European and Japanese economies are very weak. In light of the recent challenges in banks and currencies, the robust recovery in Europe will be long and arduous – at least four to five years in the making if decision makers make the right policy decisions and lady luck is kind. Apart from the monumental crisis in Greece (Ireland and Portugal), the situation, though less severe, is nevertheless very difficult in Spain, Italy and several other countries. Only Germany has shown some resilience, and UK has managed to survive. Japan continues to be weak in stimulating demand and growth – this has been the pattern for the last 15 years and there is little to inspire that this will change. Japan has never quite cleared the economy of toxic assets and debt from the days of its real-estate and housing collapse in the late 1980s and early 1990s.

The US economy is tepid, and the performance is lackluster. The economy has been growing in the range of 1 to 2 percent in the last couple of years. But this growth is too limited to create jobs, and that’s why the US unemployment rate has been stubborn over 8 percent.
Unfortunately, the economies of China and India are also sluggish. India's growth (about 6 percent) is being eroded by high inflation rate (8 percent plus), so the substantial growth is small. China has slowed down too. However, for the simple reason that forty percent of China's growth comes from exports China is more dependent on the global economy than being able to lead the global economic growth. Accordingly, India is more likely than China to be an engine for global growth, though United States will be the global economic leader for the next decade and more.

Apart from the uncertain economic situation, there are important fundamental questions about the concept and definition of globalization. Are we more globalized today or less? In some metrics, we are certainly more globalized. We are more globalized in terms of exchange and flow of currency, data and information, and goods and services, all of which are more instantaneous, complete and transparent – thanks to technology. But we are also more fragmented today because there are currently 193 member countries in United Nations. Each country, sovereign as it is, formulates its own rules, regulations and statutes, and this creates greater friction in movement of goods and services and skilled labor. Compare this with 1900 when the rules were set by a relatively few players and the borders were fewer. The British, Dutch and French Empires governed most of Asia, Middle-East and Africa, and they were the major players in Europe. The United States through Monroe Doctrine had substantially influence on Latin American countries.

Over time, consumer preferences have also become at once homogeneous and more heterogeneous. For example, the consumer preference for a Nike shoe or MTV programming is reasonably homogenous, but the preference for a Nestle chocolate is very heterogeneous (for example, the European chocolate brand is more bitter than the US chocolate brand.)

So, what can be said with certainty is that the global markets and work force are dynamic and evolving, and the preferences can be sometimes homogeneous and at other times very heterogeneous.

Accordingly, the challenges are many, and this issue of the Journal begins conversation on this central dimension of globalization.

*Dr. Gurumurthy Kalyanaram was appointed as Dean for Research at NMIMS University in December 2011. In this capacity, he leads and facilitates the research activities and efforts across schools of the university. As the Dean for Research, Dr. Kalyanaram serves as the Editor of NMIMS Management Review. For a profile of D. Kalyanaram, please visit: [http://business.nmims.edu/dr-gurumurthy-kalyanaram](http://business.nmims.edu/dr-gurumurthy-kalyanaram)*
Examining Collegiality and Social Justice in Academia and the Private Sector: An Exploratory Symlog Analysis

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Abstract
This research compares the perceptions of the private sector, high-technology employees to the perceptions of university faculty members regarding organizational culture, social justice and collegiality concepts. The SYMLOG assessment technique was used to record the perceptions of respondents to four different concepts of organizational culture, two different aspects of social justice and two measures of collegiality. Comparative findings of gender differences across the eight concepts raise key organizational culture, legal, measurement, governance, and social policy issues for academia and high tech organizations. The development of a conceptual framework to guide future research and a blueprint to discuss desired organizational change are highlighted.

Keywords: collegiality, social justice, organizational culture, most effective profile.

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Introduction and Purpose of the Research

The purpose of the present exploratory research study was to examine the perceptions of organizational members with respect to organizational culture, social justice, and collegiality concepts in both academic and private-sector organizational settings. All three concepts are key internal, contextual variables that have an influence in determining organizational effectiveness (Pettigrew, 1979; Collins & Porras, 1994; Drucker, 1994; Luthans, 2011). Since perceptions often guide behaviour in organizations, we will use the SYMLOG measurement system to explore the relationships between the perceptions of respondents in two different organizational settings to these three concepts and organizational effectiveness.

In social interacting systems (Bales, 1999), individuals are often assessed by others not on the basis of who they are, but, rather, by the perception of what they seem to be; not on the basis of what they say, but, rather, how they are heard; and, most importantly, not on the basis of what they intend, but, rather, by their actual effect on others (SYMLOG Consulting Group, 2012). In light of these realities, the present authors chose to incorporate in the present study a measurement system ideally suited for easily and accurately measuring and displaying perceptions that greatly influence how people respond to individual persons, to each other in a group, and to organizations and their products and services. This measurement system is known as SYMLOG, which is the only method that provides a research-based universal standard (most effective profile or mep) against which to measure multiple levels of interaction so as to systematically and simultaneously improve leadership, teamwork, and organizational effectiveness.

While a greater explanation of the SYMLOG measurement system is provided later in this paper, a Field Diagram depicting average ratings of well-known leaders and other famous personalities is provided in Figure A to help the reader “calibrate” the SYMLOG psychological space. Relative perceived dominance of the persons rated (U-D dimension) is reflected in the size of the image circles for a particular personality. Larger circles represent more dominant personalities and smaller circles represent more submissive personalities. Figure A reflects the perception of values shown by famous people as rated by a random selection of adult students in North America, and it illustrates how perceptions of different people vary considerably. The reader’s own perceptions of these famous personalities may not agree with the exact placement of images from these students’ ratings. However, Figure A should provide an intuitive feel for the SYMLOG space and the authors doubt that many persons would disagree with the placement of images on the Positive versus Negative sides of the diagram.
Moreover, if the images in Figure A were of persons from an actual organization, the implications for the persons outside of the PF quadrant of the diagram are huge with respect to individual coaching and counselling, leadership training and development, team development, strategic planning, and human resource development – all of which are just a few of the many applications and uses for the SYMLOG measurement system. According to the SYMLOG Consulting Group, SYMLOG has been used in over sixty countries in 17 different languages to provide integrated solutions to complex problems of social interaction (SYMLOG Consulting Group, 2012).

The presentation of this empirical study continues as follows. We begin with an overview of the research concerning organizational culture, social justice, and collegiality, and their relationship to organizational effectiveness. We then provide an overview of the SYMLOG measurement system we used to gather perceptions of eight concepts related to organizational culture, social justice and collegiality from members of the academic and private business sectors. Next, we provide an analysis and discussion of the results, future research and current organizational applications. We then propose a model for future research that should shed additional light on the complex inter-relationships and provide new practical applications for organizations.

**Organizational Culture**

Organizational culture (OC) evolved from earlier concepts such as organizational climate and company culture (Sathe, 1985; Schein, 1985; Schneider et al, 2002; Osland, et al, 2007). It is defined as the collective values, beliefs, symbols, myths, norms and other organizational symbols that provide meaning to individuals and
organizations and, in turn, guide their actions (Pettigrew, 1979; Osland, et al, 2007; Luthans, 2011). OC is based on perceptions that influence organizational outcomes and it is a major component of organizational strategy; it promotes consistent behaviour and it gets new members to socialize (Cook & Hunsaker, 2001; Osland, et al, 2007; Luthans, 2011). Cook & Hunsaker (2001) and Luthans (2011) suggest that variables such as industry competitiveness, organizational size, organization structure, and technology all influence the key contextual variable of organizational culture, which, in turn, ultimately influences organizational effectiveness.

Literature on organizational behaviour is replete with studies of the underlying dimensions of organizational culture (Cook & Hunsaker, 2001; Luthans, 2011). Two popular and opposing dimensions of organizational culture, namely, “organic,” which is considered as open, adaptive and collaborative, and “mechanistic,” which is considered to be closed, traditional and hierarchical, have existed for several decades (Reigle, 2001).

Wiener (1988) identified a 2X2 organizational culture model based on four value systems: elitist, charismatic, functional and traditional. The Wiener (1988) study found the combination of elitist and charismatic values to be the weakest and least stable combination for organizational performance, and the functional and traditional combination to be the strongest and most enduring. More recent contextual studies by William Schneider (1994, 2000) based on private sector organizations indicated that there are four core cultures that show superior results depending on the nature of the organization. Schneider identified these core cultures as: 1) collaboration culture, 2) competence culture, 3) cultivation culture, and 4) control culture. The studies found that different organizations emphasized on one or more of these four cultures, depending on the organizational context (Schneider, 1994, 2000). Hence, a large, centralized and mechanistic organization in an industry with little competition and low technological complexity may benefit more from a “control” type of culture than an organization with different internal characteristics and external pressures. A small, research-oriented university may prosper more readily with a “collaborative” culture than large, research-oriented universities or business firms.

Reigle (2001) indicated that managers needed to know how their cultures are perceived by others in order to retain knowledge workers across industries, especially the high-technology industry. Schneider (2000) described a collaborative culture as adaptive, democratic, informal, participative and collegial. Friedman (2005) mentioned that collaborative teamwork and culture were the driving forces behind the development of high technology based open source software such as the Linux operating system and Firefox Web browser. Although collegiality is often compared to OC dimensions such as collaboration, teamwork and cooperation, it has not replaced the underlying dimensions of OC and social justice. In the present study, we adopted Schneider’s four-culture types as organizational culture concepts to be assessed, i.e., collaboration culture (COL), competence culture (COM), cultivation culture (CUL), and control culture (CON).
Social Justice
Social justice (SJ) is another internal, contextual variable that affects organizational outcomes through the perceptions of equity by its members. The SJ field is generally viewed as having only two underlying dimensions: distributive justice and procedural justice. A meta-analysis of organizational justice research showed that distributive and procedural justice is related to all desirable organizational outcomes (Colquitt, et al, 2001). According to Mowday (1987) and Colquitt (2001), “distributive justice” is primarily concerned with the fairness of the quantity of organizational rewards, and “procedural justice” is primarily concerned with the fairness of the process used to determine organizational rewards. SJ concepts have been shown to be related to a wide range of outcomes such as performance, organizational citizenship, motivation, well being and attitudes that are relevant to organizations and their members (Colquitt, et al, 2001; Cropanzano, et al, 2001; Fortin, 2008).

SJ is sometimes viewed from the ethical and philosophical perspectives with normative rules concerning what is just and unjust (Colquitt, et al 2001). Organizational justice (OJ) is related to social justice and is concerned with people’s fairness perceptions in their employment relationships (Fortin, 2008). Since information about the current employment status of respondents was not requested, we will use the terms OJ and SJ synonymously in this paper. Methodological issues exist within the field concerning (1) whether there is justice and injustice asymmetry related to different outcomes, (2) the longitudinal effects on outcomes, (3) monistic views of justice, and (4) whether there are more than two OJ dimensions (Truxillo, Steiner, & Gilliland, 2004). Fortin (2008) indicated there is ample evidence to suggest ‘interactional justice” as a third SJ dimension that has two main elements, “quality of personal treatment” and “information regarding decision-making.” Folger and Konovsky (1989) and Tepper and Taylor (2003) contend that effective organizations have adequate amounts of both forms of social justice. However, certain settings tend to emphasize one form of social justice more than the other. For the present study, we focused on the two primary SJ dimensions and asked respondents to provide only their perceptions of fairness of procedures (FAP) and fairness of results (FAR).

Collegiality
Collegiality is a third internal, contextual concept that is linked to perceptions of organizational outcomes. As organizations across different settings move toward more team and knowledge based organizational designs, collegiality is viewed as a concept independent of OC and SJ, and also viewed as directly linked with organizational outcomes. Connell (2001) asserts that collegiality is entrenched in academia as an important aspect of faculty performance and the AAUP adopted On Collegiality as a Criterion for Faculty Evaluation as a guide in 1999. Recent U.S. research findings based on the Collaborative on Academic Careers in Higher Education research project reflect that gender, race and ethnic group affiliation make a difference in terms of the perception of relationships between pre-tenure faculty members and their peers and senior faculty counterparts (Ponjuan, Conley & Trower, 2011). Further, Tang's (2010) PhD dissertation, based on the perceptions of young faculty in selected four-year universities in the Inner Mongolia Autonomous Region (IMAR) of China regarding pre-service training, collegiality, and teacher effectiveness training, reported that ethnicity, gender, and teaching experience and demographic categories had a significant impact on young faculty perceptions. The author also found that ethnicity influenced the young faculty’s perceptions regarding the level of their need for pre-service training and collegiality as well as their
actually-received level of collegiality and teacher effectiveness training (Tang, 2010). The international context for collegiality has also come under scrutiny from the growth in the use of performance appraisals to measure faculty performance (Morris, 2011; Kok, 2010). As collegiality creeps more and more into the faculty performance evaluation process, we argue that anecdotal evidence suggests different demographic groups in the USA such as African-American faculty will have different perceptions toward collegiality and organizational outcomes compared to other demographic groups (Rockquemore & Laszloffy, 2008). Additionally, Fogg (2006) found that contemporary junior professors are markedly different from previous generations, and collegiality is more important to them than compensation, tenure clarity, and workload.

The increased diversity of business organizations has increased the focus on collegiality issues in non-academic settings. We contend that as the complexity of job tasks in the private business sector grows, teamwork and the inter-dependence of relationships will also grow. The modern workplace and federal employment law require employers to consider collegiality factors when they are job-related, such as “getting along with others,” under the Americans with Disabilities Act (U.S. Dept. of labor, 2012). Virtual communities, knowledge sharing, social networking and other modern workplace trends that result in creative, knowledge-based and information-intensive jobs have moved employers toward collaborative systems (Peddibhotla & Subramani, 2008). Since the knowledge sharers often tend not to be co-located, collaboration requires collegiality in order to be effective. Some employers enable this form of collegiality by offering software tools ranging from simple forms such as SharePoint to more complex collaboration suites, and they require employees to use these tools. This “expected collaboration” form of collegiality is popular in the scientific and engineering-dominated parts of the high tech and bio tech industries, but it has also moved into professions such as accounting and law. In a recent article, the author bemoans the decline of collegiality and professionalism among lawyers (cf. Angones, 2007).

Bugeja (2002) points out that collegiality in academic settings is based on one’s perception rather than one’s contract or the faculty handbook, and is often confused with congeniality. He defines collegiality as behaviours based on the tenets of academic freedom that are required for shared governance. On the other hand, he defines a competing concept, “congeniality” as based on agreeable, friendly and confirming environments, and not positively related to shared governance. Although not necessarily in this order, 1) teaching, 2) research and publication, and 3) service are commonly known as the traditional criteria considered for granting tenure in academia. However, some universities consider collegiality to be a fourth “unspecified” criterion or a component of the other three criteria (cf. DiLeo, 2005; Mawdsley, 1999). When faculty have been denied tenure based on a perception of poor collegiality, and the decision is challenged in court, usually the courts have upheld these university decisions (cf. Levi v. University of Texas at San Antonio, 1988, p. 282; McGill v. Regents of University of California, 1996, p. 472). Connell (2001) contends that “Breach of Contract” is a common faculty argument rejected by the courts. The usual breach of contract scenario occurs when the university does not define collegiality as a criterion for tenure and the faculty member argues that failure to do so violates the tenure policy or employment contract (Connell, 2001). Cho (2005) concluded in a recent law review symposium that faculty members who challenge these collegiality-based decisions usually indicate that collegiality is subjective, vague, and merely a
pretext for illegal discrimination as well as denial of academic freedom. Academic institutions usually counter the aforementioned argument with the position that collegiality is the key to social justice in the form of shared governance, and it is the vehicle that drives both the “output” and “reputation” of these institutions.” Thus, contemporary legal cases (cf. Connell, 2001; Hartle, 2004; Lewin, 2002; and McKinney, 2005) involving tenure decisions, where collegiality is involved as a key issue, have served to create an evolving “battleground” within academia.

Often, collegiality is used in academic settings to describe organizational effectiveness and is linked to organizational culture and social justice (Massey, 1994). Bugeja (2002) suggests that one form of social justice, namely, procedural justice, is emphasized more in academia than distributive justice, and results in “congeniality" often being confused with "collegiality.” A study by Colquitt, Noe and Jackson (2002) indicated that procedural justice is used more in team-based business organizations and it has both positive and dysfunctional consequences. Tepper and Taylor (2003) further suggested that procedural justice perceptions of supervisors and subordinates alike in a National Guard military setting strongly influences OC and citizenship behaviour (OCB). For our study, perceptions of the most collegial person (MCP) and least collegial person (LCP) in both academic and non-academic settings were assessed.

Organizational Effectiveness
The individual, group and organizational levels should be interconnected when the concept of organizational effectiveness (OE) is analyzed. A single economic metric such as “profit” that is used as a general accounting or economic measure of success may be efficient but has shortcomings because it is static, retrospective, and does not capture and integrate all three effectiveness levels simultaneously. Organizational learning (OL) is a macro level concept that is often related to organizational effectiveness. Becerra-Fernandez and Sabherwal (2008) traced the evolution of the knowledge management (KM) field and concluded KM is the individual and team level learning that allows organizational learning to occur. Performance management (PM) is another OE concept that has been touted as a more practical approach than OL. Osland, et al. (2007) define performance management as a process of establishing performance standards and evaluating performance to ensure that goals are being effectively accomplished. Performance management at the macro or organizational level can be aligned with performance appraisal at the team and individual levels. The balanced scorecard (BSC) is a popular performance management approach to assist managers in considering all important aspects of organizational performance and to attempt to “integrate” and “directly measure” competing levels and forces (Osland et al., 2007). At the individual level, most performance appraisal systems focus on either outcomes or behaviour criteria, and inaccurate information, lack of accountability and poor decision-making erode their effectiveness (Osland et al., 2007). The previously mentioned SYMLOG system has several advantages over the organizational learning and performance management approaches. The single prospective effectiveness measure (mep), shown in Figure A, seamlessly integrates performance outcomes and all three behavioural levels. Thus, the SYMLOG mep was used in this study as the outcome measure against which to compare organizational culture, social justice and collegiality perceptions.
SYMLOG Measurement System

Why SYMLOG?
The research literature review uniformly points out that it is the perception of organizational culture, social justice and collegiality that is related to organizational outcomes. Hence, the present authors selected the SYMLOG assessment system, which is based on perceptions of values, to measure the perceptions of the respondents toward organizational culture, social justice and collegiality concepts. SYMLOG research draws on “field theory,” in which values, behaviours, and other factors affect each other in the social-psychological field (Bales, 1994). Several factors in the social-psychological field reinforce each other to provide a unified organizational experience while other factors are in opposition, producing polarization. The “harmonizing” SYMLOG mep is the “ideal” location among the famous people (images shown earlier in Figure A), and this meta norm is considered to be the “gold standard” for assessing effectiveness across a wide range of organizational concepts and disciplines.

What is SYMLOG?
The name “SYMLOG” is an acronym for (1) Systematic, (2) Multiple Level, (3) Observation of Groups (Bales & Cohen, 1979). The SYMLOG system was developed through fifty years of research by Robert Bales and his colleagues. It is a method for repeated measures and ongoing feedback for continuous improvement, as well as a powerful theory and set of professional methods for improving team and organizational performance. SYMLOG theory states that human behaviour can be most effectively and parsimoniously understood as consisting of three orthogonal, bi-polar dimensions. The first is a power dimension, with “U” representing “Upward” or “Dominance” versus “D” representing “Downward” or “Submissiveness,” hereafter referred to as the U-D dimension. The second dimension is relationship-oriented and uses “P” to represent “Positive” or “Friendliness” versus “N” to represent “Negative” or “Unfriendliness,” hereafter referred to as the P-N dimension. The third dimension reflects both task orientation and relationship with authority and uses “F” to represent “Forward” or “Acceptance of the Task Orientation of Established Authority” versus “B” to represent “Backward” or “Rejection of the Task Orientation of Established Authority,” hereafter referred to as the F-B dimension (Bales, 1994; Bales & Cohen, 1979; Hogan, 2005).

The SYMLOG value questionnaire, which is used to collect ratings of objects or constructs, is composed of 26 standard items, each representing a different combination of the three SYMLOG dimensions. The rating items are shown in Figure B. Next to the number for each rating item is a one-to-three letter code representing the combination of SYMLOG dimensions for that item. For example, item 1 is coded “U” for Upward, indicating that it is intended to measure only the Upward (i.e., Dominant) direction. Item 2 combines two directions -- “U” for Upward and “P” for Positive (i.e., Friendly). Item 3 combines three directions with the addition of “F” for Forward (i.e., accepting established authority). The remainder of the codes for the rating items indicate various combinations of Upward or Downward, Positive or Negative, and Forward or Backward in the value field.
### Figure B
**SYMLOG Individual and Organizational Values**

<table>
<thead>
<tr>
<th>Values on Dominant Behavior</th>
<th>1</th>
<th>U</th>
<th>Individual financial success, personal prominence and power</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>UP</td>
<td>Popularity and social success, being liked and admired</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>UFF</td>
<td>Active teamwork toward common goals, organizational unity</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>UF</td>
<td>Efficiency, strong impartial management</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>UNF</td>
<td>Active reinforcement of authority, rules, and regulations</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>UN</td>
<td>Tough-minded, self-oriented assertiveness</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>UNB</td>
<td>Rugged, self-oriented individualism, resistance to authority</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>UB</td>
<td>Having a good time, releasing tension, relaxing control</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>UFB</td>
<td>Protecting less able members, providing help when needed</td>
</tr>
<tr>
<td>Values on Submissive Behavior</td>
<td>10</td>
<td>P</td>
<td>Equality, democratic participation in decision making</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>PF</td>
<td>Responsible idealism, collaborative work</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>F</td>
<td>Conservative, established, “correct” ways of doing things</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>NF</td>
<td>Restraining individual desires for organizational goals</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>N</td>
<td>Self-protection, self-interest first, self-sufficiency</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>NB</td>
<td>Rejection of established procedures, rejection of conformity</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>B</td>
<td>Change to new procedures, different values, creativity</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>PB</td>
<td>Friendship, mutual pleasure, recreation</td>
</tr>
<tr>
<td>Neither Dominant Nor Submissive</td>
<td>18</td>
<td>DP</td>
<td>Trust in the goodness of others</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>DFF</td>
<td>Dedication, faithfulness, loyalty to the organization</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>DF</td>
<td>Obedience to the chain of command, complying with authority</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>DNF</td>
<td>Self-sacrifice if necessary to reach organizational goals</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>DN</td>
<td>Passive rejection of popularity, going it alone</td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>DNB</td>
<td>Admission of failure, withdrawal of effort</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>DB</td>
<td>Passive non-cooperation with authority</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>DPB</td>
<td>Quiet contentment, taking it easy</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>D</td>
<td>Giving up personal needs and desires, passivity</td>
</tr>
</tbody>
</table>


**SYMLOG Reports**

As noted previously, the three SYMLOG dimensions are bipolar, that is, they each have a positive and negative end with a zero point in the middle. The meaning of the code letters (U-D, P-N, F-B) at the ends of the dimensions can be understood by examining the cube diagram shown in Figure C. The diagram in Figure C shows the three dimensions as if they were the three dimensions of a physical space. The SYMLOG measurement system can be used to produce a **Field Diagram**, a flat projection of the three-dimensional space. The Field Diagram shows the three-dimensional cube as seen from the top, with the eye looking down on the arrowhead of Vector 1U along the U-D dimension to Vector 26D on the bottom of the cube. What is seen is only a two-dimensional flat plane representation Field Diagram, where the P-N dimension is the X-axis and the F-B dimension is the Y-axis. The third U-D dimension is reflected in the relative size of individual image circles representing the objects that were rated. Figure D displays a Reference Field Diagram that summarizes research data from the general American experience. This reference “norm” was developed by the SYMLOG consulting Group for use as a “reference point” for comparing results from other SYMLOG studies.
Examining Collegiality and Social Justice in Academia and the Private Sector: An Exploratory Symlog Analysis
In the American experience, most of the values that are found to contribute to effective teamwork are located in the PF quadrant of the Field Diagram. In Figure D, the image mep represents the "most effective profile." The mep is a "consensus" or "meta norm" for outcomes based on value-oriented perceptions of many outcome variables. It is derived from thousands of ratings of effective management, of effective leadership and of experiences with effective teams. The mep location was found to be optimal for the American business culture. It represents a balance between an emphasis on accepting the task-orientation of established authority and emphasis on friendly behaviour. The image labelled "REJ", for REJECT, represents the average response for the SYMLOG norm group when respondents were asked to rate the values they would tend to reject either in themselves or in others in a work setting. The REJ image is seen to be in a polarized or opposition position to the mep image. Through the image REJ, the answers to important questions begin to emerge, such as: What value positions do most people tend to find repelling and avoid? What value position is likely to most adversely affect individual, team and organizational functioning and effectiveness?

The image labelled “MEL” represents the average of ratings of the values shown by the “Most Effective Leader” of a task-oriented group they have actually known. It should be noted that the images MEL and mep are nearly co-located in the field. Two other images in Figure D, EXPECT and WISH, represent the average responses from the SYMLOG norm group. The norm group was asked to rate the values they would EXPECT (EXP) other persons would rate them as showing in their behaviour, and values which they WISH (WSH) to be able to show in behaviour, whether or not they are actually able to do so.

In many systems for assessing effective individual or group performance, all items on a questionnaire are given equal weight. This is not true for the SYMLOG questionnaire. In the context of teamwork, some values are seen to contribute to effective teamwork, some may be necessary sometimes but dangerous, and still others almost always interfere with teamwork. When these items are placed in categories and interpretation given based on the norm group, a SYMLOG report is available called the Bales Report.

The SYMLOG measurement method has respectable validity and reliability measures across many different research domains (Bales, 1994). The images in Figure D will serve as reference points against which to compare the present study’s results. One could establish other reference points should they believe that the image based on the American experience does not apply to their setting. An organization operating outside the U.S. could establish a country norm or a company with an unique organizational culture may choose to create a company norm. However, as a practical matter, these unique reference points are usually close enough to the American mep location such that its use is not problematic for comparisons. Results can be evaluated based on the proximity of the images to the REJ, EXP and WSH images, but especially the consensus mep outcome norm.

**SYMLOG Applications in Other Settings**

Numerous applications of SYMLOG in different organizational settings, cultures, and situations exist. Several published applications of SYMLOG include the edited works by Hare and Hare (1996) and Hare, Sjovold, Baker, and Powers (2005).
Scholarly applications of SYMLOG have investigated perceptions of effective leadership styles and roles among Central Eurasian managers (Ford & Ismail, 2006, 2008), gender differences in management values (Hare, Koenigs & Hare, 1997), perceptions of political leaders (Ellis, Nadler, & Rabin, 1996), African immigrants’ and African-Americans’ perceptions of workplace opportunity structures (Whaley & Ford, 2007a, b), and perceptions of entrepreneurial values (Kecharananta & Baker, 1999). Additionally, we provide here a brief summary of one application of SYMLOG that should further help the reader to grasp and understand the SYMLOG measurement system and its power. The example comes from research conducted by the SYMLOG Consulting Group in the months leading up to the USA 2008 Presidential election (SYMLOG Consulting Group, 2008). Figure E is a SYMLOG Field Diagram depicting the final field location averages over all raters for the images of the Presidential candidates – Senator John McCain (MCA) and Senator Barack Obama (OBA). These ratings were provided by 320 respondents who identified themselves as either Democrat (N=131), Republican (N=71), Independent (N=86), or Other (N=32). The ratings were collected online between September 22 and October 10, 2008, following the first debate between the candidates. The diagram indicates that the candidates were perceived to be polarized, wherein McCain’s image appears on the negative side of the space and Obama’s image is slightly overlapped with the Ideal Candidate (IDL) image on the positive side of the space. The location of the images did not change in another data collection five days prior to the election (October 30). Given the location of the images, it was concluded that Obama would likely be attractive to more voters than McCain. Indeed, if they voted according to their Ideal Candidate, Obama would most likely win the election. Although the 320 respondents was not a random sample of the U.S. voting population, we know that the outcome of the election was consistent with the respondents’ perceptions in that study.
**Research Questions**

The following seven (7) research questions were generated for examination in this exploratory study:

**R1.** Do significant differences exist among the final field locations of the Collaboration (COL), Competence (COM), Cultivation (CUL) and Control (CON) images on the SYMLOG Field Diagram?

**R2.** Will Competence (COM) and Collaboration (COL) be rated closer to the Most Effective Profile (mep) image on the PN dimension than Cultivation (CUL) and Control (CON) in that order?

**R3.** Is the Most Collegial Person (MCP) image closer to mep on the PN dimension than any other concept rated?

**R4.** Is the Least Collegial Person (LCP) image the furthest from the mep image on the PN dimension and also closer to Reject (REJ) than any other concept rated?

**R5.** Are there any significant differences among the final field locations of the eight concepts as rated for different identity groups such as gender and organizational groups?

**R6.** Is there a significant difference between the final field locations of Fair Procedures (FAP) and Fair Results (FAR) images?

**R7.** Are there any significant differences between the final field locations of Fair Procedures (FAP) and Fair Results (FAR) as rated by different identity groups such as gender and organizational groups?
Data Collection

This exploratory research study attempts to reduce the measurement bias by using one common assessment instrument and a single methodology. Therefore, SYMLOG is used as the measurement system to compare all eight concepts. Each respondent was asked to rate their perceptions of the same eight concepts on the SYMLOG assessment instruments and two reports were produced. The Bales Report and Field Diagram Report were used to compare individual, group and organizational responses across all eight concepts. Each one of the eight concepts is assessed by using the same twenty-six (26) SYMLOG items rated as: Often (O), Sometimes (S) or Rarely (R). The two SYMLOG reports provide a basis for analyzing the similarities, differences, and the relationships among the concepts.

The four core organizational culture concepts: collaboration, competence, cultivation, and control were individually rated. In addition to the perceptions of the four core organizational culture concepts, the perceptions of respondents concerning the “most collegial” and “least collegial” person in their organization and the perceptions of “distributive = fair results” and “procedural=fair procedures” social justice concepts were also rated.

Specifically, the respondents were asked to “rate” their “impressions” of the eight (8) different behavioural concepts on the SYMLOG assessment instrument. These eight behavioural concepts were identified with a three-letter CODE as indicated below:

1. Collaboration (COL)
2. Competence (COM)
3. Cultivation (CUL)
4. Control (CON)
5. Most Collegial Person (MCP)
6. Least Collegial Person (LCP)
7. Fair Procedures (FAP)
8. Fair Results (FAR)

Sample

A convenience sample of MBA students and faculty members was used for this exploratory study. The MBA respondents were full-time working professionals and managers inside a range of high-tech business firms. They were middle level, technical professionals and first-line managers who work in the high-tech industry located in Northern California. The average age of the respondents was 33 and they had an average of 8 years of work experience. Most of the faculty members were full-time and part-time employees of a large public university located in Northern California. The faculty respondents from the California based university represented four different colleges within the university and averaged 43 years of age. A smaller number of faculty members in the study are located at universities representing three different geographical regions of the U.S. All persons in the sample volunteered to participate in the study and they were assured of anonymity.

The sample consisted of 122 respondents: 22 faculty members (5 female, 17 male), 100 private sector respondents (50 female, 50 male) who were also either enrolled as students (N= 70) in a graduate management course at the aforementioned California University or were employed full-time and not attending school (N=30). One statistical test required the omission of one questionnaire (male faculty) that reduced the working sample to 121 respondents.
Analysis
The results are compared from the perspective of:
1) type of organization, 2) gender of respondent, 3) job of respondent and 4) location perspectives. For example, do female faculty members view collegiality and social justice the same way as male faculty members? Would members of high tech business organizations view these concepts different from academic organizations?

The SYMLOG reports that are based on the type of analysis undertaken: individual leadership assessment, assessment of intra-group dynamics, assessment of inter-group dynamics, organizational culture assessment, or customized assessment of particular conceptual issues. The present study falls into the latter category of assessments, in that organizational culture, social justice and collegiality perceptions were the objects of the respondent’s ratings of the twenty-six standard SYMLOG questions rather than rating the myriad of other concepts that can be measured with SYMLOG assessments. Prior research has shown SYMLOG to be a highly reliable assessment tool (cf. Bales & Cohen, 1979; Van Velsor & Leslie, 1991).

As noted previously, the present study is exploratory in nature. The unavailability of organization outcome data for each respondent made the creation of unique reference norms mentioned previously not feasible. Therefore, the first analysis was conducted based on the proximity of each image to the SYMLOG consensus mep outcome location. Secondly, ANOVAs were used to investigate the independence of each image.

Quasi-Euclidean Distance and One-Way Anovas
The Euclidean distance analytical approach is inductive yet rigorous in terms of the comparative interpretative lens with which we examined the data. Analyses for the research questions were undertaken in two stages. First, we examined the proximity of each one of the eight measures of perception to the “reference” image, mep, along the P/N dimension. If the image was more proximate to the mep, the outcome was assumed to have perceived values that were consistent with effective organizational functioning. Ordinarily, proximity of the images would be determined by computing the three-dimensional Euclidean distance between the “reference” image location (in this case mep) and the final field location in SYMLOG space of each of the eight images underlying the organizational culture, social justice, and collegiality concepts, and doing the analyses for identity groups of interest in the study such as male and female sub-groups. The “significance” of the size of the Euclidean distances can be assessed by comparing them to estimates of significant Euclidean distances reported in another SYMLOG-based study (cf. Kelly & Duran, 1985). The Euclidean distance between two images is computed using the following formula:

\[ \text{SQRT}(((U-D)_a - (U-D)_b)^2 + ((P-N)_a - (P-N)_b)^2 + ((F-B)_a - (F-B)_b)^2) \]

Kelly & Duran (1985), in a study that examined group cohesion within high and low performing groups, observed that an optimal level of cohesion was one in which the groups exhibited average interpersonal Euclidean distances ranging from 3.5 to 5.9 SYMLOG scale units. Groups with very high distance scores did not perform well. Applying this result to the present study, as a “rule of thumb,” it could be assumed that images with distances greater than or equal to 6.0 Euclidean distance scale units have significantly different locations in SYMLOG space. Images with distances less than 6.0
scale units can be considered to be close enough in their locations to be similar in meaning.

Moreover, for the present study, we also used a quasi-Euclidean distance comparison of images by examining differences in location along the P/N dimension only, which allowed us to use a more “traditional” statistical procedure (One-Way ANOVA) that would specify which image differences were significantly different at the .05 level of significance or greater.

Results and Discussion

The quasi-Euclidean distance comparisons among the images rated are shown in Figures F and G for faculty and private sector participants, respectively. This approach was taken because the largest differences between the eight images were along the P-N dimension, reflecting the positive versus negative bias in public opinion of the eight social justice, organizational culture, and collegiality concepts that were rated.

![Symlog Findings for Faculty*](image)

**Figure F**
Symlog Findings for Faculty*

<table>
<thead>
<tr>
<th>NEGATIVE</th>
<th>MALE</th>
<th>FEMALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCP&lt;sup&gt;a&lt;/sup&gt;</td>
<td>LCP&lt;sup&gt;a&lt;/sup&gt;</td>
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<tr>
<td>CON&lt;sup&gt;a&lt;/sup&gt;</td>
<td>CON&lt;sup&gt;ab&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>COM&lt;sup&gt;b&lt;/sup&gt;</td>
<td>COM&lt;sup&gt;bc&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
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<td>COL&lt;sup&gt;abc&lt;/sup&gt;</td>
<td></td>
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<tr>
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<td>mep&lt;sup&gt;bc&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

*Note: Images with the same superscript letter are not significantly different from one another; images with superscripts that differ are significantly different from one another at p < .05 on the PN dimension.

![Symlog Findings for Private Sector*](image)

**Figure G**
Symlog Findings for Private Sector*

<table>
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<tr>
<th>NEGATIVE</th>
<th>MALE</th>
<th>FEMALE</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>CON&lt;sup&gt;a&lt;/sup&gt;</td>
<td>LCP&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
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<td>COM&lt;sup&gt;bc&lt;/sup&gt;</td>
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<tbody>
<tr>
<td>mep&lt;sup&gt;de&lt;/sup&gt;</td>
<td>mep&lt;sup&gt;bc&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

*Note: Images with the same superscript letter are not significantly different from one another; images with superscripts that differ are significantly different from one another at p < .05 on the PN dimension.

Examination of Participant Sub-group Differences

The second step in analyses for the research questions involved examining sub-group differences between male and female respondents in the perceived values that they associated with the eight images. Figures H - L display SYMLOG Field Diagram Reports associated with the images previously discussed.
Figure H
Field Diagram of Final Image Locations for Aggregate Data

Figure I
Field Diagram of Final Image Locations for Male Faculty Participants
Figure J
Field Diagram of Final Image Locations for Male Private Sector Participants

Figure K
Field Diagram of Final Image Locations for Female Faculty Participants
The SYMLOG dimension inter-correlations for this study were calculated and are shown in Table A, along with Cronbach Alpha values. Additionally, Cronbach's Alpha values were computed for each of the collegiality images that were rated for each of the SYMLOG dimensions. These reliability values are shown in Table B. It was encouraging to note that the values for each of the three SYMLOG dimensions (U/D, P/N, F/B) were close to the suggested .70 minimum threshold value in most cases. Nonetheless, we do note that the reliabilities for the SYMLOG dimensions using traditional Cronbach Alphas is really not appropriate since SYMLOG values load on one, two, or all three SYMLOG dimensions (U/D, P/N, F/B). Additionally, the Euclidean distances between the rated images and mep by participant sub-groups are shown in Table C.

**Table A**

<table>
<thead>
<tr>
<th></th>
<th>UD</th>
<th>PN</th>
<th>FB</th>
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</thead>
<tbody>
<tr>
<td>UD</td>
<td>(.65)</td>
<td>.01</td>
<td>.16*</td>
</tr>
<tr>
<td>PN</td>
<td></td>
<td>(.66)</td>
<td>.22**</td>
</tr>
<tr>
<td>FB</td>
<td></td>
<td></td>
<td>(.70)</td>
</tr>
</tbody>
</table>

*p < .05; ** p < .01; Total Sample reliability coefficients appear in parentheses on diagonal.
Table B
Collegiality Image Reliabilities*

<table>
<thead>
<tr>
<th>SYMLOG Dimension</th>
<th>UD</th>
<th>PN</th>
<th>FB</th>
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</thead>
<tbody>
<tr>
<td>Collaboration</td>
<td>.63</td>
<td>.58</td>
<td>.65</td>
</tr>
<tr>
<td>Competence</td>
<td>.68</td>
<td>.69</td>
<td>.71</td>
</tr>
<tr>
<td>Cultivation</td>
<td>.66</td>
<td>.65</td>
<td>.68</td>
</tr>
<tr>
<td>Control</td>
<td>.63</td>
<td>.62</td>
<td>.65</td>
</tr>
<tr>
<td>Most Collegial Person</td>
<td>.68</td>
<td>.66</td>
<td>.70</td>
</tr>
<tr>
<td>Least Collegial Person</td>
<td>.65</td>
<td>.68</td>
<td>.70</td>
</tr>
<tr>
<td>Fair Procedures</td>
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<tr>
<td>Fair Results</td>
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<td>.64</td>
<td>.66</td>
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</table>

*Note: The Cronbach Alpha values shown were computed in the traditional sense. Most fall short of the recommended minimum value of .70. However, it should be recalled that many of the SYMLOG values load on more than one dimension. Therefore, use of “traditional” reliability metrics is really inappropriate.

Table C
Euclidean Distances Between SYMLOG mep and Collegiality Images by Identity Subgroup

<table>
<thead>
<tr>
<th>Identity Subgroup</th>
<th>MCP</th>
<th>COL</th>
<th>FAP</th>
<th>FAR</th>
<th>CON</th>
<th>LCP</th>
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</thead>
<tbody>
<tr>
<td>Female Faculty</td>
<td>3.76</td>
<td>3.51</td>
<td>2.30</td>
<td>2.76</td>
<td>9.79*</td>
<td>14.29*</td>
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<tr>
<td>Female Pvt. Scbr</td>
<td>4.73</td>
<td>4.02</td>
<td>4.85</td>
<td>5.99</td>
<td>10.87*</td>
<td>12.82*</td>
</tr>
<tr>
<td>Male Faculty</td>
<td>6.07*</td>
<td>3.54</td>
<td>2.34</td>
<td>2.40</td>
<td>12.66*</td>
<td>18.16*</td>
</tr>
<tr>
<td>Male Pvt. Scbr</td>
<td>4.91</td>
<td>3.57</td>
<td>5.10</td>
<td>5.45</td>
<td>9.49*</td>
<td>13.32*</td>
</tr>
</tbody>
</table>

*Euclidean distance represents a significant difference between location of indicated image and mep at p < .05 level. Final location for mep used in computing Euclidean distances was 2.7U 6.7P 6.4F.

Differences among the images on the P/N dimension were assessed using SPSS One Way ANOVA computations incorporating a Tukey post-hoc test of mean differences. Since the largest differences within settings were gender based, the results of these analyses were arrayed along a continuum representing the interpersonal relations-oriented Positive – Negative (P/N) SYMLOG dimension and are shown in Figure F and Figure G, respectively, for Faculty and Private Sector Respondents. As noted in Table C, each image's location was also compared by gender sub-group to the mep location on all SYMLOG dimensions (mep's location is generally considered to be 2.7U 6.7P 6.4F). Figure M contains the conclusions drawn from these comparisons.

Results of the literature review and analyses for
examining the research questions indicate that organizational culture, social justice and collegiality have several sub-components and they are different from each other. The ANOVA results confirmed that selected concepts in the continuums displayed in Figures F and G were significantly different from each other for male and female respondents.

The SYMLOG reports, legal cases and anecdotal evidence suggest "collegiality" is used in fundamentally different ways in the university and business environments. In this study, for both the academic and business settings, the most effective and least effective colleague images have polar opposite locations in SYMLOG space because they were located in the PF and NB quadrants, respectively, of the field diagram. Control is the only other image that was rated in the negative part of the SYMLOG space (NF) for all field diagram reports. The collaboration, cultivation and most collegial images overlap in the PF quadrant. Competence is rated in the PF quadrant but slightly more negative than other images in the PF quadrant. The distributive justice and procedural justice images were rated in the PF quadrant close to the collaboration and most collegial images. These findings are illustrated in the field diagrams shown in Figures H – L. The demographic comparisons create the most distinctive results for the eight concepts.

The ANOVAs in Figure F indicate that six of the sixteen image combinations for males and females on the P/N dimension in academia were significantly different from each other at $p < .05$ level. It was interesting to note the least collegial person (LCP) image was the same for male and female faculty while the most collegial person (MCP) and $mep$ were always different for male and female private sector respondents, but not for male and female faculty respondents. The other images varied in terms of significance on the P/N dimension for males and females in private sector settings. On the other hand, there was more consistency between male and female perceptions of these same eight images and the $mep$ in the academic setting. The LCP, MCP, $mep$, COM, CUL, and FAP images were all significantly different from each other for both private sector males and females. Since the results from both the private sector and academia confirmed that the $mep$, MCP and LCP were significantly different, this suggests that $mep$ and collegiality are the most salient images, and gender makes less of a difference in the private sector as opposed to academic settings in terms of perceptions of these images.

**Conclusions and Recommendations**

Figure M is a summary of the tentative conclusions from this exploratory study. These conclusions and the literature review formed the basis for recommendations for future research that are displayed in Figure N and followed by a few practical implications for current organizations.
Figure M
TENTATIVE CONCLUSIONS

1. THE MOST COLLEGIAL PERSON (MCP) AND LEAST COLLEGIAL PERSON (LCP) IMAGES ARE POLARIZED IN OPPOSITE PF AND NB PARTS OF SYMLOG SPACE.
2. THERE IS LESS DISTANCE BETWEEN MCP AND LCP IMAGES FOR ACADEMIC SAMPLE AS COMPARED TO PRIVATE INDUSTRY SAMPLE.
3. THE P/N SYMLOG DIMENSION ACCOUNTS FOR MOST OF THE VARIANCE IN SCORES FOR ACADEMIC AND PRIVATE INDUSTRY SAMPLES.
4. CONTROL AND COMPETENCE IMAGES WERE MORE TASK ORIENTED (F) IN PREVIOUS RESEARCH OF ORGANIZATIONAL CULTURE AT A LARGE, PRIVATE SOFTWARE COMPANY THAN IN THE PRESENT STUDY.
5. THE SOCIAL JUSTICE IMAGES (FAR,FAP) ON SYMLOG WERE CLOSER TO MOST EFFECTIVE PERSON (MEP) NORM THAN THE FOUR ORGANIZATIONAL CULTURE IMAGES (CON,COM,CUL,COL).
6. THE SOCIAL JUSTICE IMAGES IN ACADEMIC SAMPLE WERE MORE TASK ORIENTED FOR FEMALES AS COMPARED TO MALES.
7. THE MCP, FAR AND FAP IMAGES CLUSTER CLOSE TO MEP FOR PRIVATE SECTOR SAMPLE AND ONLY FAR AND FAP ARE CLOSE TO MEP FOR ACADEMIC SAMPLE.
8. MCP IMAGE FOR ACADEMIC SAMPLE CLUSTER CLOSE TO COL AND CUL IMAGES IN P DIRECTION OF SYMLOG SPACE.

Figure N
SUGGESTIONS FOR FUTURE RESEARCH

1. DEVELOP A CONCEPTUAL FRAMEWORK THAT INCLUDES ORGANIZATIONAL CULTURE, SOCIAL JUSTICE, COLLEGIALITY AND ASSOCIATED DEPENDENT VARIABLES.
2. INCLUDE OUTCOME MEASURES FOR EACH RESPONDENT.
3. INCLUDE REPRESENTATIVE SAMPLE OF INDUSTRIES, PROFESSIONS, GENDER, RACE AND OTHER KEY DEMOGRAPHIC VARIABLES SUCH AS COUNTRY OF ORIGIN.
4. INCREASE SAMPLE SIZE FOR GENERALIZABILITY.
5. CROSS-VALIDATE RESULTS FROM SYMLOG INSTRUMENT WITH RESULTS FROM OTHER APPROPRIATE ASSESSMENT INSTRUMENTS.
6. USE APPROPRIATE PARAMETRIC STATISTICS TO MEASURE STATISTICAL SIGNIFICANCE WITH LARGER SAMPLE.
Conceptual Research Framework

The first recommendation led to the development of a new conceptual framework for future research and the model is displayed in Figure O. The exploratory study established organizational culture, social justice, and collegiality as important variables based on current research for U.S. respondents. SYMLOG was used to assess the perceptions of eight concepts, and several methods of analysis resulted in the conclusion that these variables were significantly different from each other. The model in Figure O reflects organizational culture, social justice, and collegiality constructs together with the relationships among these three concepts and organizational effectiveness outcomes. The present exploratory study focused on comparisons to the SYMLOG effectiveness norm mep and clustering of images, and did not attempt to directly test the relationships among variables in the model. Future research will seek to directly test all components and paths in Figure O and employ appropriate statistical techniques to identify key relationships and their importance for application within different types of organizations. The literature review and findings of this study suggest future testing of the conceptual model to start with the collegiality and organizational effectiveness path. We assert that collegiality is an under-researched area in academia and private business for different reasons. Collegiality is embedded in the culture of academia as a relevant performance measure and is supported by the courts. Therefore, additional research in the measurement of collegiality and consistent, legal sub-group analysis concerning its relationship to performance should be welcomed. Collegiality research in other sectors, but especially the private business sector, has been discounted because it was considered to be subjective and not job-related. As the modern workforce changes and places a premium on teamwork, collaboration and reputation as job-related factors, future research on the relationship between collegiality, and stable and effective prospective measures of performance should be welcomed. This path in the research model would make practical and theoretical contributions in human resource management. Moreover, the research would contribute key insights concerning the saliency and significance of the variables in the model as well as their application to organizations across different settings in areas such as strategy and policy. Indeed, such research would continue to add to the small but emerging group of studies in the management literature that have incorporated the SYMLOG assessment methodology.
The other recommendations for future research in Figure N, such as a larger, more representative sample of employees, locations and employers, would help to generalize the results across different settings and implement effective changes where needed. Since the literature review suggests issues related to collegiality and organizational effectiveness are growing in countries outside the U.S., future research should extend to the international context. The current findings suggest that SYMLOG could provide a useful framework for collecting future data; however, other assessment techniques and statistical methods should be considered to cross-validate future data collection and results.

**Practical Implications for Organizations and Employees**

Since organizations have increasingly indicated that collegiality is an important measure of effectiveness, one obvious practical application of collegiality measurement in organizations is in the area of performance management. The applications are similar no matter whether the practical focus is the macro organizational level of performance management or the micro level of individual performance appraisal. If consultants to organizations as well as HR professionals in organizations desired to create a custom balanced scorecard, as opposed to the template created by Kaplan & Norton (2005), these practitioners could use SYMLOG to help design and gather information concerning “how customers perceive the organization” category. At the individual and team levels, SYMLOG measures of collegiality could help with getting a handle on perceptual bias in performance data collection. For organizations that use 360 degree multi-rater feedback methods and that desire a method for uncovering areas to collect additional behavioural feedback, the SYMLOG approach could help. From an HR and legal perspective, if collegiality is not job-related, it should be ignored as a selection factor or performance criterion. However, many organizations today struggle to improve performance measurement in areas where the work is heavily based on knowledge, reputation and teamwork, or the organization simply lacks accurate measures of collegiality. From a strictly legal perspective, the literature review mentioned the Americans with Disabilities Act (ADA) in the United States, which requires employers to consider job-related collegiality factors such as “getting along with others” when determining “essential” job functions. The ADA indicates that improper behaviour in and of itself does not constitute a disability, and having a disability does not excuse employees from performing essential job tasks and following the same conduct standards required of all employees (US Dept. of Labor, 2012). To measure “collegiality,” employers could gather data from its workforce concerning the perception of “getting along with others” in their organizational context and compare it to the SYMLOG metric for effectiveness (mep). Moreover, we contend this job related data could be useful to organizations and employees alike in understanding collegiality behaviour in areas related to job redesign, stress and mental disorders. SYMLOG could be used to: (1) compare individual-level measures of collegiality to group- and organizational-level responses as well as to the SYMLOG norm (mep); and (2) provide a research-based “language” that managers could use with employees to discuss collegiality and effectiveness.

Organizations could be more proactive and use the previously mentioned SYMLOG “collegiality” profile to study, measure, develop and use their own profile for a “toxic-free” or “discrimination-free” workplace template. As future research is conducted with all components and paths of the research framework in Figure O, a plethora of practical applications will no doubt become apparent.
References

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Exchanges in public space: A network approach to street food vendors

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&

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“People of the same trade seldom meet together but the conversation ends in a conspiracy against the public, or in some diversion to raise price”
(Adam Smith quoted in Baker and Faulkner, 2006: 837)

Abstract

The economy of street food vendors provides not only affordable food for the urban poor people, but also generates opportunities of self-employment. However, success of these tiny units is dependent on various networks that create this economy. Therefore, economic outcomes from these entrepreneurial activities could be embedded with the social relations through networks. Through an ethnographic fieldwork of nine months of multi-phased study among the food vendors in the Udupi-Manipal urban continuum of the state of Karnataka, we explore this issue to identify the key nodes that create street food economy and their policy implications.

Keywords: Street food vendors, social networks, informality
**Introduction**

‘Street food vendors’ is an important segment of the food market with significant implications for food security for the poor people in urban areas. These tiny units of food processing and sale in urban public spaces have not gained significant attention from the researchers. In this paper, we unravel various networks that give rise to these *nano* units. Often, the performance of firms is discussed in a dichotomous framework of treating ‘economic’ and ‘social’ as abstract dualities (Elson, 2004). Paradoxically, in non-western countries where poverty is often very dense, the economic actions are “carried out through relationships that have been conventionally cast as ‘non-economic’” (Kabeer, 2004:1). This relational aspect of firms is examined here by investigating multiple embeddedness (structural, cultural, cognitive, and political [Zukin and DiMaggio, 1990]) of 12 cases of street food vendors (*or gudangadi, literally box shop*) from the Udupi-Manipal continuum in the coastal region of Karnataka. More particularly, we intend to examine how social and economic exchange is embedded through network mechanisms. By posing this ‘how’ question, we are filling an important gap existing in the literature on informal economy. Literature is scant on mechanisms of how networks are formed by entrepreneurs (Gulati, 1998). Unearthing the mechanisms will be a key step to understand the informal economy in a better way.

The paper is organized in three sections. In the first section, we review various theoretical concepts related to the network mechanisms of informal sector workers. Here, the role of embeddedness in the informal sector is examined and the particular case of street food vendors in India is examined in detail. This section also provides details of the research context and methodology adopted in this study. In the second section, different nodes that create the network existence of *gudangadi* is discussed. In the concluding section, we discuss the implications emerging from the network for the *gudangadi* economy.
Section I
Informal sector and social exchanges

Though the question of what is informal economy is beyond the scope of this paper, it is impossible to deal with the subject of street vendors without dealing with the question of the inter-relationship between legality and informality. This is because, empirical works on street vendors in India have shown that street vending is often considered as an illegal activity. The legal issue surfaces in the case of street vending because of two aspects: First, ‘street’, the public space from where the profit making activity (as well as service to the public) of the vendor is taking place, is regulated by the state (Municipal governments in the case of Indian cities). In the urban context, the Municipality has the right to clear the pavement (which is often used by food sellers) for the use of pedestrians. Second, food sold in public places could be subjected to the examination of the food inspector for the purpose of ensuring public safety.

Though these legal aspects stand valid, unless a critical view of the legality itself is taken, one cannot appreciate the issue of street food vendors comprehensively. The concepts of cleanliness and order, which these legal provisions attempt to enforce, assumed that informal sector is a ‘marginal’ segment of the economy that would evaporate with modernization when the formal sector would absorb these informal workers (Hart, 1978). However, “the global transformation from a ‘modern’ economic/political system, which saw street vendors and the informal sector as parasitic or at best inefficient, to a ‘postmodern’ economic/political system in which street commerce is often seen as a source of growth and flexibility” (Cross, 2000) is clearly visible. It is here that the blurred nature of legality and illegality surfaces, and the failure on the part of the state to provide license for operations that produce legal products (Portes et al, 1989) as a more serious failure than the informal activities undertaken by the food vendors. Therefore, the legal definition of dichotomous treatment of formal/informal is not useful to deal with the issue of street food vendors. Rather, we need to understand the characteristics of ‘informality’ in its own right.

The International Labour Organisation’s Kenya Mission Report of 1972 defined economic informality as a “way of doing things, characterised by: i) ease of entry; ii) reliance on indigenous resources; iii) family ownership of resources; iv) small scale of operations; v) labour intensive and adapted technology; vi) skill acquired outside the formal school system; and vii) unregulated and competitive markets” (cited in Mathew, 2006: 107). This definition is a good starting point for the purpose of this paper. Already a booming number of

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1 See Harriss-White (2003) for detailed discussion on what constitutes informal economy.
2 In Mumbai alone, there are over two lakh street vendors and only 14,000 licences are issued by Municipal authorities. Since 1978, no new license for street vending has been issued. The Municipal authorities are reluctant to issue licenses since the provisions in the law are very stringent to give license, and the licensing process is so elaborate that for the illiterate and poor vendors, it is difficult to gain access to this process (Bhowmik, 2005; Anjaria, 2006). The situation of unlicensed street vending is similar in most cities of India, and therefore street vending is often termed as an illegal activity.
3 The state, while creating a legal framework for the use of public space, has functioned well within the framework of social structures. For example, the use of streets for parking cars (having use only for the car owner) is done for a much smaller fee, compared to the bribe/fee paid by street vendors (his/her service is used by others), which illustrates how law is subject to social structures (Kishwar, 2006).
Research papers on the informal sector have shown almost with certainty that about 87% of the Indian labour force works in the informal economy, and contributes about 60 per cent of the GDP (Sinha, 2005). The NSS 55th round, which focused on non-agricultural types of informal sector, has enabled to estimate the extent of the issue at the national level (see Table 1). The most evident aspect from this data seems that more than half of these enterprises are manned by single owners. Therefore, such units are too small to be classified as a firm, and could easily be transformed to another business depending on the decision of a single person who runs it.

Sastry’s (2005) study based on NSS data has shown that informal sector employment is clearly associated with poverty. One of the characteristics that make this poverty connection is that by the very definition of ‘informal’ employment, they are excluded from social protection or other formal risk management strategies (Kannan, 2004). As a result, they require various networks to achieve these requirements. Apart from this, the nature of the firm itself is based on various social exchanges. This requires a detailed examination of existing literature.

### Table 1: Percentage distribution of estimated enterprises by no. of workers

<table>
<thead>
<tr>
<th>No. of Workers</th>
<th>Rural</th>
<th>Urban</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>61.5</td>
<td>51.4</td>
<td>57.1</td>
</tr>
<tr>
<td>2</td>
<td>29.3</td>
<td>27.5</td>
<td>28.5</td>
</tr>
<tr>
<td>3</td>
<td>5.4</td>
<td>9.8</td>
<td>7.3</td>
</tr>
<tr>
<td>4</td>
<td>1.8</td>
<td>4.4</td>
<td>2.9</td>
</tr>
<tr>
<td>5</td>
<td>0.7</td>
<td>2.6</td>
<td>1.5</td>
</tr>
<tr>
<td>6-9</td>
<td>0.9</td>
<td>3.2</td>
<td>1.9</td>
</tr>
<tr>
<td>≥10</td>
<td>0.4</td>
<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Estimated Enterprises</td>
<td>2,50,68,000</td>
<td>1,93,44,000</td>
<td>4,44,12,000</td>
</tr>
<tr>
<td>Estimated Workers</td>
<td>3,98,08,000</td>
<td>3,99,75,000</td>
<td>7,97,83,000</td>
</tr>
</tbody>
</table>

Source: Kolli and Hazra (2005) based on NSS 55th round on Informal sector

While exploring what explains the existence of a firm, Coase (1937) says that a firm arises out of the need of substituting many short-term contracts by a few long-term contracts. Quite importantly, by saying that, Coase questions the dual nature of co-ordination found in neo-classical economic models. In fact, the view of neo-classical economics has two mechanisms, which co-ordinate transaction: first, the price mechanism; second, the entrepreneur. However, according to Coase, the dual role is not sufficient to explain the existence of the firm and its size. And he shows that there are costs involved in using price mechanism, search cost (finding suitable prices) and negotiation cost. “A firm therefore consists of relationships which comes into existence when direction of resources is dependent on entrepreneur” (Coase, 1937:391). Supposing an entrepreneur, by organising different factors of

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production, is able to produce at lesser cost than what it would have been by using price mechanism, as observed by Coase, the firm, with all its hierarchies and power, is a better arrangement than price-mechanism. Although power and hierarchies are implicit in co-ordination of an economic system, Coase and his lineage gave inadequate attention to complexities that arise from characteristics such as embeddedness.

It is important to note that evolutionary economists, Nelson and Winter (1982), Teece et al (2000), Nonaka and Takeuchi (1995) and Levinthal (2000), by highlighting the role of organisational routine, strategic management and knowledge management, have explored different characteristics of a complex firm. Moreover, a complex firm is very distinct from a formal model of a representative firm articulated by Marshall (1890) and a refined variant modelled by Coase. A common thread that ties evolutionary economic literature is the agreement/consensus about the link between networks in economy and degree of complexity.

Another deviation that questions basic neo-classical growth model is reflected in recent literature on the recognition that knowledge is not just a public or quasi-public good but it is rather a process consisting of characteristics such as codification, tacitness and embeddedness (Cowan et al, 2001; Langlois, 2001). However, notwithstanding these contemporary thoughts, neo-classical literature as it appears, has not taken many insights from evolutionary economics. Perhaps any integration approach towards the consciousness of complexity is viewed as sacrifice of rigour. Notwithstanding this claim of lack of rigour, it is important to note that a pure economic approach to study the informal sector may be misleading. Within the literature on firms itself, the role of social networks has been examined (for example, Gulati, 1995; Gulati & Gargiulo, 1999). Such studies find that prior alliances determine what kind of inter-firm networks are possible for a firm. It will be interesting to examine what exactly this 'prior alliance' is in the context of nano units of gudangadi.

Vercin (2000) has pointed out three reasons why a pure economic approach to the informal sector may be inappropriate. First, an enterprise in the informal sector (such as street food vendor) is very small in scale compared to an enterprise in the formal sector on which economic models are built. Second, supply and demand curve of the economic modelling which may be applicable to the formal setting may underestimate the relationship pattern between buyer and trader in the informal setting. Third, the assumption of economic modelling, that the purpose of the firm is to maximize profit, may not be applicable in the informal setting.

It is here that we need an inter-disciplinary approach. Uzzi (1997) has clearly stated the need of an 'economic sociology' approach to study the embeddedness in the context of market exchanges. In neo-classical economics, he says, "In the ideal-type atomistic market, exchange partners are linked by arm's-length ties. Self-interest motivates action, and actors regularly switch to new buyers and sellers to take advantage of new entrants or avoid dependence. The exchange itself is limited to price data, which supposedly distil all the information needed to make efficient decision...” (p. 36). On the other hand, the basic difference in economic sociology approach is that “embeddedness creates economic opportunities that are difficult to replicate via markets, contracts, or vertical integration” (p.37). Taking cues from this distinction, Uzzi developed a methodology to distinguish arms length and embedded relations. We bring his distinction in Table 2 here.
Table 2: Distinguishing arms length and embedded relations in exchange

<table>
<thead>
<tr>
<th>Arms length relation</th>
<th>Embedded relation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distinct feature</strong></td>
<td></td>
</tr>
<tr>
<td>1. Written contract</td>
<td>1. Trust is major aspect of relation</td>
</tr>
<tr>
<td>2. Use exit to solve problem</td>
<td>2. Thick information sharing</td>
</tr>
<tr>
<td></td>
<td>3. Promote shared investment</td>
</tr>
<tr>
<td><strong>Shared features</strong></td>
<td></td>
</tr>
<tr>
<td>Shared Feature</td>
<td>Shared Feature</td>
</tr>
<tr>
<td>(more visible in arms length relations)</td>
<td>(more visible in embedded relations)</td>
</tr>
<tr>
<td>1. Small number bargaining is risky</td>
<td>1. Personal relationship with partner matters</td>
</tr>
<tr>
<td>2. Push for lowest price</td>
<td>2. Reputation of partner matters</td>
</tr>
<tr>
<td>3. Source of novel idea</td>
<td>3. Reciprocity</td>
</tr>
<tr>
<td>5. Concentrated exchange with partner matters</td>
<td></td>
</tr>
<tr>
<td>6. Shortened response time to market</td>
<td></td>
</tr>
<tr>
<td>7. Promotes innovation</td>
<td></td>
</tr>
<tr>
<td>8. Strong incentives to quality</td>
<td></td>
</tr>
<tr>
<td>9. Increases fit with market demand</td>
<td></td>
</tr>
</tbody>
</table>

Source: Developed from Uzzi, 1997 (p.42)

Thus, from the perspective of the discipline of economic sociology, we could say that every economic action is a social action (Swedberg, 2003). However, the view that economic action is embedded in the social structure has two contrasting sides. On the one side, it holds that the social structure positively impacts the economic outcome, and on the other hand, it can be pointed out that the social structure includes sources of inefficiencies that affect the transaction (Roy, 2005). As shown by empirical studies, trust and personal ties have a significant impact on transactions since these factors reduce uncertainty and monitoring cost. Moreover, these ties are quite helpful in shaping entrepreneurial heuristics. In many instances, entrepreneurs, instead of maximizing the profit, rather aim to adapt to the condition.
Street food vendors in urban India

Street food vending is one segment within the whole gamut of street vendors. Therefore, a variety of issues from the research on street vendors would be applicable to street food vendors too. Street food vendors provide a wide range of ready-to-eat or take away food, snacks and beverages often prepared in public places, particularly in streets (Winarno and Allain, 2005). The food stalls of these vendors are easily accessible from the street or public places. The products and raw material used have great variety, but could reflect local or cosmopolitan culture in varied ways. It is closely associated with fast food, and is comparatively cheaper than the restaurant/hotel food. There is no conclusive evidence on the nutritional capacity of street food. It is most likely that consumers attracted to the low cost, convenience and local taste may naturally overlook the hygienic issues. However, for the urban poor persons, street food is an important aspect of food security. The Calcutta survey among street food vendors brought out important figures in this regard. This study, while surveying the consumers of street food, revealed that 56% of them either eat daily or more than once in a week from street vendors (Chakravarty and Canet, 1997). Another study in Mumbai (Bhowmik, 2005) revealed that in central business areas and office places, where there are very few affordable restaurants for the working class, street food was the only realistic option.

National Sample Survey on consumption and expenditure during 2004 revealed that 10% of rural India’s food expenditure is on processed foods and beverages. Households with a monthly per capita consumption expenditure of as little as Rs.225, spend Rs.6 on buying processed food and beverages, while their richer counterparts, with Rs.950 or more to spend, buy processed food worth Rs.100. A significant portion of this purchase (especially from poorer segments) is from street vendors.

The earning of street food vendors varied significantly depending on the types of goods they sold and the time they spent for business (from selling peanuts to a full meal), and this is the same for other vending professions (Bhowmik, 2000). Compared to other street vendors, their earning is slightly higher, and significantly higher than the daily wage labourers.

Two important aspects that make food vendors different from other vendors require important consideration. First, since a good number of food vendors process the food near the place of sale, unlike other vendors, they cannot easily move things when municipality/police threaten them to clear the place. This requires the food vendors to have a comparatively stable set up for their business. Second, since food is a perishable item, whatever is processed has to be either sold or carried back home to avoid economic loss. Attaining these targets requires not only necessary skills and knowledge about the local market’s needs, but also significant networks to carry out what a vendor wishes to achieve.

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1 This definition was accepted during the regional workshop of Food and Agricultural Organisation on Street Food in Asia, held in 1986 at Jogjakarta, Indonesia.
2 One of the most comprehensive study among street food vendors was done in Calcutta (using the chemical and laboratory analysis of food materials), and it showed that more than 50% of samples use artificial colour and flavour in higher degrees than permitted. Bacterial and microbiological contamination was found in the water and food material of these stalls. However, the study also found that street food was “the least expensive means of obtaining a nutritionally balanced meal outside the home”.
3 It is most important to note that the strength of street food is in the transparency of its preparation. Since most of the street food is prepared in front of the consumer, the cleanliness of the environment of preparation, the raw material used and tidy nature (clothes and hands) of the processor matters significantly.
4 However, this is not the case for many tea and fresh juice sellers, who have minimum equipment.
Research Setting and Methodology

Udupi is a small town in coastal Karnataka. Its population is 1.13 lakh. The city is spread in a continuum of approximately five kilometres between Udupi city and Manipal education institutions. In the city, food vendors are clustered in 27 locations. Generally, each cluster had 2-5 shops, and main centres like a bus station had a larger number of shops. In Kannada, these food vendors are called *gudangadi*, literally meaning 'box shop'. These food vendors could be generally classified into two categories based on the infrastructure: shops which are stationed at a particular place and mobile vendors. Based on the items sold, they could be classified into at least four categories: snack and tea providers, full meal providers, cold drink/ice-cream sellers and fast food providers (Chinese and North Indian). According to the nature/timing of operation, these food vendors could be classified into three: First, those operating from morning (some tea and snack providers started as early as 7.00 am) till evening; second, starting in the evening (around 4.00 pm) and ending the day at around 11.00 pm. Third, those who operate only at meal time, for example, only between 12.00 noon and 3.00 pm for lunch. The shops could be classified according to the scale of operation, since the turnover varied between Rs.500-3,000 per day among the shops in Udupi. Another important variation is in providing sitting capacity. As we will see later, this has important implications for customer relationship. However, while many shops did not have any capacity to seat the customers, some shops provided chairs (some times even tables) to varying capacity of 5-30 customers. Given this heterogeneous nature of *gudangadi* economy, it is difficult to adopt an orthodox method for research.

The aim of our research was different from many existing studies. Our attempt is not to quantify the extent of street vending or the profit that the street vendors may be making. The focus of the study was to understand the network mechanisms around the business of street vending, and its implications for policy makers. “Relations are not the properties of agents, but of systems of agents; these relations connect pairs of agents into larger relational systems” (Scott, 1991: 3). These linkages create a network structure. However, gaining access to relational data (compared to attribute data) was extremely difficult since it contains a variety of sensitive aspects. To tackle this issue, we designed a multi-phased field research. In the first stage, we adopted an ethnographic approach to gain a comprehensive understanding on the functioning of street food vendors. We visited a number of street food vendors on a random basis, building rapport and gaining understanding through informal chats and observation of actual exchanges about the nature of operations, the way license was obtained, the nature of customers, etc. In this stage, we also visited municipal offices, raw material suppliers and association of the food vendors to gain knowledge about legal provisions and support systems that played a role in the *gudangadi* economy. The first stage of fieldwork was done in July-October, 2006. In the second stage, we made purposive selection of twelve *gudangadis* to study the network mechanisms in-depth. All these cases were immobile shops providing meals. These shops also had different timings for operation. These 12

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*Fruit sellers* is another category that comes closer to this classification. However, literature often classifies them along with vegetable sellers since many of the fruit sellers also sold vegetables.

Various empirical studies have provided insight into these issues. Most important of them is the largest survey conducted in seven Indian cities by National Alliance of Street Vendors in India (NASVI) in 2000. We have made use of statistical estimates from this survey and other studies in this paper.

In the third stage of this research, we studied the network pattern among the office bearers of the association of *gundagadi*. In this paper, we are not getting into this issue.
cases were selected from different clusters, and access to in-depth levels of information was also one of the criteria. We built on the knowledge-base from the first stage of fieldwork, and carried out 5-8 semi-structured in-depth interviews with each shop over a period of six months. This enabled us to see how the shop owners were solving some of the problems, and their entrepreneurship was enhanced / limited by the networks within which they operated. Table 3 presents the nature of the shops from where we collected information. In each shop, we collected information about various networks by which the firm comes to exist. This database reveals important embedded relations, and complexity of the firm, implying how social exchanges may determine the economic outcome. In various ways this embeddedness is relative to the inter-linkage of the local economy with *gudangadi*, rather than a specific nature of case area.

Table 3: Basic Profile of Gudangadi from where information was collected

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Product mix</th>
<th>Customer mix (Approximately)</th>
<th>Labour sourced from Family</th>
<th>Labour sourced from Outside</th>
<th>Household production or not</th>
<th>Expected life of shop (in Years) Estimate by shop owner</th>
<th>Shop’s Age (in Years)</th>
<th>No. of workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chinese fast food</td>
<td>80% Local Residents 20% University Student</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>10</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Chinese fast food, North Indian fast food</td>
<td>20% Local Residents 80% University Student</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>10</td>
<td>2 months</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Rice &amp; Fish</td>
<td>More than 90% <em>Bijapuri coolies</em>&lt;sup&gt;12&lt;/sup&gt;</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>15</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Udipative food</td>
<td>90% local students 10% Local Residents</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Uncertain</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Rice &amp; Fish</td>
<td>More than 90% <em>Bijapuri coolies</em></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Uncertain</td>
<td>6 months</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Udipative food</td>
<td>95% <em>Bijapuri coolies</em> 5% Local Residents</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Chinese fast food, North Indian fast food</td>
<td>95% University students 5% Local Residents</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Uncertain</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>Udipative food</td>
<td>85% bus conductors, 10% <em>Bijapuri coolies</em> 3% Students 2% Others.</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Uncertain</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>North Indian fast food, pani poori</td>
<td>80% university students 20% Local Residents</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Uncertain</td>
<td>3 months</td>
<td>5</td>
</tr>
</tbody>
</table>

<sup>12</sup> These are migrant labourers from the district of Bijapur.
Table 3: Basic Profile of Gudangadi from where information was collected

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Product mix</th>
<th>Customer mix (Approximately)</th>
<th>Labour sourced from Family</th>
<th>Labour sourced from Outside</th>
<th>Household production or not</th>
<th>Expected life of shop (in Years)</th>
<th>Shop’s Age (in Years)</th>
<th>No. of workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Rice &amp; Fish</td>
<td>80% Bijapuri coolies, 10% Labourers from Nearby Garage</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Uncertain</td>
<td>6 months</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td>Udupi native food</td>
<td>70% Bijapuri coolies, 30% Local Residents</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Uncertain</td>
<td>6 Years</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Udupi native food</td>
<td>80% Bijapuri coolies, 10% Local Residents, 5% Local Student, 5% Patient</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>5-10 years</td>
<td>6 Years</td>
<td>4</td>
</tr>
</tbody>
</table>

Section II
The ties that move an enterprise

Through our fieldwork, we identified nine key nodes that constitute the gudangadi economy. These nodes include customers, family, friends, grocery shop, Gudangadi Vyparasthra Sangha\(^{13}\) (Food Shop Association, henceforth called FSA), other suppliers, municipality, commercial / cooperative banks and money lenders. Figure 1 illustrates the gudangadi economy and its transaction system. The tie between gudangadi and these nodes vary in strength. In Figure 1, darkness of the tie implies strength of the link between gudangadi and the node.

\(^{13}\) Vyparasthra Sangha is a Kannada word, meaning merchants’ association.
Relationship with Customers and Competition among Gudangadis

In the Udupi-Manipal urban continuum, there were four distinct types of customers for street food vendors: local residents, students, migrant labourers (mostly daily wage labourers from Bijapur), location specific customers (bus commuters for the vendors near a bus stand or relatives of patients near a hospital, etc.). The food preferences and the cost these social groups could afford varied significantly. Each gudangadi had a distinct mix of customers. Quite interestingly, neighbouring shops, though similar in the scale of operation and product, cater to different segments of the market. While university students account for more than two-third of customers for Shop X, Shop Y in the neighbourhood has a major proportion customers from the local population.

What explains this arrangement? An in-depth examination into this issue takes us to the distinction of arms-length versus embedded exchange, which we dealt with earlier. Through such an analysis, we contradict the findings of Geertz...
(1963; 1978) on ‘bazaar economy’ where he argued that “...the aim (of street/bazaar vendor compared to formal sector shop) is always to get as much as possible out of the deal immediately at hand. The (bazaar) trader is perpetually looking for a chance to make a smaller or larger killing, not attempting to build up a clientele or a steadily growing business” (1963:35). Geertz, at the time of writing, thought marketing principles were applied only by the ‘firms’ and shops in the formal setting, which are more likely to remain on a long term basis. On the other hand, we found a variety of strategies adopted by the gudangadi owners to establish strong ties with their customers.

Our empirical evidence showed that most of the food vendors had realized that they maximized their profits as long as they provided space for the particular customers to interact in the vicinity of the shop. Barring one case, among the shops we studied, all the shops ignore opportunity cost of time if the customers spend long time just chatting. In fact, shops often act as a place of information exchange between customers. One Bijapuri cooli said to us that he spent one hour every day in the shop and also spends one eighth of his earning (about Rs.400).

The same customer revealed that he met most of the other Bijapuri coolis in the particular gudangadi. An examination of the product mix of the shops revealed that it was tailored to meet the taste of the particular social group. Therefore, it can be said with great certainty that most of the shops give importance to customer relation. Barring rare events of cheating of 100 or 1000 rupees, across the shops, relationship is quite stable and sustains throughout the stay of the customer in the region.

This mechanism of ‘closure of opportunities using externally identifiable characteristics’ (Weber, 1978) is one of the strategies in traditional societies to curb competition. Similar phenomenon has been reported in abundance in the informal sector (Varcin, 2000). Such closure based on ethnicity and localism gives power to both shop owner and customer. The customer-gudangadi tie has to be seen in the context of the possibility of a customer switching to another gudangadi, which could provide products for similar taste and possibly a chance to meet members from similar social groups.

Here, the ability of the gudangadi to keep the customer within the fold comes through price mechanism too. It is here that the network among different gudangadis plays a vital role for fixing the price (We will examine the issue of cooperation among various gudangadis where we discuss the gudangadi vyapara sanstha. Here, we will examine how competition is managed).

In the context of keeping a good customer relationship, food vendors cannot afford to make losses by lowering the prices of products to win the competition with other gudangadis.

14 Compare this with the findings from Kolkata in 1990s, where it was pointed out that the range of expenditure of consumers on street food as Rs.40-400 per month. In the same study it was pointed out that when the total diet was from street food, the expenditure was between Rs.700 and Rs.1000. For daily labourers, who have come to city their own without their family (as in the case of many Bijapuri coolies), street food is often the source of total diet.

15 This social nearness, rather than geographical nearness experienced by various nodes in the network has been succinctly put by Granovetter (1978) as follows: “Suppose you are in an unfamiliar town and enter an unknown restaurant on Saturday evening at seven o’clock. Whether or not you decide to take a meal there will depend on part on how many others have also decided to do so. If the place is nearly empty, it is probably a bad sign –without some minimal number of diners, one would probably try another place” (pp 1438-9).
purpose, the food vendors use a reciprocity principle with customers along with price mechanism. In one shop, the price of a noon meal varies with the price of fish. The shop keeper has kept a margin of two rupees to absorb the shock due to supply fluctuations in the market. In this shop, the price of lunch varies between 15 and 18 Rupees depending upon the price of fish in the Udupi fish market. According to him, customers tolerate ‘shock absorption’.

On the other hand, there are also instances of customers resisting price rise citing, ‘Why do you charge more... No fan... No better facilities... we will seek another shop’. However, the minor resistance gives way to cooperation when customers understand the change in price is due to exogenous factors such as fuel price, inflation and so on. During our field visit, we noticed some of the shops provided new products on prior request although there is no practice of customizing products to individual needs. This clearly shows how flexible a reciprocal tie is.

**Behind the success of every Gudangadi: Family**

Family is the backbone of gudangadis. Often, the sustenance of family greatly relies on the income from gudangadi, and therefore, and we observed a tie between the shop and the family works in a variety of ways. It can add value to the shop by providing inputs such as land, labour, organization, capital and knowledge. Other studies also have reported the role of family members in street vending, particularly in Asia (Tinker, 1997). This has to be seen in the context of gudangadi as a system of employment generation. In the context of inability of the vendors to employ paid employees, the labour of the other family members could be effectively used through this way.

The family can affect the operations of gudangadi too. In one shop, while interacting with the shop owner (male), he said, “If family needs my presence, I will do it even at the cost of my business. In such circumstances, I prefer to close my shop for a day or two.” But this is not a general phenomenon. In this particular case, the shop owner does not have any other male adult person in the family, and he has the dual role of running both the shop and household. However, there are shops run with strong family support. In one shop, apart from the owner, his brother and relative also work. For this shop, a family emergency has no immediate impact on the shop’s operations. We noticed that one shop is run by husband, wife and children. It appears that the wife enjoys nearly equal rights to decision making.

Often these shops provide opportunities for exchange of knowledge within the family. For instance, a shop owner, who has 18 years of experience in Mumbai in different roles such as cleaner, waiter, cook, street vendor, is employing his younger brother as an aid, and he provides tips of the trade. Another interesting case is about how a

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17 In fact, other restaurants and hotels are not competitors for gudangadis. However, restaurants and hotels find gudangadis to be competitors since a meal is provided at a much cheaper price by bringing local raw material and unbranded goods to the market. During the fieldwork, we noticed one of the hotels had displayed a notice in the hotel warning foreign tourists that taking meal from food vendor could cause food poisoning.  
18 A Calcutta survey (Chakravarty and Canet, 1997) among 300 food vendors has quantified some of these aspects. They calculate about 50% of food vendors have paid employees with an average salary of Rs.900 (range: 600-1600). Interestingly, in agreement with this survey, we found in Udupi also food vendors were mostly male. However, in one cluster near the beach, we noticed only females were running the shops to cater to eating needs of the visitors to the beach in the evening.  
19 After their school hours, children help their parents.
mother and wife, by preparing fish *masala* daily, add value. Employing labourers from the family is also a tactic to protect knowledge-base and thus to restrict competition. It is easier to apply social controls over labour when they are within the moral unit of family, compared with waged labourers. A wage labourer may learn the skills and start a shop of his own, thus discontinuing the manpower. As Table 4 shows, many of the shop owners had gained skills through their practical involvement at food processing and sale avenues rather than through formal training.

Recent enforcement of child labour abolition has made the family’s role quite indispensable in running the shop profitably. It is important to note that child labour was a source of cheap labour to these shops. We came across a shop owner lamenting, “I am a one man show. No one to help me... No labour... This is my big botheration.” This shop owner has no family support in running the shop since his wife has to take care of the school-going children.

**Gudangadi at the centre of circle of friends**

All *gudangadis*, from where we collected information, reported that they relied on friends when they are in need of money. According to them, raising money through friends is an attractive option since money from friends carries no interest. It appears that the transaction carrying zero interest is a part of the reciprocal relations between friends. This reciprocity aspect could not be further examined since we did not collect further information about the intensity of reciprocation from the friends of *gudangadi* owners. Although an important benefit from such a tie is quite apparent, we are uncertain about the costs stemming from such a tie. As far as these enterprises are concerned, the next best alternative to this arrangement is borrowing money from formal sources such as commercial/cooperative banks or money lenders. As it is indicated from the diagram at the beginning of this section, those are the weakest ties and transactions with such institutions take place at arms-length level.

There is a consensual view that the money lender is the worst option for generating financial resources. The cost of not having sources such as friends and commercial/cooperative banks is very high. During our field study, we found one instance of friends aiding *gudangadi* to decide the price in accordance with changes in the market. In fact, it seems friends even impact strategies of *gudangadi*.

The importance of the circle of friends for the economy of *gudangadi* is not merely because of the function of credit. More importantly, ‘politics of seeing’ plays a crucial role in *gudangadi* economy. Existence in the public space makes them key points of information exchange. This informal exchange is crucial for the existence of *gudangadi* it self.21 The unlicensed hawkers will explain that everyone around them knows this is their spot, meaning only they have the ability to hawk there. Such claims carry with them the power of recognition among street vendors. It is interesting to note that most of the *gudangadis* had public telephone (coin box). Overhearing the conversations through phone, discussions in the shop by customers and direct and constant visibility of street itself made street vendors important points of information exchange. Often, police approached vendors for information in the process of solving cases of theft and burglary. It is also likely that local politicians enjoyed the good will of the *gudangadis* they patronized (where they held discussions with their cadres) by paying larger tips or making larger purchases. Such gestures also implied the particular *gundagadi* would not divulge in information leakage to the opposite party or party members.

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20 Mix of ingredients such as chilly, turmeric, and other spices.
21 It is interesting to note that most of the *gudangadis* had public telephone (coin box). Overhearing the conversations through phone, discussions in the shop by customers and direct and constant visibility of street itself made street vendors important points of information exchange. Often, police approached vendors for information in the process of solving cases of theft and burglary. It is also likely that local politicians enjoyed the good will of the *gudangadis* they patronized (where they held discussions with their cadres) by paying larger tips or making larger purchases. Such gestures also implied the particular *gundagadi* would not divulge in information leakage to the opposite party or party members.
other hawkers in the area and among the nearby shopkeepers and residents” (Anjaria, 2006: 2142). This sort of informally establishing one self is through creation of friends’ circle around one’s work place. This friends’ circle provides an invisible line of protection from the formal state and other encroachers.

**Raw material suppliers for Gudangadi**

We noticed that there were at least two kinds of relationship modes with raw material suppliers for the *gudangadis* in the Udupi-Manipal region. These two nodes are grocery suppliers and other perishable raw material suppliers such as fish, chicken and egg. We will examine here why the relationship between these types of suppliers are qualitatively different.

Grocery items form a large proportion of raw material required by *gudangadis*. The Calcutta survey (Chakravarty and Canet, 1997) estimated that on an average, the food vendors purchased raw material worth Rs.300 per day (range: 30-300). Our insights on the *gudangadi* transactions confirm this finding. During interviews, we found shop owners place grocery as the most critical input to their production process. Of the grocery shops supplying material to shops, one shop clearly stood out in terms of visibility and history. This grocery shop has more than a quarter century’s existence compared to relatively younger *gudangadis* (None of the food shops we approached had even a decade’s existence). Moreover, this grocery shop is the biggest in the area in terms of volume of transactions.

Although the exchange between grocery shops and *gudangadis* resembles an arm’s length tie, the exchange is more complex. Business-to-business transactions form three-fourth of grocery shops’ sales. This pie does not include food shops while it consists of restaurants, hotels, canteen and hostel mess. Interestingly, food shops account for nearly one-eighth of grocery shops’ total sales. It is obvious that a pie of one-eighth has a significant impact on grocery shops’ profits.

However, during the interview with the grocery shop owner (henceforth GS), we got no cues about customized transaction arrangements given to *gudangadis*. GS has strong preference for spot payment. Instead of granting the option of deferred payment or credit facility, GS, by giving rebates, encourages *gudangadis* to pay on the spot. Upon further query, we found credit facility is given only to customers with whom he has a tie for a long period. It seems that relatively younger *gudangadis* are yet to pass GSs’ ‘litmus test of trust’. Though there is no clear cue for trust in the tie between *gudangadis* and GS, GS are conscious of the impact *gudangadis* have on their profits. GS are quite content with the current state of the tie, and the same holds true with *gudangadis*. Moreover, so far, no issue of cheating came up. A question remains: Will this tie evolve to new forms of exchange over a period of time? Taking cues from our observation on the co-movement of time and trust, it is quite likely the tie may evolve to new forms. The proposition leads to the second question: How long will the *gudangadis* sustain? This question along with the issue of trust has important implications for building a network tie. It appears from this case that trust gets embedded in the exchange when both the parties have similar levels of uncertainty. Here, *gudangadis*, compared to GS, obviously face a higher degree of uncertainty, and survival remains an active issue while GS are relatively more stable. But GS also shared their concerns. One grocery shop
owner said to us that big retail chains may thwart their existence in the long run.

We came across one exception to this general trend of spot payment for the grocery purchases by *gudangadis* (see Table 4). One of the *gudangadis* had a very flexible arrangement with one grocery shop. This *gudangadi* generates relatively low value compared to other *gudangadis*. In this case, the GS belongs to the same caste and knows the *gudangadi* owner since childhood. The *gudangadi* often avails ‘zero interest deferred payment’ facility. This arrangement has been going on since the *gudangadi*’s inception. Therefore, caste and ethnic characteristics, leading to long term interactions, have an important role for network outcomes.

A major distinction between GS and *gudangadis* is that the former are far more reputed than the latter. GS maintain long term ties with the elites in the region. The most important grocery shop (from where most *gudangadis* made their daily purchases) operated in a building that belonged to an affluent and aristocratic family. In fact, the GS was inducted from a humble background to this business by this family. The GS is also a member of the chamber of commerce, which is a national body whereas his *gudangadi* customers have no comparable tie with the local elites.

Another group of raw material suppliers with whom *gudangadis* had qualitatively a different tie was those who distributed perishable goods. This tie is relatively weaker compared to that of grocery shops since exchange is predominantly at arm’s length wherein relation has no major role. This was particularly because the volume of purchase from these sources was lower compared to that of grocery shop purchases. We noticed that larger hotels and restaurants had built good ties with these suppliers since their volume of purchase was higher. Some of the *gudangadis* had made arrangements with egg suppliers and bread suppliers to deliver daily to the shops. However, fish and chicken had to be purchased from the wholesale shops/markets. It seems the nature of perishable goods kept the owners of these businesses at risk, and therefore the quality of social ties they built were influenced by these risk patterns as well.
Table 4: Ties and Shop Owners’ Experience

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Membership in <em>Gudangadi Vyparasthra Sangha</em> or similar association</th>
<th>Supplier relationship</th>
<th>Nature of Previous experience / Nature of skill acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>Good relation, Arms length Exchange, No deferred payment</td>
<td>Cook for University students</td>
</tr>
<tr>
<td>2</td>
<td>Yes</td>
<td>Good relation, Arms length Exchange, No deferred payment</td>
<td>18 years experience in Mumbai in different roles such as waiter, cleaner, street food seller</td>
</tr>
<tr>
<td>3</td>
<td>No</td>
<td>Good Relation Gets credit from supplier</td>
<td>10 years fast food selling in same location</td>
</tr>
<tr>
<td>4</td>
<td>Yes</td>
<td>Good relation, Arms length Exchange, No deferred payment</td>
<td>Previously running another shop</td>
</tr>
<tr>
<td>5</td>
<td>No</td>
<td>Good relation, Arms length Exchange, No deferred payment</td>
<td>Previously selling toddy</td>
</tr>
<tr>
<td>6</td>
<td>Yes</td>
<td>Good relation, Arms length Exchange, No deferred payment</td>
<td>As cleaner in a hotel, 10 years in university canteen</td>
</tr>
<tr>
<td>7</td>
<td>Yes</td>
<td>Good relation, Gets credit from supplier Once new supplier cheated</td>
<td>5 years in Bombay in uncle’s shop</td>
</tr>
<tr>
<td>8</td>
<td>Yes</td>
<td>Good Relation Gets credit from supplier</td>
<td>Worked as waiter in a Mangalore hotel</td>
</tr>
<tr>
<td>9</td>
<td>No</td>
<td>Good relation, Arms length Exchange, No deferred payment</td>
<td>Previously worked 12 years in Mangalore and Varanasi</td>
</tr>
<tr>
<td>10</td>
<td>No</td>
<td>Good relation, Arms length Exchange, No deferred payment</td>
<td>Worked in toddy shop</td>
</tr>
<tr>
<td>11</td>
<td>Yes</td>
<td>Good relation, Arms length Exchange, No deferred payment</td>
<td>Worked in a canteen for six years</td>
</tr>
<tr>
<td>12</td>
<td>Yes</td>
<td>Good relation, Arms length Exchange, No deferred payment</td>
<td>No previous experience</td>
</tr>
</tbody>
</table>
**Collaboration among street food vendors**

Cooperation among competitors is a common strategy to reduce their dependencies. Rivals may join forces through joint ventures, technology sharing, marketing, distribution arrangements, etc. Though such cooperation is legal, the purpose of such networks is often “to take unfair advantage and subverting market mechanism” (Lauman et al., 1978: 467). Street food vendors are no exception to this. Various studies across Asian countries (e.g. Bhowmik, 2000) have revealed that street vendors formed their own association primarily to fight against the harassment from municipal authorities and to assert their rights. In Udupi-Manipal, we came across a similar organization, namely Gudangadi Vyaparasthra Sangha (in Kannada it means gudangadi merchant association (henceforth FSA). It is interesting to note that we got information about FSA while querying about s’ dealings with the Municipality for licensing. FSA is a structured body of the licensed gudangadi owners. Office bearers are elected through an electoral process. As Table 4 shows, except for four members, all were members of FSA.

The FSA’s key function was to connect, otherwise powerless gudangadis with formal mechanisms. This came in various ways such as gaining license from municipality, collectively bargaining with police/municipality, gaining compensation for accident, gaining access to credit from banks, etc. In all these cases, the role of politics was clearly evident.

First of all, FSA had one political patron (local MLA), and mediation with municipality was successful depending on the approval from the local MLA on the matters that FSA was demanding. Thus, one of the FSA members reported to us that they were successful in checking the rise in license fee because of the pressure by the MLA. This proximity of FSA to the corridors of power made formal roles (such as president of FSA) as possible avenues for promotion to higher posts of formal politics (e.g. Municipal councillor). Therefore, gaining the upper hand within FSA was important. This had important implications for the individual gudangadis. Since the FSA officials are elected by the licensed gudangadi members, gaining license for gudangadis was a strategy by the aspiring officials to ensure vote through patronizing a gudangadi. At the time of FSA officials’ election in 2006, there were 120 members eligible to vote. It is interesting to note that the person who was elected as president through the 2006 election had gained license to 26 gudangadis in the month ahead of election. This event shows how malleable is the state through internal political dynamics.

Another important area of operation by FSA was to protect gudangadis from external threat. Extortion in the form of bribe (sometimes threat) by municipal officials, police and gang men (who provide private protection) is the single most important issue that emerges from the street vendors (this is not specific to food vendors). Anjaria (2006) rightly states that a street vendor fears a predatory state and not a regulatory state. In

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22 We noticed that gaining license to run a gudangadi is not easy and the method is not straight forward. The formal version from the Municipality is that if a household below poverty line makes an application to start a gudangadi after finding an appropriate place, the municipality, with necessary checks by the local police, would grant permission. But, in practice, this does not take place. Often, those who hold license are powerful and rich persons and do not need to run a gudangadi for their livelihood. Therefore they have sold/rented their license to others (sometimes to relatives).
this context, it is worth mentioning the study by Cross (1998), which has shown in the context of Mexico that when street vendors adapted the state’s cooptative strategies, vendors themselves were on the track of success. In Udupi too, FSA made these cooptative strategies in collusion with the local politician. Such cooptative strategies not only included actions to control the state, but also private individuals. For example, when an unlicensed gudangadi was hit by a car in an accident, it was the FSA which mediated the issue to gain necessary compensation from the car owner.

However, there are contrasting views about the significance of Gudangadi Vyparasthra Sangha. One gudangadi, who has the largest volume among these shops and employs four persons, said, “I don’t take Gudangadi Vyparasthra Sangha’s help. I know how to solve things. I have my own people in Municipality”. Although he is a member FSA, he depends upon his own heuristics to deal with the Municipality. Quite interestingly, his heuristics includes persuasion, threat, and, if required, force. He bravely narrated the incident of slapping a food inspector who dared to challenge his operations.

**Conclusion: Implications of network for gudangadi economy**

This paper has summarized the important links of gudangadi owners. Some nodes, namely customers, family and extended members of the gudangadi owner, friends, grocery shops, and suppliers of other raw materials have a supportive role. These supportive roles are mediated through embedded relations. Other links such as money lenders, commercial / cooperative banks, Municipality / police / food inspectors enjoy arm’s-length relationship. The role of FSA is critically important. It mediates (often doing the conflict resolution function) the two arm’s length links.

The examination of the links among the key nodes, which create a *gudangadi* economy, in Udupi-Manipal region has shown how street vendors are not merely atomistic economic actors. These *nano* units of food processing and sale are microcosm of the informality widely prevalent in the society. The networks of these microcosms help us to understand not only the way the street food market functions, but also the nature of informality, and how informality is shaped. The networks are structurally positioned between the institutions of market (based on competition) and hierarchy (authoritarian) (Granovetter, 1985). This argument has gained force in the context of the realisation of imperfect competition in the markets and the role of the identity of the individuals in the markets. The individual identities of the actors are “both cause and consequences of group affiliation, social networks, and the moral codes associated with groups and networks. Identities may co-evolve in ways that make it difficult - and perhaps misleading - to separate individual and social level phenomena” (Barrett, 2005: 4). This politics of identity is evident in the case of informal economy, which functions on the basis of networks, which in turn, determines the levels of access to formal mechanisms. The level of uncertainty experienced by the food vendors is a function of the networks. The food vendors are aware that by loss of important links, they would stand to lose the whole business itself. In this context, it is important to recognize the collective action role by *gudangadis* by creating a FSA. Such a collective entity institutionalizes the inter-dependence among network members in an

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23 See the study of Geertz (1978) on peasant marketing, beside now an innumerable number of studies critiquing neo-liberalism.
important way. One important agenda for future research would be to examine the effectiveness of such collective institutions of informal enterprises.

Two social functions that the food vendors bring to the society are making affordable food available for urban poor persons, and generating employment (mostly self-employment). The network analysis of gudangadi shows that these social functions are embedded within the concept of entrepreneurship itself. Often, the concept of entrepreneurship is associated with economic growth. The examination of nano units of food vendors reveal that depending on the availability of suitable networks, poor people are ready to undertake entrepreneurial activities to shield themselves from poverty. This aspect has important policy implications in terms how a facilitative environment has to be created for the informal sector.

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Abstract

Purpose – The purpose of this research is to model country of origin (COO) effects, intention to purchase foreign products, ethnocentrism and foreign product knowledge among average Indian consumers. Knowledge derived from the analysis can be used in the marketing mix by firms to address the Indian market.

Design/methodology/approach – The literature concerning COO effect is presented. Four scales are used for intention to purchase foreign products (PI), ethnocentrism (E), foreign product knowledge (FPK) and COO. A principal component analysis for the scale of 21 items is conducted using data from a representative Indian sample. Further, correlation and simple linear regression analyses are conducted to test various hypotheses and models.

Findings – Four components were confirmed that correspond with the sub-scales: PI, E, FPK and COO. Significant correlations between i) PI and E, ii) FPK and PI, iii) FPK and COO and iv) PI and COO were found. Interpretation of correlation along with the results of two regression analyses indicated two consumer segments in the Indian sample.

Research limitations/implications – The research is limited to an average consumer group. Further research will be required to address specific brands, products as well as the attitudes of the specific groups like elite consumers.

Practical implications – The paper indicates a series of strategies that retailers could adopt to address the emerging market of India. The findings have significant implications for domestic and foreign marketers.

Originality/value – The study models the inter-relationship between four sub-scales within a 21-item Likert type instrument with reference to a representative consumer group, placed into two segments, in the under-researched market of India.

Keywords: Country of Origin, Ethnocentrism, Purchase Intention, Foreign Product Knowledge, Indian Consumer
Introduction
With the advent of liberalisation and globalisation, consumers worldwide have benefitted from increased access to a wide variety of products and services from other countries. Access to information, higher levels of education and technological progress have also made it possible for consumers to become more aware of the products and services available throughout the world. As a result, the significance of products’ country of origin (COO) in influencing consumer behaviour is increasing rapidly; this calls for the formulation of better marketing plans, strategies and policies by companies of both domestic and international origin (Kaynak et al 2000). Important factors that affect consumers’ purchasing intention on the basis of COO include “consumer ethnocentrism”, a term coined by Shimp and Sharma (1987), and “knowledge of foreign products”. Although, assessments concerning the intention to purchase, using COO, become easier with easier access to information, the impact of ethnocentrism (Shimp and Sharma, 1987) remains.

Therefore, this paper investigates the important inter-relationships between COO, purchase intention, ethnocentrism and product knowledge to identify a pattern in the Indian context. In particular, a study of this nature is justifiable in the Indian context as it is the second fastest growing economy in the world, after China. Since economic reforms began in 1991, India’s GDP has grown around 9 per cent per annum (The Economic Times, 2008) and, together with a population of 1 billion people (National Commission on Population, 2000), India is arguably the second largest consumer market in the world. Hence, India was chosen for this study as it has been designated as a “big emerging market” (Pal, 2000), and its rapid economic reforms have led to an increase in consumption (Paswan et al, 2001a, b).

Over the last few decades, the growth in international trade and the development of global markets has been accompanied by a significant increase in interest in the nature of competitiveness. Among the many factors, which are believed to impact upon international competitiveness, COO effects have attracted attention (Al-Sulait and Backer, 1998). Consumers often use the “source” of the country of a product or brand as an extrinsic information cue when making product evaluations. This is generally described as the country-of-origin (COO) effect. In the West, a vast body of literature has examined COO effect whilst research findings on COO dynamic process remain scarce in the Indian context.

For foreign multinationals, the Indian market constitutes one of the largest markets in the world. Indian consumers can choose from amongst brand sets, which include both domestic and foreign manufactured or licensed products. Thus, international marketers face a tremendous challenge in understanding the Indian market, which requires discovering why and how Indian consumers buy foreign made products. Given the growing importance of this market and the limited findings from previous studies, there is a need to update our understanding of the COO effect in India.

In the Indian market, Bangalore has a specific advantage being a better known city globally than many other cities of India. Aptly called the “Silicon Valley” of India, Bangalore is a home to many leading Information Technology (IT) firms. Therefore, we had a specific interest in understanding the COO factors among the
Bangalore consumers who are assumed to be aware of products of different origin.

**Literature review**  
**Country of Origin Effect**

The COO of a product has been defined as “the country of manufacture or assembly” (Bilkey and Nes, 1982; Han and Terpstra, 1988), identified by the "made in" or "manufactured in" labels (Ahmed et al, 2004). However, the growth of multinational companies and the emergence of hybrid products with components sourced from many countries, have blurred the accuracy or validity of "made in" or "manufactured in" labels (Baker and Michie, 1995; Baughn and Yaprak, 1993), sometimes making the identification of COO very difficult. Given the complexity of perception associated with COO, it is worthwhile to seek understanding of cognitive patterns, among consumers and explore the inter-connections between factors such as knowledge, ethnocentrisms and purchasing intention.

A Canadian study that compared COO effects on household and organizational buyers’ product perceptions, found empirical evidence that products from developed countries are perceived to be of higher quality than products from newly industrializing countries (Ahmed and d’Astous, 1995). Similar results were found in a study of less developed countries like India, Uzbekistan, China (Zain and Yasin, 1997; Huddleston et al, 2001). These studies show a positive relationship between product quality and degree of economic development of the COO. The image of a country was found to be influencing product quality evaluations of consumers.

Consumers often evaluate imported goods differently from identical domestic products (Herche, 1992). The COO effect research, mostly conducted in developed countries, has revealed that consumers have a general preference for domestic-made products over foreign products, particularly when information about the product is lacking (Damanpour, 1993; Elliott and Camoron, 1994; Wang and Chen, 2004). There seems to be a positive correlation between domestic product evaluations and the level of economic development of the COO (Wang and Lamb, 1983). However, a reversal pattern of the COO effect can often be observed in less developed countries (Wang et al, 2000; Wang and Chen, 2004).

Consumers evaluate products based on information cues (Olson and Jacoby, 1972). The COO of a product is the informational cue which informs the consumer where the product was produced. Both empirical observations and experiments indicate that COO has a considerable influence on the quality perceptions of a product (Bilkey and Nes, 1982). It is most often communicated by the “made in” phrase, and consumers often use this cue to infer quality or value (Lundstrom et al, 1998). Although the majority of the studies support the influence of country image in evaluation of products, there also have been contradictory findings. Johansson et al (1985) reported that country image affects consumers’ ratings on only certain product attributes, not the overall evaluations of the products.

In the Indian context too, influence of COO on consumer perception was identified.

COO influenced consumer perception of products imported from overseas (Kaynak et al, 2000). But the power of recognition decreases when the brand
has a long history of “localization” and higher income groups show preference for foreign brands (Jin et al, 2006). Indian consumers evaluated foreign brands higher on technology, quality, status, credibility and esteem than Indian brands (Kinra, 2006). Paswan and Sharma’s (2004) study suggests that brand-COO knowledge influences the COO image, and provides a competitive advantage by increasing the brand’s salience in consumers’ cognitive brand-set domain. Based on their research, Paswan and Sharma (2004) identify that brands that manage to create higher levels of brand-COO knowledge are likely to have a more focused perception about the COO image, equally among consumers with accurate and inaccurate brand-COO knowledge. Brands that do not have high levels of brand-COO knowledge are more prone to misinformation and speculation in the market place. Such views are also supported by Bandyopadhyay (2001) who recognises that consumers are found to hold distinctly different views of products from different countries in terms of quality, value, image, promotion and availability.

**Consumer ethnocentrism**

The relationship between ethnocentrism and purchase behaviour has been investigated in several studies. In the marketing context, consumer ethnocentrism refers to consumers’ beliefs about the appropriateness and morality of purchasing foreign-made products (Piron 2002). Consumer ethnocentrism is likely to have an impact on consumer choice between domestic and imported products (Shimp and Sharma, 1987). Market acceptance and product penetration in certain markets will depend on the degree of ethnocentrism operating in that market. Shimp and Sharma (1987) combined consumer behaviour and economic perspectives, and introduced the term “consumer ethnocentrism”. Consumer ethnocentrism is the belief that purchasing imported products is wrong because it hurts the domestic economy and one’s fellow citizens. Consumer ethnocentrism explains that the purchase of foreign products is not only an economic issue, but more importantly, a moral problem. However, non-ethnocentric consumers are said to evaluate foreign products on their own merits. Thus, consumer ethnocentrism may be a proxy for a sense of identity and belonging, and an understanding of which purchase behaviour is (un) acceptable to a group (Shimp and Sharma, 1987).

In a study of US consumers, Shimp and Sharma (1987) found that consumers exhibiting a higher level of consumer ethnocentrism evaluated imported products according to their perceived effect on the economy. These consumers believe purchasing imported products is unpatriotic because it results in a loss of domestic jobs and causes harm to the domestic economy. Consumers exhibiting low levels of ethnocentrism tended to evaluate imported products using product attributes rather than COO of the product. Empirical results of the Shimp and Sharma (1987) study showed that, for US consumers, attitudes toward imports are negatively correlated with ethnocentric tendencies. Sharma et al (1995) found that the necessity of a product influenced the ethnocentric tendency operating in a purchase situation. They also found that the more necessary the product, the less the ethnocentric tendency influenced the purchase decision. Levels of ethnocentrism refer to differences between the micro-ethnic level, the regional level, and macro-ethnic levels (Preiswerk and Perrot, 1978).
Importantly, consumer ethnocentrism has been suggested as a means of differentiating consumer groups, who prefer domestic goods over imported goods. The more importance a person places on whether a product is made in his/her home country, the higher the ethnocentric tendency (Huddleston et al, 2001). Consumers who exhibit high ethnocentric tendencies evaluate products based on the moral acceptability of purchasing an imported product (Huddleston et al, 2001). Therefore, while COO of a product plays a role in the product decisions of ethnocentric consumers, it is the social appropriateness of the act that drives the product decision, rather than the COO, per se.

McLain and Sternquist (1991), in a post-purchase survey, found that US consumers exhibiting high levels of ethnocentric tendency were no more likely to purchase domestic products than consumers with low levels of ethnocentric tendency. In a study of Russian and Polish consumers (Good and Huddleston, 1995), it was found that there was no significant relationship between ethnocentric tendency and purchase intent for apparel products from different countries.

In some studies it has been suggested that younger people tend to have lower consumer ethnocentrism than older people, even though the empirical evidence is mixed (Shankarmahesh, 2006).

Consumer ethnocentrism implies that an individual who is more strongly identified with an in-group will display a stronger bias in judging that group, because such judgments have more impact on the self if the in-group’s identity is more important (Shimp & Sharma, 1987). Consumer ethnocentrism tends to create and generate a hostile attitude and feeling towards out-groups in the sense that buying imported products is inappropriate because it hurts the domestic economy, results in the loss of jobs, and is unpatriotic (Supphellen & Rittenburg, 2001).

In an attempt to help marketers pinpoint consumers who are sensitive to imported merchandise, several studies have examined the relationship between ethnocentrism and demographic variables. A detailed review of this can be found in Huddleston et al (2001). Their review show no significant relationship between gender and ethnocentric tendency (McLain and Sternquist, 1991), inverse relationship between level of education and ethnocentric tendency (McLain and Sternquist, 1991), and positive relationship between age and ethnocentrism (Caruana and Magri, 1996; Shimp and Sharma, 1987).

Foreign Product Knowledge (FPK)

As Alba and Hutchinson (1987) point out, consumer knowledge should be regarded as a multi-dimensional construct where different types of product-related experience lead to different dimensions of knowledge. These dimensions of knowledge have different effects on product evaluations and choice behaviour, depending on the specific situation and task at hand. Several important distinctions must be made between dimensions of consumer knowledge (Schaefer, 1997). The first distinction is between product-related experience and product knowledge. Product knowledge is the cognitive representation of product-related experience in a consumer’s memory, which is likely to contain knowledge in the form of coded representations of brands, product attributes, usage situations, general product class information, and evaluation and choice rules (Marks and Olson, 1981). A second distinction is
subjective and objective product knowledge (Brucks, 1985). The third distinction would be general product class knowledge and specific brand familiarity. While general product class knowledge may facilitate the use of any extrinsic product information cue, direct experience with a particular brand is likely to facilitate the use of brand name specifically as a choice criterion and may thus decrease the use of any other cues. A final distinction must be made between product class knowledge and country knowledge (Schaefer, 1997). Although these may to some extent overlap, they are evidently not identical. A measure that taps product class knowledge as it relates to countries of origin, or country knowledge relating to products, may be particularly useful when investigating the impact of consumer knowledge on COO effects. Additionally, Darling and Kraft’s (1977) study of Finnish consumers found that knowledge of COO affected consumer attitudes towards products.

From the findings of Schaefer (1997) study, it appears that brand familiarity and objective product knowledge together have a significant effect on the use of the COO cue in product evaluations, although neither of the two factors has a general effect on its own. Objective product knowledge appears to lead to an increased reliance on COO in product evaluations if the brand name is unfamiliar, but not if the brand name is familiar. Subjective product knowledge and personal experience with a brand were not found to have any effect on the level of COO information.

Purchase Intention

It has been shown that purchase intention measures are imperfect predictors of behaviour (Chandon et al, 2005) and many contextual factors can prevent consumers from behaving in an intended way (East, 1997). The few exceptions, which have not relied on experimental designs and purchase intention measures, include Cui et al (2004). These researchers examined COO in relation to the actual purchase and ownership of foreign brands for a variety of products and found that there were frequent departures from stated preferences. However, both studies were cross-sectional and based on purchase recall.

A meta-analysis examined approximately 200 COO works published between 1965 and 1994 and subjected 52 of those to quantitative analysis (Peterson and Jolibert, 1995). The authors concluded that COO effects are only somewhat generalisable. More specifically, they found that verbal product descriptions produced larger COO effects than actual products, single cue studies produced larger COO effects than multiple cue studies, and a product quality dependent variable produced larger effects than a purchase intention dependent variable. This last finding, that COO was a stronger predictor of product quality perceptions than of purchase intention, suggests that quality perception and purchase intent be treated as individual constructs (Huddleston et al, 2001).

Indeed, most previous studies have consistently found that consumer ethnocentrism is positively related to both product judgments and intention to purchase domestic products as well as to unfavorable attitudes toward foreign products (Shankarmahesh, 2006).

Increasingly, marketers are becoming strongly aware of the role of emotions in the purchasing decision process and Mano (1999) notes the effects
of two emotions - boredom and distress - on purchase intentions. Babin and Babin (2001) show that low typicality is associated with increased excitement and discomfort, with those emotions impacting on behavioural intentions, and Watson and Spence (2007) assert that, “Consumption situations can be emotionally charged”.

Country image (CI) is a perception of superiority, or inferiority, of some aspect of a country’s products. Although perceptions are intuitively related to intentions, they are conceptually distinct, being more “primitive” than intentions. Perceptions are antecedent to, and determinants of, intentions (Belk, 1985). Bilkey and Nes (1982), in their literature review of country image, found that CI, indeed, affects consumers’ product evaluations. Then, Strizhakova et al (2008) developed a scale that contained items to assess branded product meanings, such as quality, values, self and group identity, and national traditions. They found the scale to be invariant across four countries (the U.S.A. and three emerging markets - Romania, Ukraine, and Russia) which arguably suggests the widespread influence of consumers’ ethnocentrism, foreign product knowledge and purchasing intention with COO effect.

### Purpose of the Study

In order to supplement the indicative studies of the literature, this study provides a better understanding of the representative Indian consumer and country-of-origin (COO) effect. The findings of this study could not only enhance understanding of the Indian consumer’s behaviour but also help large retailers to take informed decisions in positioning products. Thus, the purpose of the study is to understand the average Indian consumers’ purchase decision making with reference to foreign goods through an investigation of COO influences on purchase intention of the foreign product, whilst also analysing the dynamics of the COO recognition process as indicated in the conceptual model shown in Figure 1.

![Figure 1: Conceptual Model](image-url)
**Research Design**

*Research Aim*
To investigate the dynamics of the COO recognition process

*Objectives*
1) To investigate the correlations between each of the four constructs - FPK, Ethnocentrism, Purchase Intention and COO (see Figure 2)

![Figure 2: The Concepts Linked With Hypotheses for Objective 1](image)

2) To investigate the impact of FPK and Ethnocentrism with COO (see Figure 3)

![Figure 3: Objective 2](image)

3) To investigate the impact of FPK and Ethnocentrism on Purchasing Intention (PI) of foreign goods (see Figure 4)

![Figure 4: Objective 3](image)
**Hypothesis**

Connected with objective 1 are six hypotheses as shown in Figure 2:

H1 - Respondents who are more ethnocentric will be COO sensitive
H2 - Respondents who are ethnocentric will display low purchasing intention for foreign products
H3 - Respondents who have high FPK will be COO sensitive
H4 - Respondents who have high FPK will display high purchasing intention for foreign products
H5 - There is no correlation between FPK and Ethnocentrism
H6 - Respondents who are COO sensitive will display high purchasing intention for foreign products

The six hypotheses were investigated using Pearson's correlation.

Simple linear regression will be used to achieve Objectives 2 and 3.

**Construction of the Sub-Scales**

The COO Likert type scale, which was previously used by Lascu and Babb (1995) in Poland, and by Zain and Yasin (1997) in Uzbekistan, and further adapted by Khan and Bamber (2007) for use in Pakistan, was condensed to seven items for use in the “COO Sub-scale” in the Indian context of this study. A further six items from a short CETSCALE were adopted for use as the “Ethnocentrism Sub-scale”. These had been condensed from the seventeen item CETSCALE of Shimp and Sharma (1987) by Klein et al (2006). The wording of the six items was slightly modified to maintain face validity in the Indian context. Three items were custom designed to form “Knowledge of Foreign Products Sub-scale”. Five items were developed and extended from the scales of MacKenzie et al (1986) to form the “Purchase Intention Sub-scale” taking into account the importance of emotion (happiness, excitement and pleasant surprise) in the purchase process and existing purchase intention scales such as those of Crawford (1994), Urban and Hauser (1993) and Lee et al (2008) who analysed consumers attitudes.

**Research approach**

As shown in Table 1, a study conducted by National Council of Applied Economic Research (NCAER) with leading business newspaper, Business Standard, suggests that in 2001-02, 72 per cent of Indian families earned less than Indian Rupees (INR) 90,000 a year; this is projected to fall to 51 per cent by 2009-10. In contrast, those earning over INR 10 lakh a year was 0.4 per cent in 2001-02 and will rise to 1.7 per cent by the end of the decade (Shukla et al., 2005).
Table 1: Income Classes and Changing Pattern of Income

<table>
<thead>
<tr>
<th>Classification</th>
<th>Income class</th>
<th>2001-02</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deprived</td>
<td>&lt; 90</td>
<td>135,378</td>
<td>114,394</td>
</tr>
<tr>
<td>Aspirers</td>
<td>90 - 200</td>
<td>41,262</td>
<td>75,304</td>
</tr>
<tr>
<td>Seekers</td>
<td>200 - 500</td>
<td>9,034</td>
<td>22,268</td>
</tr>
<tr>
<td>Strivers</td>
<td>500 - 1000</td>
<td>1,712</td>
<td>6,173</td>
</tr>
<tr>
<td>Near Rich</td>
<td>1000 - 2000</td>
<td>546</td>
<td>2,373</td>
</tr>
<tr>
<td>Clear Rich</td>
<td>2000 - 5000</td>
<td>201</td>
<td>1,037</td>
</tr>
<tr>
<td>Sheer Rich</td>
<td>5000 - 10000</td>
<td>40</td>
<td>255</td>
</tr>
<tr>
<td>Super Rich</td>
<td>&gt; 10000</td>
<td>20</td>
<td>141</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>188,192</td>
<td>221,945</td>
</tr>
</tbody>
</table>

Income figs, in Rs. '000 per annum at 2001-02 prices, households in '000s

Shukla et al (2005)

The study conducted by NCAER (2005) suggests that households in the income category of INR 90,000 and INR 500,000 formed the bulk of the population aspiring or seeking various kinds of consumer goods or white goods. These sections of the population also constitute the majority of middle class in India. Therefore, it was appropriate on our part to look for a representative sample in this category. Hence, the questionnaire was used to collect COO information from a sample of 362 Indian consumers. Respondents were mainly managers in multinational companies. Just over 35 per cent were female and just under 65 per cent were male. This represents a highly relevant sample of urban middle-class consumers.

The Likert type (five point) instrument was administered to 362 Indian consumers. The sample constituted working professionals as well as MBA students. 10 per cent of the sample is students doing their Masters degree in Business Administration. The remaining 90 per cent are working professionals in various sectors and fields. More than 25 per cent of the sample respondents are working professionals from the Information Technology (IT) or Information Technology Enabled Services (ITES) sector. Table 2 shows the demographics of the sample.
Table 2: Demographics Of The Sample

<table>
<thead>
<tr>
<th>Education</th>
<th>%</th>
<th>Sex</th>
<th>%</th>
<th>Income*</th>
<th>%</th>
<th>Age</th>
<th>%</th>
<th>Profession%</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>1</td>
<td>Male</td>
<td>65</td>
<td>&lt; 2 lakhs</td>
<td>17</td>
<td>&lt; 25</td>
<td>34</td>
<td>Student 10</td>
</tr>
<tr>
<td>Degree</td>
<td>52</td>
<td>Female</td>
<td>35</td>
<td>2-3 lakhs</td>
<td>24</td>
<td>25-34</td>
<td>42</td>
<td>Professional 90</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>47</td>
<td></td>
<td></td>
<td>3-4 lakhs</td>
<td>19</td>
<td>34 +</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-5 lakhs</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 + lakhs</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Rounded to the nearest whole per cent, One Lakh Rupees is One Hundred Thousand rupees

Results

Sub-scale statistics

The literature concerning COO effects was presented above and three concepts were identified that might influence intentions to purchase foreign goods. Four sub-scales were constructed and a principal component analysis was conducted with data from a representative Indian sample of 362, Table 3.

Table 3: Rotated Component Matrix

<table>
<thead>
<tr>
<th>Item No.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.696</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.693</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>.683</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>.684</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>.753</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>.690</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>.709</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>.728</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>.807</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>.790</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>.779</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>.860</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>.830</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>.867</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>.787</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>.578</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>.682</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>.627</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>.774</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>.791</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>.553</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 5 iterations. Absolute values less than 0.40 suppressed.
The principal component analysis was conducted on the complete scale using the Varimax procedure with Kaiser Normalization. Four components were extracted corresponding to the items within each of the four constructs confirming each of the constructs as an independent component in the scale. Furthermore, each of the four sub-scales demonstrated strong internal consistency with Cronbach alphas between 0.722 and 0.880, and each item loaded only onto the intended sub-scale, as shown in Table 3. The sub-scale statistics are shown in Table 4.

**Table 4: Scale Components**

<table>
<thead>
<tr>
<th>Sub-scale</th>
<th>Component</th>
<th>% Variance Explained</th>
<th>Cronbach Alpha</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Sub-scale Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>1</td>
<td>21.722</td>
<td>0.880</td>
<td>19.839</td>
<td>5.514</td>
<td>11,12,13,14,15,16</td>
</tr>
<tr>
<td>COO</td>
<td>2</td>
<td>18.041</td>
<td>0.836</td>
<td>17.188</td>
<td>5.029</td>
<td>1,2,3,4,5,6,7</td>
</tr>
<tr>
<td>PI</td>
<td>3</td>
<td>9.537</td>
<td>0.755</td>
<td>15.193</td>
<td>3.579</td>
<td>17,18,19,20,21</td>
</tr>
<tr>
<td>FPK</td>
<td>4</td>
<td>7.995</td>
<td>0.722</td>
<td>13.113</td>
<td>3.035</td>
<td>8,9,10</td>
</tr>
</tbody>
</table>

Hence, Items 1 to 7 were totalled for the COO score, Items 8 to 10 were totalled for the FPK score, Items 11 to 16 were totalled for the Ethnocentrism score and Items 17 to 21 were totalled for the Purchasing Intentions score in order to test the correlation and regression hypotheses.

**Objective 1**

The correlation analysis, Table 5, shows that:

- E is not significantly correlated with FPK \( r = -0.092, p = 0.081 \)
- E is significantly negatively correlated with PI \( r = -0.250, p < 0.01 \)
- E is not significantly correlated with COO \( r = 0.023, p = 0.662 \)

- FPK is significantly positively correlated with PI \( r = 0.268, p < 0.01 \)
- FPK is positively correlated with COO \( r = 0.248, p < 0.01 \)

- PI is significantly correlated with COO \( r = 0.274, p < 0.01 \)

Hence, the hypothesis of H1 respondents who are ethnocentric being COO sensitive is rejected. The other hypotheses are supported.
Table 5: Sub-scale Correlations

<table>
<thead>
<tr>
<th>Sub-scales</th>
<th>Statistic</th>
<th>FPK</th>
<th>Purchasing Intention</th>
<th>COO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnocentrism</td>
<td>Pearson Correlation</td>
<td>-0.092</td>
<td>-0.250**</td>
<td>0.023</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.081</td>
<td>0.000</td>
<td>0.662</td>
</tr>
<tr>
<td>FPK</td>
<td>Pearson Correlation</td>
<td>0.268**</td>
<td>0.248**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Purchasing Intention</td>
<td>Pearson Correlation</td>
<td></td>
<td>0.274**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).

Objective 2

Objective 2 was achieved through the use of simple linear regression, as shown in Table 6 below.

Table 6: Objective 2 Statistics

<table>
<thead>
<tr>
<th></th>
<th>Un-standardised Coefficients</th>
<th>Standardised Coefficients</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>(Constant)</td>
<td>11.035</td>
<td>1.538</td>
<td>7.177*</td>
</tr>
<tr>
<td>Ethnocentrism</td>
<td>0.041</td>
<td>0.047</td>
<td>0.046</td>
</tr>
<tr>
<td>FPK</td>
<td>0.405</td>
<td>0.085</td>
<td>0.244</td>
</tr>
</tbody>
</table>

Note: Dependent Variable: COO; Adjusted R Square = 0.06; F-value (ANOVA test) significant at 1 per cent level * = Significant at 1 per cent level

Analysis:
The simple linear regression model used is a good fit for the variables in question. The analysis suggests that FPK and Ethnocentrism explain only 0.06 of COO. FPK effects on COO are positive and significant, whereas the ethnocentrism effect is not significant. Therefore, our hypothesis H3 is supported and H1 is unsupported.

Objective 3

Objective 3 was achieved through the use of simple linear regression, as shown in Table 7.
Table 7: Objective 3 Statistics

<table>
<thead>
<tr>
<th>Un-standardised Coefficients</th>
<th>Standardised Coefficients</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>(Constant)</td>
<td>14.252</td>
<td>1.062</td>
</tr>
<tr>
<td>Ethnocentrism</td>
<td>-0.148</td>
<td>0.032</td>
</tr>
<tr>
<td>FPK</td>
<td>0.295</td>
<td>0.059</td>
</tr>
</tbody>
</table>

Note: Dependent Variable: Purchasing Intention (PI); Adjusted R Square = 0.12; F-value (ANOVA test) significant at 1 per cent level * = Significant at 1 per cent level

Analysis:
The simple linear regression model used is a good fit for the variables in question. The analysis suggests that FPK and ethnocentrism explain 0.12 of PI. FPK effects on PI are positive whereas, ethnocentrism effects are negative. In both the cases, beta value is significant at 1 per cent level.

![Diagram of Supported and Un-supported Hypotheses]

Discussion

The data collection instrument

All sub-scales attain the suggested minimum internal consistency above 0.7, as recommended by Kline (2000a and 2000b). Cronbach α’s are high for Ethnocentrism at 0.880, and for COO, it is 0.834. Scales similar to these have been used in other contexts and now are shown to be internally consistent in this Indian context. Cronbach α’s are not as high, but still are good, for PI (α = 0.755) and FPK (α = 0.722). These two scales could be further improved through the refinement of a larger number of items. Notwithstanding the limitations of sub-scales outlined below, the instrument should be
useful in gaining further understanding about Indian consumers and their attitudes to a broad range of domestic and foreign products.

**Purchase Intention sub-scale**

The PI sub-scale has reasonable internal reliability. It is intended to be a direct estimate of the customers’ belief about their own purchasing intentions, with the assumption that this is a proxy measure for purchasing behaviour. However, further research will be needed in order to assess the external reliability of the scale in predicting actual purchase behaviour of foreign products. The severe disadvantage of this scale is that it is limited to the broad focus of foreign products in general. To be of use to specific multinational companies, the scale will need adapting and extending to specific products and brands.

**Foreign Product Knowledge sub-scale**

The FPK sub-scale is short with only three items and hence, risks being what Cattell (1957) calls such items 'bloated specifics'. In order to really represent the total universe of all possible sub-scale items and to better represent the concept, more items will be required. Again, to be of use to specific multinational companies, the scale will need adapting and extending to knowledge about specific products and brands.

**Ethnocentrism sub-scale**

The Ethnocentrism sub-scale is an adapted form of the short CETSCALE. The high internal consistency of the scale in the Indian context confirms the CETSCALE’s generalisability and usefulness in a broad range of contexts. Importantly, the criticism of the ethnocentrism concept itself needs to be addressed, as Levine (2001) re-cited by Bawa (2004), portrays ethnocentrism as “a dated fallacy of early twentieth century social sciences” mainly because the differences between notions of in-group and out-group are being eroded by mass communication and internal and international migration.

**COO sub-scale**

As Brijs (2006) notes, the whole idea of COO is under attack; here, the face validity of the COO scale is to be questioned, as this scale refers to luxury products, products with high risk of malfunctioning, and expensive products. Although all the items are shown to load well together, using component analysis, items relating to everyday products and non-luxury items were not used. It is likely that these form a separate component in the mindset of the Indian consumer. A supplementary scale will be required to cover those products.

**Marketing implications**

This study has several implications for marketing practice. Understanding the relationships between consumer ethnocentrism, FPK, COO, and PI leads to a better comprehension of consumers’ reasons for buying domestic versus imported products. The results of the study can give strategic inputs to foreign manufacturers and exporters to India about the consumer behaviour. The results can help them to strategise their promotion strategies. The segment of India that is ethnocentric does not seek COO information about foreign products. This is likely because that segment probably already has adequate information. As seen from the results, Indian consumers’ purchase intentions were positively impacted by ethnocentrism. Ethnocentric consumers display low purchasing intention for
foreign products as they remain loyal to their national identity and extend that loyalty to Indian products. Consequently, foreign manufacturers might want to use consumer ethnocentrism as a psychographic segmentation variable while marketing their products in India. This strategy could yield good results.

Additionally, ethnocentrism appears to be independent of foreign product knowledge. Perhaps it is not surprising that consumers who have high FPK scores seek COO information while purchasing foreign products, as having existing product knowledge is related to seeking further product knowledge, knowledge seeking and knowledge retention being parts of a fairly well set cognitive trait. Thus, consumers who have high FPK display high purchasing intention for foreign products. The effect of ethnocentrism on COO is positive, but almost zero and not significant as it is likely that the effect of FPK is more important. However, it is a fact that the linear regression procedure itself seeks to explain the model with the least number of variables. Finer nuances drawn in from the variables are not detected by this procedure. Considering the results of objective 3, consumers with higher ethnocentrism have lower purchasing intentions for foreign products, and consumers with high foreign product knowledge display higher purchasing intentions. This indicates the existence of two consumer segments within the consumers. This first segment remains ethnocentric with low foreign product knowledge, is unlikely to seek COO information, and currently has low purchase intentions for foreign products. The second segment may or may not be ethnocentric, but has high foreign product knowledge, does seek COO information, and has high purchase intentions for foreign products.

Table 8: Indian Consumer Profiles

<table>
<thead>
<tr>
<th>Segment One</th>
<th>Segment Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnocentric</td>
<td>May or may not be Ethnocentric</td>
</tr>
<tr>
<td>Low FPK</td>
<td>High FPK</td>
</tr>
<tr>
<td>No COO seekers</td>
<td>COO seekers</td>
</tr>
<tr>
<td>Low PI for foreign products</td>
<td>High PI for foreign products</td>
</tr>
</tbody>
</table>

Given the two consumer segments as shown above in Table 8, multinational companies seeking to increase their market share in India will need to address each segment differently. Segment 1 is best approached using pro-Indian imagery to promote products that have been placed sympathetically within the domestic market. The consumer then will be at ease to form positive emotional attachments to the products, which should lead to increased purchase intentions. It is likely that Segment 2 has already gained high involvement and is at ease with foreign products. This segment is best approached with product knowledge that promotes the benefits to the consumer of the foreign product. If the offerings to segment two are domestic products, then technical knowledge and information regarding the products’ benefits to the consumer need to be presented.
Further research

Further research will be required to investigate how COO becomes a product trait external to the product itself and how detailed knowledge about product attributes, such as quality and reliability, then impact purchasing intentions for specific products. Similarly, conjoint analysis could be used to conduct future research that investigates product attributes of complex versus simple products, foreign versus domestic brands. For multinational firms, the research will need to address larger issues such as which country to place the production plants. For the academic marketing researchers, there are a plethora of product, emotional, attitudinal and consumer variables to consider, and it may well be that the modelling techniques that have so far been adhered to by their own reductionist nature, lead to limited understanding. One way forward may be to use a fuzzy approach to COO research as promoted by Brijs et al (2006).

Conclusion

The study explored four components within a 21-item Likert type scale with reference to an average consumer group in the under-researched market of India. It is argued that marketers can use the knowledge gained as a basis for entry to new large country markets like India: an understanding of the role of COO, FPK, ethnocentrism and PI for imported products as against domestic ones would aid in the formulation of better marketing plans, strategies and policies by companies of both domestic and international origin. The concept of consumer ethnocentrism may improve our understanding of consumer behaviour, and this indicates why certain segments of consumers prefer domestic goods, whereas others do not discriminate between domestic and imported products. In particular, two segments of consumers have been identified. Therefore, when targeting the niche market of average Indian consumers, a range of strategies may be required that uses understandings about consumers’ purchasing intentions, and information seeking their foreign as well as domestic product knowledge. This paper has briefly outlined some strategies, which multinational companies could adopt to address two segments of consumers in the emerging market of India. However, the assessment of other foreign markets and understanding the detailed relationships between cognitive and emotional components connected with specific products and brands remains problematical.
References

products in an emerging market. Proceedings of the AIB Southeast Asia Regional Conference, Macau, 5-7 August.


### Table A1: COO Sub-scale

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Scale Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A person should always look for country of origin information when buying a product that has a high risk of malfunctioning, e.g. when buying a watch</td>
</tr>
<tr>
<td>2</td>
<td>I look for country of origin information to choose the best product available in a product class</td>
</tr>
<tr>
<td>3</td>
<td>I find out a product's country of origin to determine the quality of the product</td>
</tr>
<tr>
<td>4</td>
<td>When buying an expensive item such as a car, TV or refrigerator, I always seek to find out what country the product was made in</td>
</tr>
<tr>
<td>5</td>
<td>To make sure that I buy the highest quality product or brand, I look to see what country the product was made in</td>
</tr>
<tr>
<td>6</td>
<td>If I buy a luxury product, I always look for products from certain countries</td>
</tr>
<tr>
<td>7</td>
<td>For the really expensive items, it is crucial that I know which country the product is from</td>
</tr>
</tbody>
</table>

Adapted from Lascu and Babb (1995), Zain and Yasin (1997) and Khan and Bamber (2007)

### Table A2: Foreign Product Knowledge Sub-scale

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Scale Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>I know a lot about products from other countries</td>
</tr>
<tr>
<td>9</td>
<td>I do not need assistance when buying foreign products</td>
</tr>
<tr>
<td>10</td>
<td>I am never confused when buying products that are made from other countries</td>
</tr>
</tbody>
</table>

Custom designed sub-scale

### Table A3: Ethnocentrism Sub-scale

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Scale Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Purchasing products from other countries is un-Indian</td>
</tr>
<tr>
<td>12</td>
<td>It is not right to purchase products from other countries because it puts Indian people out of jobs</td>
</tr>
<tr>
<td>13</td>
<td>We should purchase products manufactured in India instead of letting other countries get rich from us</td>
</tr>
<tr>
<td>14</td>
<td>Indian people should not buy products from other countries because it hurts Indian business and causes unemployment</td>
</tr>
<tr>
<td>15</td>
<td>I will buy only Indian products</td>
</tr>
<tr>
<td>16</td>
<td>Only those products not made in India should be imported</td>
</tr>
</tbody>
</table>

Condensed from Shimp and Sharma (1987)
Table A4: Purchase Intention Sub-scale

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Scale Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Compared with my friends, I intend to purchase more products from other countries</td>
</tr>
<tr>
<td>18</td>
<td>I will buy many products from other countries this year</td>
</tr>
<tr>
<td>19</td>
<td>I feel happy buying foreign goods</td>
</tr>
<tr>
<td>20</td>
<td>For me, there is a certain excitement about shopping for things from other countries</td>
</tr>
<tr>
<td>21</td>
<td>I am pleasantly surprised when I see things from faraway places when I am shopping</td>
</tr>
</tbody>
</table>

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Small Firm Business in Cross Border Trade and Investment: Risk-Immunized and Risk-Assumed Returns

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Gulf University for Science and Technology The Institute of Policy Analysis

*Authors express their sincere appreciation to the editor for his very useful suggestions. In fact, Section V is brought out mostly because of his instructive thoughts on the issue.

Abstract
Cross border trade and investment is always an interesting issue in view of the fact that many small business houses are involved in such transactions. Ever since the creation of NAFTA, this reality has been more demanding for further analytical study and serious examination of the economic and financial problems such firms face in our global markets while aspiring for growth and opportunities. Recently, volumes of trade and the lack of hedging instruments for management of risks and returns have assumed greater significance for many American business concerns on the Mexican borders dealing with millions and millions of dollars. The rate of yield from Mexico being enormously high, and yet the peso being the soft and the virtually un-hedge-worthy currency, U.S. business entities are quite daunted by the possibilities of being wiped out in the currency market under an adverse situation. Although this problem may appear simply an endemic one, it is essentially an issue of international trade between a hard-currency country, with any soft-currency country. It is also an issue of major significance in the emerging market structure in our global village. The question is: how to cover the trade and investment position in such a situation? What is true for a multinational corporation is certainly not valid for a small national firm in international involvement. This work attempts to deal with this specific issue of hedging and creation of hedging devices when those instruments are conspicuous by their absence in the existing market place. It then further explores the profit multiplier potential under this structure of hard-soft currency exchange. What appears to solve the usual problems of small firms in the border trade also provides the haven for high-yield investments for individual investors and currency traders in a risk-free condition and/or under a condition of deliberately-assumed risk-taking.

Keywords: cross border trade and investment, NAFTA, hedging, small businesses
I. Introduction

It has often been said that small business is the heart of American enterprise. Mom-and-pop stores have been the way to go and grow upon in business ventures. Big businesses and global undertakings have remained out of reach of ordinary people, and that is the reason for growth of small-scale firm operations. With a little capital and a lot of expectation, and later, with an enormous degree of success, these businesses have coloured the landscape of not only this economy, but of almost every economy on earth. Although not too much attention or analytical examination has been given at the professional level, this sector of the economy has caught the eyes of many. In the changing environment of what we call the global village, particularly since the demolition of the Berlin Wall, the creation of NAFTA, and the like, small firm businesses in cross-border areas have grown strongly and steadily. These firms are likened to big firms engaged in translational trade and investment in the global market. That means these firms also have broadened their operational horizons along with an additional dimension to their trading structure. Two or more currencies appear in their financial calculus, and the onerous responsibility of dealing with translation and transaction risks in the face of greater profit potential and return enhancement overwhelm or, maybe, burden these entrepreneurs.

In this work, first an attempt is made to bring out some of the prospects and problems these small firms face in their cross-border trade and investment. Secondly, we provide the design to solve the issues of risk exposure and currency hedging where hedging instruments are non-available to these firms. In these contexts, we highlight the problems faced by a U.S. firm in its trade with a firm across the border in Mexico, or a similar firm in Germany with a small firm in Poland, and vice versa. The issue is one of hard currency vis-a-vis soft currency, and the insulation against unmanageable or unpredictable exchange rate swings. The issue should have a natural ramification for any trade and investment in the emerging markets in general. Thirdly, we will examine the similarities and differences between small firm businesses in cross border trade and investment, with big companies doing international trade and other forms of financial transactions. Finally, a further look at cost of capital, capital budgeting, transfer pricing, and so on, and some concluding thoughts are presented for small entrepreneurs as well as for analysts of such issues.

II. An Analytical Structure

Consider a small business firm located in Laredo, Texas, selling a machine tool which a Mexican firm in Neuvo Laredo has been buying and supplying all over Mexico for a much lower cost, virtually non-existent transport cost, and lack of red tape and big overheads of a large American corporation on virtually the same or similar product somewhere else at the other end of the globe. Business of this nature has boomed ever since the creation of NAFTA and with the break-down of barriers in trade. The small firm on the U.S. side sells its product and receives the payments in, say, three months. Let’s consider that the amount involved in the transaction is $5 million (or 67.1435 million in Mexican peso. Let’s assume that the rate of exchange currently is 13.4287 Mexican pesos = $1. If the exchange rate remains unchanged in three months, then both parties in the deal will have the values of their assets and liabilities unchanged, and thus unaffected. If, however, in three months, that is, at the time of consummating the financial
transactions, the rate of exchange changes to 15.4287 Mexican pesos = $1, problems creep in badly. If the invoice is in the denomination of the exporter’s currency, the Mexican firm has to pay 77.1435 million pesos instead of 67.1435 (a whopping 14.93 percent increase in its import bill. If, on the other hand, the invoice is in the denomination of the importer’s currency, the U.S. firm receives $4.35 million instead of $5 millions, which means a 13 percent loss of revenue. Under the situation of a devaluation of the Mexican peso, one of the two firms will bear the brunt of loss, and the loss will be borne by the party in whose currency the invoice has not been made. Beyond this reality of incipient loss, the uncertainty is another spoiler of trade in this context of economic reality.

Let us now explain what a big corporation like Ford Motor Corporation or its trading partner in the United Kingdom does or can do when the trade involves a sale of automobiles worth, say, $100 million in the United Kingdom. Assume that the currency of invoice is U.S. dollar. If the amount receivable is due in 3 months, and the current spot rate of exchange is £0.60 = $1, and the 3-month forward rate of exchange is £0.62 = $1, the British buyer can take either of the two positions: (a) exchange its £58,823,529.41 (=$100,000,000 / (1+0.02))’0.6) in the spot rate of exchange for U.S dollars and keep the amount in an American bank at the 3-month interest rate of 2 percent (assumed in this case), and thus pay off its import bill in time, or (b) sell £62,000,000 (£100,000,000’0.62) for U.S. dollars at the forward rate. Since this £62,000,000 is needed in three months, this British importer’s present value of cost is £60,487,804.88 (£62,000,000/(1+0.025)), (here 0.025 is the British cost of capital). In this way, the British firm knows exactly how much it will cost the firm at the time the payment becomes due. Of course, it is simple to recognize, in this illustrative case, that the importing firm will choose the first hedge since it is cheaper. Formally, the following criterion

\[
MR_S^k \left( \frac{1}{1+i_A} \right) \geq < MR_F \left( \frac{1}{1+i_B} \right), \text{whence}
\]

\[
(i_A - i_B) \geq \left( \frac{R_F - R_S}{R_S} \right) (1+i_B)
\]
determines which choice is superior to the other (where \(R_S^k\) is the spot rate of exchange of British pound in terms of U.S. dollars ($/£), \(i_A, i_B\) the American and British interest rate for the period matching the maturity of the forward contract, denoted here by \(R_F\), and M is the amount of dollars to be converted and reconverted via spot market and forward market). Had the currency of invoice been in British pound, the U.S. investor would have entered into similar hedging schemes, and chosen the most inexpensive hedge.

Since the U.S. dollar, British pound, and similar so-called hard currencies have derivatives such as forwards, futures, options, and so on, big firms with access to money markets all over the world are at a clear advantage to engage in trade without the possibility of losing 15 percent or 13 percent a small firm in cross border trade may have to sustain. The question then is: how to avoid such significant or even fatal injury to the treasury of small firms excited and propelled by enormous profit margins in normal trade and supernormal returns in cross border investment when these traders or investors do not have the instruments like forward contracts?

Consider once again that the U.S. small firm sells its product to a Mexican importer, and upon this transaction, the American exporter concludes a deal
of 67.1435 million Mexican pesos in three months. If the current spot rate of exchange is 13.4287 pesos to a dollar, and if the American and Mexican interest rates for this exporter for three months, respectively, are 2 percent \((r_A = 2\%)\), and 5 percent \((r_M = 5\%)\), then this American exporter is effectively getting 63.95 million pesos now, which translates into current U.S. dollar $4,761,904.76. This amount invested at the U.S. interest rate of 2 percent for the next three months will yield $4,857,142.86 with virtual certainty. In this situation, the exporter is risk-free in regard to its total sales proceeds that it should have at the end of three months. The Mexican importer facing the import bill to the tune of $5 million in three months (in the event the invoice is in the U.S currency) can buy now $4,901,960.78 \((\approx 5,000,000/1.02)\) with 14,705,882.35 pesos, and then let the dollar amount grow at 2 percent to become $5 million for payment. It is almost the same decision to pay the American exporter $4,857,960.78 million (equal to 63.95 million pesos) now. Catastrophe is avoided and the hedging is completed even without the availability of derivative contracts in the currency markets.

A more creative design of hedging can be a variant of cross-hedging via a third currency such as Panamanian balboa (PAB), which is pegged to the dollar (1:1 basis), or with a currency that moves with the dollar in lock step. In the situation depicted earlier, the U.S. exporter should contact the Mexican importer and ask for the payments in Panamanian dollars. Also the exporter should request the importer to state the exact amount at the time of initiation of the contract. If the Mexican importer has difficulty in this arrangement, the American trader can do this through its own bank, which will have the process completed through its correspondent banking network. The Mexican importer can now buy say, British pound to the tune of £Y now, put the amount in a 3-month deposit at \(r_B\) rate of interest for this duration, and buy $5 million dollars at the 3-month forward rate to eliminate the exchange rate exposure. Many such arrangements can be worked out for both small firm importers and exporters.

So far, trade revenues have been brought out in a straightforward fashion. In reality, this American exporter, for instance, can play its hand in both the asset markets and currency market, and generate a large sum of money through simple arbitrage in the asset markets and iterative arbitrage in foreign exchange market through its agents (if not by itself). Following the lead of Frenkel and Levich (1975), and Deardorff (1979), a host of papers appeared to clarify further and extend the implications of arbitrage profit opportunities and exploitable profits. Rhee and Chang (1992) explored the intra-day arbitrage opportunities in foreign exchange and Eurocurrency markets. Extending the same line of thinking, Ghosh brought out the instantaneous profit possibilities via iterative arbitrage (1992, 1997a, 1997b), which further got refined in Ghosh, and Arize (2003), and in Clark and Ghosh (2004). All these works were completed within the strait-jacket of the currency market. Recently, Ghosh, Ghosh and Bhatnagar (2010) went a step further to integrate the twin-structure of arbitrage operations involving both markets in securities and the currency market, and have changed the landscape of arbitrage and profit possibilities since then. In this work, we attempt to tie up small firms in cross-border trades in goods and trades in the foreign exchange market.
III. Trades in Goods and Trades in Currencies: Arbitrage and Profit Possibilities

Consider again that the small Mexican firm is engaged in importing American products. Currently, it has an import bill of 67.14 million pesos (worth $5 million at the current rate of exchange: 13.4287 pesos = $1), due in three months. Through a banker’s acceptance worth $4,857,960.78 (say, $4.86 million), the American exporting firm, in this instance, converts its dollars into British pound at the spot rate ($R_S^0 = 1.59$, that is, $1.59 = £1.00$), and gets £3.6 million. Let’s assume the British interest rate for the 3-month period is 0.01 ($r_B = 0.01$) and American interest rate (for the same period) is 0.015 ($r_A = 0.015$). Assume further that the 3-month forward rate is 1.75 (that is, $R_F^3 = 1.75$, meaning $1.75 = £1.00$ three months from now). The American small firm can put its £3.6 into a British bank at 0.01 rate of return, and turn the amount into £3.636 in 3 months, which can be converted back into US dollars to the tune of $6.363 million by selling the British pound by forward contract (£3.636 x 1.75 = $6.363 million). £6.636 is about $1.76 million above $4.6, and it means that the American small firm makes a net gain of over $4.6 million (and even its original $5 million). This is, by no means, the end of the saga of a sweet deal. In the age of instantaneous income-churning opportunities, this firm can repeat the cycles of covered arbitraging pointed out by Ghosh and Arize (2003).

III. Sequential Arbitrage in Quick Succession

As noted in several works, e.g., Ghosh (1997), Ghosh and Arize (2003), Ghosh and Ghosh (2005), Ghosh, Ghosh, and Bhatnagar (2010), instantaneous sequential arbitrage operation is iterative arbitrage indeed. Consider the theoretical structure as follows:

\[ R_S^0 = \text{spot rate of exchange of British pound in term of U.S dollars ($/£)} \]
\[ R_F^3 = \text{3-month forward rate of exchange of British pound in term of U.S dollars ($/£)} \]
\[ i_B^3 = \text{3-month British (U.K) interest rate} \]
\[ i_A^3 = \text{3-month American (U.S) interest rate} \]
\[ E = \text{export earnings of the American small firm through banker’s acceptance} \]

Note, as we illustrated earlier, the export earnings \( E \) can be exchanged for British pound, and the amount now denominated in British pound \( \left( \frac{E}{R_S^0} \right) \) is deposited at \( i_B^3 \) for three months.

The amount then becomes

\[
\left( \frac{E}{R_S^0} \right)(1 + i_B^3)R_F^3 = ER_F^3(R_S^0)^{-1}I_B^3
\]

where \( I_B^3 = 1 + i_B^3 \) is the interest factor. Subtraction of \( E I_A^3 \) from (1) yields the measure of arbitrage profit \( (\rho_f) \) from the currency market. This profit is earned at the end of 3 months, and since it is the profit on the first exploitation of currency trading, one can call it first round of arbitrage profit \( (\rho_f) \).

The present value of this profit \( (\rho_f^0) \) is obviously as follows:

\[
\rho_f^0 = \frac{E R_F^3 (R_S^0)^{-1}I_B^3 - E I_A^3 (I_A^3)^{-1}}{E(A - 1)} = E(B + A)^{-1}
\]
Here \( \{ER^3(R^0_x)^{-1} I^3_A(I^3_A)^{-1}\} = A \). Note that if \( A = 1 \), covered interest rate parity holds and arbitrage profit becomes non-existent. When \( A \neq 1 \), arbitrage profit opportunity surfaces, and profit-seeking investors exploit the currency market misalignment. One aspect of this profit situation must be highlighted here, and it is this: if and \( A > 1 \), the investor must convert domestic currency (U.S. dollars, in this case) into foreign currency (here, British pound sterling), and in the event of \( A < 1 \), the opposite strategy must be pursued to reap positive profits. One more point is very important in this connection since \( \rho^0_1 \) is not the only profit the exporter-cum-investor can earn. In this age of cybernetic speed (when hundreds of thousands of evaluations and millions of calculations can be made), an investor can do the iterative arbitrage many times (that is, many rounds of arbitrage operations, as outlined earlier) within a few seconds when market data stays frozen.

As already suggested, market quotes remain unchanged for 3 seconds to 5 seconds for most hard currencies such as British Pound Sterling, Euro, Yen, and so on. So, a nimble operator in the foreign exchange market can arbitrage \((E + \rho^0_1)\) for another round to generate a new amount of profit of \( \rho^0_2 \), where

\[
\rho^0_2 = EB(1 + B)^2^{-1} \tag{3}
\]

The sequence of these operations can generate \( n \) \((n = 1, 2, 3, \ldots)\) rounds of profits without the assumption of any risk. The profit at the \( n \)-th round will be:

\[
\rho^0_n = EB(1 + B)^{n-1} \tag{4}
\]

Summation of the profits generated from Round 1 through Round \( n \) measures the total profits the exporter-cum-investor can earn by churning the original net revenue out of the exports.

In this case, we have used the following market data from Data Stream. It should be noted that the data used here is not all time-stamped since the U.S exporting firm’s export revenue is assumed to be what we have taken here for the purpose of illustration of profitable opportunities. We have taken the following data for our experiments. Our data set consists of the following:

\[
I_A^3 = 1.015, I_B^3 = 1.010, R^0_S = 1.59, R^3_F = 1.75, A = \left\{R^0_F(R^0_S)^{-1} I^3_B - I^3_A \right\}(I^3_A)^{-1}, 1 + A = \psi,
E = $5,000,000, i = 1,2,3,\ldots,20.
\]

We assume that the investor can borrow 20 percent against its equity position (that is, leverage parameter, \( \theta = 0.20 \)). Obviously, \( B = 0.095207 \).
With these inputs, we get the following table (Table 1):

**Table 1**

<table>
<thead>
<tr>
<th>i</th>
<th>$B^i - 1$</th>
<th>$E( B^i - 1)$</th>
<th>$E[(1 + (1 + \theta) B^i - 1)]$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.095207</td>
<td>476035.6</td>
<td>6571243</td>
</tr>
<tr>
<td>2</td>
<td>0.199479</td>
<td>997393.1</td>
<td>1199479</td>
</tr>
<tr>
<td>3</td>
<td>0.313678</td>
<td>1568388</td>
<td>1313678</td>
</tr>
<tr>
<td>4</td>
<td>0.438749</td>
<td>2193745</td>
<td>1438749</td>
</tr>
<tr>
<td>5</td>
<td>0.575728</td>
<td>2878640</td>
<td>1575728</td>
</tr>
<tr>
<td>6</td>
<td>0.725749</td>
<td>3628743</td>
<td>1725749</td>
</tr>
<tr>
<td>7</td>
<td>0.890052</td>
<td>4450261</td>
<td>1890052</td>
</tr>
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<td>8</td>
<td>1.069999</td>
<td>5349993</td>
<td>2069999</td>
</tr>
<tr>
<td>9</td>
<td>1.267077</td>
<td>6335386</td>
<td>2267077</td>
</tr>
<tr>
<td>10</td>
<td>1.482919</td>
<td>7414595</td>
<td>2482919</td>
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<tr>
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<td>8596553</td>
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<tr>
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<td>1.978208</td>
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<td>13</td>
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</tr>
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<td>3572297</td>
</tr>
<tr>
<td>15</td>
<td>2.912405</td>
<td>14562026</td>
<td>3912405</td>
</tr>
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<td>16</td>
<td>3.284894</td>
<td>16424471</td>
<td>4284894</td>
</tr>
<tr>
<td>17</td>
<td>3.692847</td>
<td>18464233</td>
<td>4692846</td>
</tr>
<tr>
<td>18</td>
<td>4.139639</td>
<td>20698194</td>
<td>5139639</td>
</tr>
<tr>
<td>19</td>
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<td>23144845</td>
<td>5628969</td>
</tr>
<tr>
<td>20</td>
<td>5.164887</td>
<td>25824435</td>
<td>6164887</td>
</tr>
</tbody>
</table>

Column 1 refers to the iteration number, that is, 1 refers to the first iteration, 5 refers to the fifth iteration of arbitraging. Columns 2, 3, and 4 measure profits per unit of U.S. dollar, total profits for the export earnings of $E$ dollars, and total profits when the exporter-cum-investor puts in 20 percent of borrowed funds on top of its own equity in the arbitrage process at each iteration, respectively. The sum total of Column 3 measures the total income the investor can generate and the sum total of Column 4 computes the total earnings of the investor with borrowed funds of 20 percent at each act of iteration of arbitrage. Now, look at the level of magnification of the original 5 million dollars put through the currency market, and it proves that idling with earned export revenue can create a huge potential compounding effect.

**IV. Speculation and Profit Potential**

**A. Hedge and Speculation with Forward Contract**

In the previous section, we have shown the profit possibilities in the condition of risk-free structure of
investment by the process of arbitrage. With all the market data available, the investor exploits market misalignment with supersonic speed of operations. In this section, we show how the same investor can assume calculated risk, and make the earnings even higher. It is a case of speculation, which has been examined and analyzed extensively by Baumol (1957), Auten (1961), Sraos (1959), Telser (1959), Tsiang (1959), Kemp (1963), Kenen (1965), Grubel (1967). Later Tsiang (1973), Dalal (1971), Surajaras and Sweeny (1992), and Ghosh and Prakash (2001) clarified and sharpened the focus on speculation and profit magnification. Following existing research and guidelines, we further explore how this investor can enlarge its earning with the assumption of calculated risk. It is easily ascertained, as noted by Ghosh and Arize (2003), that if:

(i) \(R^0_s R^1_f I^3_A (I^3_B) < (\tilde{R}_s)^2\), and \(R^0_s < R^0_s I^3_A (I^3_B)\),
purchase of foreign currency (British Pound Sterling in this illustrative case) is profitable via forward speculation. If

(ii) \(R^0_s R^1_f I^3_A (I^3_B) < (\tilde{R}_s)^2\), and \(R^0_s > R^0_s I^3_A (I^3_B)\),
purchase of foreign currency (British Pound Sterling in this illustrative case) is profitable via spot speculation. If

(iii) \(R^0_s R^1_f I^3_A (I^3_B) > (\tilde{R}_s)^2\) and \(R^1_f > R^0_s I^3_A (I^3_B)\),
Sale of foreign currency forward is profitable speculation, and finally, if

(iv) \(R^0_s R^1_f I^3_A (I^3_B) > (\tilde{R}_s)^2\), and \(R^1_f < R^0_s I^3_A (I^3_B)\),
selling foreign currency in the spot market yields in the speculative trading scheme.

Note, that in those statements (i) through (iv), \(\tilde{R}_s\) is the expected spot rate of exchange at the end of three months. So far, we have abstracted from arbitrage while doing speculative trading. But the investor can engage in all three operations - arbitrage, hedging and speculation - almost at the same time. Note that if the arbitrageur takes the covered arbitrage position - that is, if the trader exchanges, as illustrated earlier, dollars in the spot market and hedges the exposed risk by counter-exchange of the converted currency with forward contract, the exporting firm can create the total earnings (\(\rho_0^*\)) in the magnitude of rounds of covered trading:

\[
\rho_0^* = EB \sum_{i=0}^{n} (1 + B)^i = E \left\{ (1 + B)^n - 1 \right\}
\]

Here, we have considered the unleveraged position. Leveraged positions and the consequent profit measures can be easily calculated, iteration by iteration.

If the firm decides to engage in spot speculation, for instance, it needs one Pound (£1) at the end of three months. If the firm’s foreign contract size for spot purchase of British Pound three months from now is \(\lambda^3_0\), it can make the total amount of earnings equal to the following:

\[
E \left\{ (1 + B)^n - 1 \right\} \lambda^3_0 \left[ \tilde{R}_s I^3_B - R^0_s I^3_A \right]
\]

Small Firm Business in Cross Border Trade and Investment: Risk-Immunized and Risk-Assumed Returns
Many more scenarios can be drawn, and many other measures of profits can be computed. Instead of doing a recipe book on this exploration marathon, let us deal with a more fundamental issue. Note that we have introduced what can be called naked speculation, where future spot rate of exchange is the expected rate without a cover. Traditionally, speculation is a naked position, but nowadays, speculative position can be covered now by so-called financial engineering.

B. Hedging and Speculation with Option Contracts as well
A speculator can take derivatives such as forward and call or put option and/or a combination thereof. So, here we delineate a few scenarios for better understanding of covered speculation. The exporter-cum-investor can buy options on top of a forward contract, and it may hedge its position to stave off financial loss.

Consider the following call and put premiums and exercise prices on the currency options on British Pound Sterling:

\[ \zeta_C : \text{call premium on Pound Sterling} \]
\[ \zeta_P : \text{put premium on Pound Sterling} \]
\[ P_C^X : \text{exercise price on call option} \]
\[ P_P^X : \text{exercise price on put option} \]

So, one can conclude that if
\[ \tilde{R}_S^3 < (P_C^X + \zeta_C) < R_F^3, \]

the firm can make profits by buying put option and buying forward contract. The investor’s expected profit \( E(p_Y) \) is defined by:

\[ E(p_Y) = \left[ p_1 (R_F^3 - (P_C^X + \zeta_C)) + p_2 (R_F^3 - \tilde{R}_S^3) \right] Y. \]

Here \( p_1 \) and \( p_2 \) are the probabilities of the positive values of \((R_F^3 - (P_C^X + \zeta_C))\) and \((R_F^3 - \tilde{R}_S^3)\), respectively where \( Y \) is the contract size. Similarly, if
\[ \tilde{R}_S^3 > (P_P^X - \zeta_P) > R_F^3, \]

the investor firm can make the expected profit in the amount of

\[ E(p_Y) = \left[ p_1 (R_F^3 - (P_P^X - \zeta_P)) + p_2 (\tilde{R}_S^3 - R_F^3) \right] Y. \] (6)

V. Some Extension and Concluding Remarks
We have used the U.S.-Mexico cross border trade to make the point that convenience of trade between these two neighbouring countries extends over the benefits of trade initially conceived and executed. A further reflection on this issue goes beyond the United States and Mexico. One can easily recognize that border trade between Poland and Germany, Sweden and Denmark, Thailand and Malaysia, to mention a few, can follow the same route delineated in the previous sections. At this point, one may note that cross-border trade is an offshoot of international trade that has been expounded through the Ricardian paradigm of comparative advantage through Heckscher-Ohlin-Samuelson model of incomplete specialization and the formation of trade yielding gains to all partners involved. In this sense, cross-border example is a mere simplified structure and process of exchange. In a more complex scenario, trade does not need to be cross-border; the trade can be between India and Japan, France and Australia, China and Canada on bilateral basis or multilateral trade involving numerous countries. In fact when, for instance, IBM exports its computers, it is not a pure American good since inside the product lie the software developed in India, hardware developed in Taiwan,
and labour of assembling components is put in China. Through this intra-structure tradeables, we find multilateral trade even though outer skins of exports and imports are bilateral a la Heckscher-Ohlin-Samuelson model of incomplete specialization and trade. This is, however, one dimension of the issue. As noted in the formal analytical structure earlier, the profits from trade transactions can further be magnified by covered interest triangular arbitrage (CITA), defined by Ghosh (1998). CITA-style iterative arbitrage can further be combined with speculative strategies as well (see Ghosh and Prakash (2001), outlined before. Let us consider three countries (and three currencies) as follows:

- \(i_1\) = American interest rate;
- \(i_2\) = British interest rate;
- \(i_3\) = Japanese interest rate;
- \(R_{S:21}\) = spot rate of exchange of British Pound in terms of American Dollars;
- \(R_{S:32}\) = spot rate of exchange of Japanese Yen in terms of British Pound;
- \(R_{S:31}\) = spot rate of exchange of Japanese Yen in terms of U.S. Dollars;
- \(R_{F:31}\) = forward rate of exchange of Japanese Yen in terms of U.S. Dollars.

Under this scenario, the present value of the pure arbitrage profit under CITA for \(i\)-th round operation is:

\[
\rho_{i(0:CITA)} = \left(\frac{1}{1+i_j}\right)^{i} \left[ \frac{R_{F:31}}{R_{S:32} R_{S:21}} (1+i_2)(1+r_j) - (1+i_j) \right].
\]

The arbitrage-induced profit (as opposed to pure arbitrage profit), as in Ghosh (1998), is as follows (in the \(i\)-th round):

\[
\rho_{i(0:CITA)} = M \left(\frac{1}{1+i_j}\right)^{i} \left[ \frac{R_{F:31}}{R_{S:32} R_{S:21}} (1+i_2)(1+r_j) - (1+i_j) \right] \lambda.
\]

Here

\[
\lambda = \frac{M}{(1+i_j)} \left[ \frac{R_{F:31}}{R_{S:32} R_{S:21}} (1+i_2)(1+r_j) - (1+i_j) - (1+i_3) \right].
\]

and the cumulative profit in \(n\) successive rounds amounts to:

\[
\rho_{i(0:CITA)} = M \left(\frac{1}{1+i_j}\right)^{n} \left[ \frac{R_{F:31}}{R_{S:32} R_{S:21}} (1+i_2)(1+r_j) - (1+i_j) \right]^n
\]

and

\[
\lambda = \frac{M}{(1+i_j)} \left[ \frac{R_{F:31}}{R_{S:32} R_{S:21}} (1+i_2)(1+r_j) - (1+i_j) - (1+i_3) \right].
\]

The \(m\)-country \(m\)-currency \((m > 3)\) analogue of (11) is as follows:

\[
\rho_{i(0:CITA)} = M \left(\frac{1}{1+i_j}\right)^{n} \left[ \frac{R_{F:31}}{R_{S:32} R_{S:21}} (1+i_2)(1+r_j) - (1+i_j) \right]^n
\]

where \(R_{S:21}\) is the spot rate of exchange of the \((j+1)\)-th currency in terms of the \(j\)-th currency. There are more possibilities, particularly the usage of leverage in profit computation, but we choose to abstain from further exploration of profit possibilities. Here, we provide the insight, but further exploration along these lines should be a new task.
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Amsterdam, Netherlands, 1965.


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Stress, Workaholism and Job Demands: A study of executives in Mumbai

Manjari Srivastava¹

Abstract

The changing nature of the economy and increased competition has put a great demand on professionals today. As a result, workaholism is emerging as a behavior pattern among professionals. The main objective of the study is an exploration towards identifying the relationship between workaholism, job demands, work values and perceived stress and anxiety among working professionals in Mumbai, India. The study was done under exploratory framework and the sampling procedure was purposive. Results reveal the dimensions of workaholism, work values and job demands that emerged as predictors of stress and anxiety. Some of the dimensions of job demands showing the extreme nature of the job came out as the negative predictor of stress, which reflects an entirely different perspective of people in the society. Professionals in the service sector suffer from more stress and anxiety compared to those in the manufacturing sector. Overall, the unmarried and a younger age group of professionals are perceived to have a higher level of anxiety and stress than married and the senior age group. Knowledge of these results may be utilized by academia and professionals in understanding the workaholic behavior of the current Indian professionals driven by globalization and economic boom.

Key words: Stress and anxiety, workaholism, job demands, Indian executives, service sector, manufacturing sector

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1. Introduction:
During the great depression of the 1930s, in Great Britain, philosopher Bertrand Russell predicted that the “road to happiness and prosperity lies in an organized diminution of work” (Leggiere, 2002:42). With a growing trend of technology and increasing affluence among the masses, Bertrand’s eco-utopian philosophy asserts that in the near future, masses would have the leisure to peruse themselves for intellectual growth, which was solely confined to the “leisured elite”. Such visions were popular largely among the visionaries and radicals till the post-war era. However, during the early 21st century, the moot issue that emerged among business scholars and leaders was how to keep business ethics of work hours in the era of increasing leisure and comfort through aggressive consumerism.

The debate and the concern among business experts was to probe how quickly productivity enhancing technology would overthrow the “less work hours” trend with the “more work hours” culture. Further, with the open era economy and fast pace of technology innovation and competitiveness, a new 24/7 economy has unleashed the traditionally puritan garb of centuries old industrial paradigm, and has freed the business environment as never before. As a consequence, a shift in work culture and working pattern of executives is apparently visible. The new economy organizations became highly demanding. Globalization, rapid technological advancement and the un-satiated need for growth led to increased incidence of poor mental health among working executives.

In a study reported in New Zealand Management (Anonymous, 2007), research done by Dunedin Multidisciplinary Health & Development at the University of Otago has indicated that work-related stress has been found to be a cause of clinical depression and anxiety among young adults. A study of almost 900 people who were 32-year-olds, found that 14 percent of women and 10 percent of men experience stress at work - and with no prior mental health problems - had a first episode of depression or anxiety at age 32.

More people are being exposed to stress at work, and stress rates have increased in the past decade. We now know that work-related stress is associated with psychiatric health problems that increase health-care and societal costs, and reduce productivity.

Henceforth, the topics of stress and health have attracted a great deal of attention in recent years, not only among psychologists but also with the popular press. In the West, the important role of occupational health has long been highlighted by the World Health Organization (WHO1950; WHO1985), and is also an important dimension in the Community Charter (CEC, 1989) and the related Action Programme (CEC, 1989). There have been numerous reports in literature that high levels of perceived work stress are associated with low levels of job satisfaction and poor mental health (Saini, P., 2010; Sharma, R. 2010; Kanwar, Singh and Kodwani, 2009). Caplan et al, (1975), for example, found evidence that work stress was associated with high levels of both anxiety and depression. Other studies have reported significant relationships between levels of occupational stress and reactions of anger (Hodapp, 1988), high levels of work-family conflict (Greenhouse, et al. 1987), low levels of life and marital adjustment (Greenhouse, et al. 1987) and reports of physical symptomatology (Innes & Kitto, 1989).
Not only in the western part of the world, but also in the east, the once rarely discussed subject on stress and anxiety, has now become widespread and is often discussed in daily conversations. The word "stress" has become almost a household word. Indian culture, which is known for its values of tolerance, resilience, peacefulness, karma (the virtue of belief in work without expectation) and dharma (religion) are losing some of their cultural capacity to absorb stress. Work stress has found its milieu in Indian business organizations and many other MNCs working from India and spreading like cancer across various levels and hierarchies of employees (Sinha, A.K. and Jain, A., 2010; Srivastava, M., 2011, Sharma, R.R., 2010; Bhaskar & Rao, 2010).

Causes of Stress
Stress has been attributed to various factors in the environment and within the person (Kinman and Jones, 2005). The reasons cited for causing stress vary from lack of support from the management, poor inter-personal relations, demands of the role and task, workplace violence, lack of flexibility, challenging physical environment to individual-related factors like personal health, low ability, low self esteem, poor coping skills, low resilience, workaholism and many more such factors. Some researchers have also linked personality type with stress prone-ness. For example, Caplan & Jones (1975) studied the Type-A personality (hard driving, persistent, involved in work) as a conditioner of the effects of quantitative workload and role ambiguity (stresses) on anxiety, depression, resentment, and heart rate (strains) among 73 males. In their study, role ambiguity was positively associated with anxiety, depression, and resentment; subjective workload was positively associated only with anxiety. Anxiety was positively related to heart rate. The relationship between workload and anxiety was greatest for Type-A persons, and a similar but non-significant trend appeared for the effects of anxiety on heart rate.

Research has also shown that Type-A individuals will perceive and experience more stress than Type-B individuals. According to two American cardiologists, Friedman and Rosenman (1974), Type-A individuals are those who are in a constant and urgent struggle to get a number of things done in the least amount of time, and tend to suffer from coronary heart disease and strokes. Type-B individuals, on the other hand, have no driving urge or desire to succeed.

Another significant personality attribute of working executives that has emerged in the last few decades to suit the demand of the changing economy and business environment is “workaholism”. The word has also been hyped through aggressive media glorifying 60-hour work-weeks and palm pilot centred working weekends and vacations with glamorous package incentives - a popular corporate buzz for executive personnel in the post-modern business world.

The word “workaholism” has also created concern among scholars and critics across the globe. The oozing debate has been on what are the attributes that constitute “workaholism”. Are such attributes of “workaholism” beneficial to organizations and thus should be welcomed and professionally rewarded? What could be the antecedents and consequences of such “workaholism” at multiple social levels? Questions have also been raised on the association of workaholic behavior with a variety of personal well-being indicators such as psychological, physical health and self esteem (Spence & Robbins, 1992, Naugton, 1987, Scott,
Moore & Miceli, 1997, Mosier, 1982). Further, different types of “workaholic” behaviour patterns with unique antecedents and outcomes are also likely to exist as specific to personnel and organizations.

These dimensions of the concept of “workaholism” put forth a necessity to understand and conceptualize the word “workaholism”, though understanding and conceptualizing the process by several scholars (Porter, 1996; Killinger, 1991; Seybold & Salomone, 1994) has appeared to be widely varied and conflicting.

Workaholism
The initial study of “workaholism” was confined to popular magazines that pulled their readers (Kiechel, 1989) or popular self-help books (like Fassel, 1990, Killinger, 1991, Machlowitz, 1980, Oates, 1971). Despite its popular appeal, it has taken more than three decades to bring the attention of the scholars to define / conceptualize “workaholism”.

Various scholars have tried to understand and decode the word “workaholism” from different perspectives viz, nature of behavior, work hours in terms of classifying the nature of ‘work’, etc. Oates (1971; P: 4) was the first thinker to interpret “workaholism”. He defines a “workaholic” as a person “whose need for work has become so excessive that it creates noticeable disturbance or interference with his bodily health, personal happiness and interpersonal relationships, and with his smooth social functioning”. Killinger (1991; P: 6) also shared that a workaholic “is a person who gradually becomes emotionally crippled and addicted to control and power in a compulsive drive to gain approval and success. Various other researchers (Moiser, 1982; Cherrington, 1980; Spence and Robinson, 1992; Oates, 1981; Fassel, 1990;) described different workaholic types both with positive and negative connotations.

Along with varied definitions and conceptualizations of “workaholism”, there is a need to understand how workaholism contributes to stress and anxiety among executives. There is considerable consensus in the literature on workaholism on the association of workaholism and poorer psychological and physical well being. In fact, some definitions of workaholism in the corporate aspect are of diminished health. It is not surprising that this relationship has received research attention (Burke, 2001; Mosier, S.K., 1982; Porter, G. 1996, Fassel, D. 1990).

The opinions, observations and conclusions about workaholism are both varied and conflicting. Some writers view workaholism positively from the organization’s point of view (Korn et al, 1987; Machlowitz, 1980; Sprankle and Ebel, 1987). Others view it negatively (Killinger, 1991; Schaef and Fassel, 1988; Oates, 1971). Some researchers (Fassel 1990; Schaef and Fassel, 1988) have suggested that organizational factors play a role in the development and maintenance of workaholism. Organizations reward workaholic behaviors. Individuals who put in long working hours, spending time on work out of office hours, are rewarded with recognition and better career opportunities. Organizations supporting the use of latest technologies and developing a work culture where extra working hours and sacrifices are seen as requirement for success and advancement, reinforce workaholic behavior. Such workplaces are seen to be preferred by an increasing number of executives and seem to be more satisfying than the home. (Hochschild, 1997).
Working Conditions and Stress
While considering the external stress factors, the role of environmental factors have been widely researched and within that, working conditions have been talked about time and again as one of the most prominent factors. According to Korunka et al (1997), it was found that employees' experience of stress, strain and dissatisfaction are influenced by contextual factors at the organizational level. Information technology, job characteristics (low decision latitude) and external workload (family, children and household responsibility) lead to stress and dissatisfaction. According to Macklem, Katherine (2005), “business firms are like psychopaths that can wreak havoc in the communities where they operate. Human resource experts are finding a same kind of havoc within a company that can have disastrous effects on its employees. It's a phenomenon that’s become increasingly prevalent, they say, so much so there’s now a new moniker to describe the situation: the toxic work environment. In today’s business world, where there’s an unprecedented focus on next quarter’s earnings, the toxic company is becoming increasingly commonplace.”

Based on published literature and self-observations on demanding working conditions in today’s organizations, the present research study included job conditions and work values to explore the linkages with perceived stress and anxiety among working professionals.

Demographic variables and stress
Research shows that younger workers are consistently less satisfied with their jobs than older workers (Hall, 1994; Schultz, 1973, Srivastava, 2011). Work related stress is a cause of clinical depression and anxiety among young adults (Anonymous, 2007). Gender difference also plays a role in perception of stress and anxiety due to job demands. According to Dunedin Multidisciplinary Health and Development study at the University of Otago (Anonymous, 2007), women, who reported high psychological job demands, such as working long hours, working under pressure or without clear direction, were 75 percent more likely to suffer from clinical depression or general anxiety disorder than women who reported the lowest level of psychological job demands. Men with high psychological job demands were 80 percent more likely to suffer from depression or anxiety disorders than men with lower demands. Men with low levels of social support at work were also found to be at increased risk of depression, anxiety, or both. The researchers found that almost half of the cases of depression or generalized anxiety disorder newly diagnosed at age 32 were directly related to workplace stress and high job demands.

Focus of the Paper
On the basis of the aforesaid literature and existing discourse on “workhaholism”, the present paper explores the relationship between anxiety and stress among executives as a function of extreme job conditions, work values and workaholism. The work also looks into the data with respect to certain demographical variables and industry type.

Significance of Research
A large gamut of literature review on “workhalism” has been widely varied and conflicting. Also, there are several research papers in the early 80s which are more clinical research based. Studies, by and large, have not addressed attributes of workaholism as a factor to be considered in respect of the mental health of employees. Lack of empirical enquiry, particularly in the industrial sector, and
overall paucity of data in the Indian context provokes researchers’ interest to explore the relationship between workaholism, work values, job conditions and stress. Knowledge of these results may be utilized by academia and professionals in understanding the phenomena better and taking corrective action.

The Research Issues
Reiterated here, the research issues were to see what could be the various underlying dimensions of workaholism, work values and job demands that may impact the diverse dimensions of stress and anxiety as perceived by executives at work. Secondly, whether the perception of stress and anxiety differs among executives based on age group and marital status, or because of working in different industries.

The following research questions were raised to test the relationship among variables;
1. What is the strength of association between the factors of workaholism, job demands and work values with anxiety for old age and physical attractiveness?
2. What is the strength of association between the factors of workaholism, job demands and work values with 'irrational fear, guilt and anxiety for work'?
3. What is the strength of association between the factors of workaholism, job demands and work values with 'stress, restlessness and health problems'?
4. What is the difference in mean values of stress and anxiety with respect to certain demographic variables and industry types?

Methodology
To ascertain certain research issues, questions were raised and explored utilizing multivariate framework. The sampling procedure was purposive. Management professionals, mostly belonging to middle and upper level of hierarchy and working for manufacturing and service sector organizations in Mumbai, were contacted. The age group of respondents varied from 24 years to 50 years. Data was collected through a structured interview schedule as well as electronically mailing the questionnaire to the executives, and responses were obtained. Though initially 230 respondents were approached with a request to fill the questionnaire, finally the sample size was reduced to 150 only.

The questionnaires were constructed by the author and were subjected to factor analysis. The method utilized was principal factoring with oblique rotation. Certain stands were taken in using factor analysis. These were; (a) extraction of factors was stopped after eigen value dropped below unity; (b) items belonging to specific factors were kept non-overlapping; (c) only those items were retained in a particular factor which had loading equal to or more than .50 on that factor, and did not have a cross loading of equal to or more than .30 on any other factor simultaneously; (d) single item factors though having loading of .50 and above were not retained. Items within a single factor with a high loading (0.50 and above) were given a factor name. The details of the measure/questionnaire are as follows;
Measures

The measures used in the study had Likert type rating scale from 1 to 5. Rating of 1 = do not agree, 2 = agree to little extent, 3 = agree to some extent, 4 = agree to a large extent, 5 = absolutely agree.

Scale 1: Workaholism. This questionnaire consisted of 25 items having dimensions as (a) Work Obsession, (b) Self-reliance and absence of socialization, (c) Exhaustion, (d) Timeliness and achievement orientation, (e) Importance to recognition and work control. Some of the items of workaholism scale are, “Haunted by a constant sense of time urgency; Pay high importance to recognition at work; Would like to keep everything under control, thus prefer to do work on my own; There is very little time for social and personal relationships in my present position; Many a time I feel physically and mentally exhausted; The belief that, “time is a prized possession” is correct. The alpha coefficients of the scale is .860.

Scale 3: Work Values. This questionnaire consisted of 8 items having dimensions as (a) Rewarding Hard and Long hours and Competitive Culture, (b) Fast Growth and Competition. Some of the items of Work Value scale are, “Working long hours are always rewarded; Organization believes in fast growth; Organization promotes the culture of midnight oil; Organization promotes the culture of competition.” The alpha coefficients of the scale is .700.

Scale 4: Extreme job conditions. Job demands were measured through a scale on extreme job conditions. This questionnaire consisted of 10 items having dimensions as (a) Unpredictable, Fast-paced work with Inordinate Job Responsibilities, (b) Responsibility for clients 24/7, profit and loss (c) Long working hours, work pressure and no substitute, (d) Extended travelling. Some of the items of the scale are, “Unpredictable flow of work; Fast paced work under tight deadlines; Inordinate scope of responsibility that amounts to more than one job; Work related events outside regular work hours; Availability to clients 24/7; large number of direct reports.” The alpha coefficients of the scale is .660.

Scale 5: Stress and Anxiety. This questionnaire consisted of 17 items having 3 underlying dimensions named as (a) Anxiety for old age and physical attractiveness, (b) Irrational fears, guilt and anxiety about work progress, (c) Stress, restlessness and health problems. Some of the items measuring Stress and Anxiety are, “Many a time I feel physically and mentally exhausted; Health problem has become a part of life; My sleep is usually restless and disturbed; I sometimes feel I am getting old too soon; I rarely drink water outside for fear that it may contain germs; I am a little more nervous than others; Sometimes there is memory losses of conversation because of exhaustion.” The alpha coefficients of the scale is .879.

Demographic Characteristics of the Respondents had items including information about age, gender, years of service, type of organization and marital status. The details of the information is given in Table 1.
Table 1
Demographic Characteristics of the Respondents

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>Average Age of the respondents in years</td>
<td>37</td>
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<tr>
<td>2</td>
<td>Percentage of Male respondents</td>
<td>86</td>
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<tr>
<td>3</td>
<td>Percentage of Female respondents</td>
<td>14</td>
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<tr>
<td>4</td>
<td>Average working hours per week</td>
<td>67.66</td>
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<tr>
<td>5</td>
<td>Position in the company - Middle Management (%)</td>
<td>70</td>
</tr>
<tr>
<td>6</td>
<td>Position in the company - Senior Management (%)</td>
<td>30</td>
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<td>7</td>
<td>Marital Status - Married (%)</td>
<td>85</td>
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<tr>
<td>8</td>
<td>Percentage of respondents having children</td>
<td>80</td>
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<tr>
<td>9</td>
<td>Average annual salary of respondents*</td>
<td>Rs. 1380000/-</td>
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</tbody>
</table>

*(salary approximations as told by respondents)

Results and Analysis
To carry out the study, certain research questions were raised and sought through step-wise multiple regression analyses. The questions were raised to explore the relationships between underlying dimensions of workaholism, work values and job demands with the underlying dimensions of stress and anxiety among executives.

A step-wise regression analysis was used to determine the importance of each of these variables in accounting for employees’ stress and anxiety. In the study, independent variables are (1) Factors of Workaholism, (2) Work Values and (3) Job Demands. The dependent variable is (1) Stress and Anxiety.

Correlation Results
The means, standard deviations, and correlation coefficients are shown in Table 2. It is apparent that factors of workaholism have significant positive correlations with factors of work values and the factors of dependent variable stress and anxiety, though the values are not very high. Work values are correlated to stress and anxiety significantly but with low coefficients. Factors of job demands have both positive and negative correlations with stress and anxiety. The mean and SD values are also depicted in the table.
### Table 2
Means, Standard Deviations, and Correlation Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Work obsession</th>
<th>Self reliance</th>
<th>Exhaustion</th>
<th>Timeliness &amp; achievement orientation</th>
<th>Importance to recognition &amp; work control</th>
<th>WV-hard work &amp; competitive culture</th>
<th>WV-fast growth &amp; competition</th>
<th>JD- Unpredictable fast pace work with inordinate job responsibilities</th>
<th>JD- 24/7 availability to clients, responsibility for profit and loss</th>
<th>JD- long hours, work pressure, no substitute</th>
<th>JD- extended travelling</th>
<th>Stress-anxiety for old age and physical attractiveness</th>
<th>Irrational fears, guilt and anxiety about work progress</th>
<th>Stress-restlessness &amp; health problems</th>
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<tbody>
<tr>
<td>Work obsession</td>
<td>1</td>
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<tr>
<td>Self reliance</td>
<td>.398</td>
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<tr>
<td>Exhaustion</td>
<td>.314&quot;</td>
<td>.441&quot;</td>
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<tr>
<td>Timeliness &amp; achievement orientation</td>
<td>.220&quot;</td>
<td>.191&quot;</td>
<td>.222&quot;</td>
<td>1</td>
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<tr>
<td>Importance to recognition &amp; work control</td>
<td>.203&quot;</td>
<td>.253&quot;</td>
<td>.009</td>
<td>.211&quot;</td>
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<tr>
<td>WV-rewarding hard work &amp; competitive culture</td>
<td>.314&quot;</td>
<td>.052</td>
<td>.057</td>
<td>.103</td>
<td>.345&quot;</td>
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<tr>
<td>WV-fast growth &amp; competition</td>
<td>.080</td>
<td>-.033</td>
<td>.009</td>
<td>.111</td>
<td>.396&quot;</td>
<td>.281&quot;</td>
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<td>JD- Unpredictable fast pace work with inordinate job responsibilities</td>
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<td>.387&quot;</td>
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<td>.272&quot;</td>
<td>.062</td>
<td>.141</td>
<td>.333&quot;</td>
<td>.255&quot;</td>
<td>.423&quot;</td>
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<td>Variables</td>
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<td>Timeliness &amp; achievement orientation</td>
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<td>JD-Unpredictable fast pace work with inordinate job responsibilities</td>
<td>JD-24/7 availability to clients, responsibility for profit and loss</td>
<td>JD-long hours, work pressure, no substitute</td>
<td>JD-extended travelling</td>
<td>Stress-anxiety for old age and physical attractiveness</td>
<td>Stress-irrational fears, guilt and anxiety about work progress</td>
<td>Stress-restlessness &amp; health problems</td>
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<td>JD-long working hours, work pressure, no substitute</td>
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<td>.400**</td>
<td>.295**</td>
<td>.358**</td>
<td>.225**</td>
<td>.338**</td>
<td>.121</td>
<td>.379**</td>
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<td>.081</td>
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<td>-.126</td>
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<td>JD-extended travelling</td>
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<td>.081</td>
<td>.033</td>
<td>-.036</td>
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<td>-.119</td>
<td>-.147</td>
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<td>.354**</td>
<td>.094</td>
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<td>.163**</td>
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<td>.275**</td>
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<td>.145</td>
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<td>.090</td>
<td>-.118</td>
<td>.399**</td>
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<td>Stress-restlessness &amp; health problems</td>
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<td>.193**</td>
<td>.219**</td>
<td>.132</td>
<td>.108</td>
<td>-.029</td>
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<td>.141</td>
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<td>.483**</td>
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<td>Mean</td>
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<td>11.82</td>
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<td>2.21</td>
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<td>3.07</td>
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<td>*p&lt;.05</td>
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</tbody>
</table>
Regression Analysis

As mentioned earlier, step-wise regression analysis was used to address the research questions.

The first research question was raised to see the pattern of relationships among factors of workaholism, work values, and job demands with the factor of dependent variable, stress i.e., ‘perceived anxiety for old age and physical attractiveness.’ The results are depicted in Table 3, and only the variables that came out as significant predictors of dependent variable are mentioned in the table. Variables excluded from the regression equation are not included in the table.

Table 3

Results of Step-wise Regression Analysis of Independent variables, factors of workaholism, work values and job demands’ Against Dependent variable ‘anxiety for old age and physical attractiveness’

<table>
<thead>
<tr>
<th>Variables</th>
<th>Anxiety for old age and physical attractiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>Beta</td>
</tr>
<tr>
<td>Work obsession (workaholism)</td>
<td>.346</td>
</tr>
<tr>
<td>Exhaustion (workaholism)</td>
<td>.342</td>
</tr>
<tr>
<td>Fast growth &amp; competition (work values)</td>
<td>.202</td>
</tr>
<tr>
<td>Responsibility for clients 24/7, profit and loss (Job demands)</td>
<td>-.180</td>
</tr>
<tr>
<td>Unpredictable work with inordinate job responsibilities (Job demands)</td>
<td>-.186</td>
</tr>
<tr>
<td>R²</td>
<td>.272</td>
</tr>
<tr>
<td>F</td>
<td>10.627</td>
</tr>
<tr>
<td>Df</td>
<td>5,142</td>
</tr>
</tbody>
</table>

Among the independent variables, the factors of workaholism are the stronger predictors of stress and anxiety than the factors of work values and job demands. The two significant predictors of workaholism have the beta weight = .346 and .342, followed by work values and job demands. Another significant finding is that factors of job demand have negative beta weights (-.180 and -.186). That conveys the opposite relationship between extreme job conditions and anxiety for old age and physical attractiveness.
The second research question raised was, "What is the strength of association between factors of workaholism, factors of work values, factors of job demands with the dependent variable, irrational fear, guilt and anxiety for work progress?" To seek an answer, another multiple regression was done. The results are depicted in Table 4. It shows that amongst all the independent variables, only two factors of workaholism emerged as the predictor of fear - guilt and anxiety for work progress. In this work, obsession is a stronger predictor (beta=.292) than self-reliance and absence of socialization (beta=.188). R² is .164, showing that variance shared by both the variables is 16%.

**Table 4**

Results of Step-wise Regression Analysis of Independent variables, factors of workaholism, work values and job demands’ Against Dependent variable ‘irrational fear, guilt and anxiety for work progress’

<table>
<thead>
<tr>
<th>Variables</th>
<th>Irrational fear, guilt and anxiety for work progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>Beta</td>
</tr>
<tr>
<td>Work obsession (Workaholism)</td>
<td>.292</td>
</tr>
<tr>
<td>Self reliance and absence of socialization (Workaholism)</td>
<td>.188</td>
</tr>
<tr>
<td>R²</td>
<td>.164</td>
</tr>
<tr>
<td>F</td>
<td>14.184</td>
</tr>
<tr>
<td>Df</td>
<td>2,145</td>
</tr>
</tbody>
</table>

The third intent of the research was to see the strength of association between the factors of workaholism, job demands and work values with stress, restlessness and health problems.

The answer was sought through step-wise MRA. Results (Table 5) show that work obsession and factors of job demands emerged as strong predictors for dependent variable 'health problems.' Work obsession having the highest beta value (.502) is the strongest predictor followed by the factors of job demands. This time again, two factors of job demand - 'Extended travelling, and unpredictable fast pace work with inordinate job responsibilities has emerged as negative predictors of 'stress, restlessness and health problems.' Another job dimension - responsibility for clients 24/7, profit and loss (job demands) has emerged as the positive predictor of dependent variable. All the independent variables shared 41% (R²=.412) variance with the dependent variable.
Table 5
Results of Step-wise Regression Analysis of Independent variables, factors of workaholism, work values and job demands’ Against Dependent variable ‘Stress, restlessness and health problems’

<table>
<thead>
<tr>
<th>Variables</th>
<th>Stress, restlessness and health problems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
</tr>
<tr>
<td>Work obsession (workaholism)</td>
<td>.502</td>
</tr>
<tr>
<td>Extended travelling (Job demands)</td>
<td>-.292</td>
</tr>
<tr>
<td>Unpredictable fast pace work with inordinate job responsibilities (Job demands)</td>
<td>-.244</td>
</tr>
<tr>
<td>Responsibility for clients 24/7, profit and loss (Job demands)</td>
<td>.190</td>
</tr>
<tr>
<td>R²</td>
<td>.412</td>
</tr>
<tr>
<td>F</td>
<td>25.053</td>
</tr>
<tr>
<td>Df</td>
<td>4,143</td>
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</tbody>
</table>

**T-test Results**

The fourth intent of the research was to see the difference in perception of stress and anxiety as a function of employees’ age, marital status and the type of industry they worked for.

The T-test result in Table 6 reveals that the means of manufacturing and services sector differed significantly with respect to stress and anxiety. Employees from the service sector showing more stress and anxiety than those from the manufacturing sector.

The result in terms of marital status of the employees show a significant difference in terms of perception of stress. Stress and anxiety is significantly higher among unmarried professionals compared to married professionals.

To find the difference in terms of age group, a dichotomous split of younger employees (in the age group between 24 and 36) and middle and older group (37 to 50 years) was done. The split was made based on the meta-analyses of age in the applied psychology literature using the age of 40 years as the acceptable cutoff to distinguish between younger and older workers (Thornton & Dumke, 2005; Ng Thomas & Feldman, 2008). The result for differences between young employees and middle and older ones show that stress among employees belonging to the younger age group (24 years to 36 years) is significantly high as compared to middle and older ones (37 years to 50 years).
Table 6
Comparison of Industry, Marital status and age group of employees on Stress & Anxiety

<table>
<thead>
<tr>
<th>Variables</th>
<th>Industry</th>
<th>Marital Status</th>
<th>Age Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Manufacturing (N=79)</td>
<td>Service (N=71)</td>
<td>Married (N=120)</td>
</tr>
<tr>
<td>T value</td>
<td>-2.25 P&lt;.026</td>
<td>-4.975 P&lt;.000</td>
<td>2.33 P&lt;.021</td>
</tr>
</tbody>
</table>

Discussion
To understand the findings better, it is first important to draw attention to the sampling technique applied in the study. Whenever possible, random probability sampling is recommended whereas the study is based upon purposive sampling, a non-random sampling technique where a researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of knowledge or experience (Tongco, 2007). Purposive sampling is not free from bias as respondents are chosen because of convenience/ recommendations / experience/ knowledge (Lopez et al. 1997, Seidler 1974). It contributes to internal validity rather than external validity, and despite its inherent bias, the strength of purposive sampling lies in its intentional bias (Poggie 1972). Various researchers (Campbell, 1955; Karmel and Jain, 1987; Topp et al. 2004) conducted studies comparing random and purposive techniques and found that purposive sample approximated a random sample of the population. Since the aim of the research was to study those executives who are working under extreme job conditions in a metropolitan city, purposive sampling was the obvious choice.

The problem of heteroscedasticity may impact the interpretation, hence Levene’s test of homogeneity of variance was performed, and not more than three variables showed the pattern of heteroscedasticity on more than one of the non-metric variables. Moreover, none of the non-metric variables had more than two problematic metric variables. In such a case, the heteroscedasticity problem would be minimal, yet it is suggested to treat the interpretation of the results with caution.

The research brings in a perspective where workaholism, along with certain work values and job demands, brings a toll on working executives. It implies that employees’ workaholic behaviour pattern, which in this research, has emerged as (a) work obsession, (b) self reliance and absence of socialization, (c) exhaustion, (d) timeliness and achievement orientation and (e) importance to recognition and work control, is linked to stress and anxiety among executives. The stress and anxiety
scale has come out with three major dimensions - (a) anxiety about old age and physical attractiveness, (b) irrational fear, guilt and anxiety for work progress, (c) Stress restlessness and health problems. The result indicate that work obsession and working till one reaches exhaustion, a behaviour pattern of workaholics, impacts the perception of anxiety about old age and physical attractiveness. Even the work values of the organization, especially valuing ‘fast growth and competition’, has its say on anxiety about approaching old age and personal looks.

In the second and third regression equation again focusing on workaholic behaviour depicting work obsession, self reliance and absence of socialization, working till mental and physical exhaustion is again linked to stress and anxiety among executives. In the view of Cherrington (1980), workaholics have an irrational commitment to excessive work and they are unable to take time off or to comfortably divert their interests. According to Spence and Robbins (1992), 'Workaholic is highly work involved, feels compelled or driven to work because of inner pressures and is low at enjoyment at work'. Being addicted to work is not the same as working hard especially when signs include neglecting personal activities, failing physical and mental health and unnecessary fears regarding career growth or future prospects. Various research studies (Chang, 2004; Kets de Vries, 2005) have found the negative impact of workaholic behaviour on a person's health leading to stress and burnout. According to Berman (2001), workaholic habits can be culprits in our reluctance to take the personal time needed to stay healthy. In her article, she has cited a statement given by a CFO in a company, “too many workaholics, too little family life, and a questionable level of productivity due to stress make the enemy.

Beating the clock has become the order of the day. How much enjoyment can be there in our lives if we are constantly in a motion to get the things done? A frenzied lifestyle may not lead to a heart attack, but it certainly robs us of enjoying what we have”.

It has been established from the preceding analysis and academic literature that stress and anxiety at work is related to the workaholic behaviour pattern. Along with this behaviour pattern, work values in the organization have also been found impacting the stress perceived by executives. Organizations set norms for working thus promoting a particular type of work culture where the ethos revolves around fast growth and competition which may take its toll on people. The glaring fact is that competition has become more intense, both at the individual and organizational level. Within companies, the impact of merger, acquisition and flatter structure has increased the job responsibilities. The competition to be on the top is fiercer than earlier because the positions available are now less than what they used to be a decade earlier.

To stay competitive, organizations encourage a culture of hard work and they reward employees generously; consequently employees with high aspirations and strong beliefs go that extra mile and stress themselves. In a recent research (Vansteenkiste et al 2007), it was found that holding an extrinsic, relative to an intrinsic, work value orientation was associated with less positive outcomes (i.e. less satisfaction with, dedication to and vitality while on the job) and more negative outcomes (i.e. higher emotional exhaustion, short-lived satisfaction after successful goal-attainment, and turn-over intention). These relations were not limited to job outcomes only, but also emerged as useful indicators of employees’ general mental
Another recent study by Vansteenkiste, Duriez, Simons, & Soenens (2006) shows that having a strong focus on extrinsic, relative to intrinsic, life values is detrimental to well-being (e.g., lower self-esteem, vitality, self-actualization and social productivity) and is associated with greater ill-being (e.g., higher narcissism, depressive complaints) as well as poorer physical health.

Though academic literature is full of studies showing the negative impact on both physical and mental health due to competitive work culture, one startling finding has emerged in this study. The study shows that two of the factors of job dimensions are negative predictors of a particular type of stress (anxiety for old age and physical attractiveness). It conveys that extreme working conditions in the corporate world, responsibility for clients 24/7 and responsibility for profit and loss; unpredictable work with inordinate job responsibilities do not affect executives with regard to anxiety for approaching old age and their physical looks. And people also do not mind extended travelling for work as they do not see it affecting their mental and physical health.

On the other side, for one of the same dimensions of job demands, i.e. responsibility for clients 24/7 and profit and loss, executives perceive having high stress, restlessness and health problems. The present business environment is such that employees find it difficult to lead a balanced life. People in IT, ITES and other service sectors, work for very long hours, sometimes 24X7. Employees have inordinate job responsibilities at work, and increased usage of highly advance communication technology in work organizations require one to be available even during off duty hours. Though rewards may be large, there is a possibility of short-lived satisfaction. Previous research has shown that people with demanding jobs are prone to burnout (Baker, 1985; Ganster, D.C., & Schaubroeck, J. 1991).

The allure of extremes

The contrary findings, that some types of extreme job conditions are not seen as negative, are depicting a change in the social phenomenon of perception of stress. One thing is clear, that successful professionals are working harder than ever. Working for more than 60 hours has become the norm. People take pride in staying late in the office or travelling far off for office work. Hewlett (2006), in her study on extreme jobs, mentioned that in a global company survey, 76% of the sample said that they love their jobs. Far from seeing themselves as workaholics in need of help, these extreme workers wear their commitment like a badge of honor. Almost 64% admit that the pace and pressure are self-inflicted - a function of Type A personality. They don't feel exploited; they feel exalted. The reasons could be high achievement orientation, competitive pressure and the ethos of “extreme” (Hewlett, et. Al., 2006).

While competitive pressures in corporations are making extreme jobs necessary, the other changes in society are worthy to make a note. Over the decade, there has been a rise in popularity of activities that adds to the adrenaline rush and makes it attractive. For example, extreme sports have become widely popular; the reality TV show ‘Fear Factor’ or its Hindi adaptation, ‘Khatroon ke Khiladi’, gives thrills by putting ordinary people to test while performing the extreme stunts. One finds an increase in neighborhood clubs and organizations that offer rock climbing, bungee jumping, surfing, skydiving, etc. In recent times, there is an upsurge in Indian media including the film industry and various other entertainment
sources glorifying the values of extremes that influence the people at large. We, as a society, also appreciate the extreme talent, whether it is in olympics, the corporate world, or any other area, and try to draw a parallel into our lives. Hewlett, et al. (2006), in their study, found that corporate executives found a similarity in adventure sports and their jobs; the extraordinary time demands and relentless pressure pushed them to their limits both physically and mentally. Secondly, there was the allure of the job. Hence, in a culture where such extremes are promoted, it is not surprising that such intense jobs are not seen as exploitative but rather as desirable, glamorous and virtuous. It may be then understood that executives might enjoy extended travelling, fast pace working and excessive responsibilities as they get an opportunity to test themselves to the limits and showcase their talent to others. They do not find it stressful, especially when effects are not seen in terms of deterioration in health.

If executives are uncomplaining about extreme demanding jobs and organizations are happy, is it alright to convey that there is a problem? Arguably, the trend towards extreme is a boon to competitiveness.

Yet, there is evidence that individual career growth may go up, and materialistic gains may be very high, but it has led to poor work-life balance and burnout. (Srivastava, 2011; Hewlett, 2006). Excessive competition results into de-growth. The organization may gain by having competitive yet positive values, but too much pressure on the job will yield an adverse effect. The finding gets support from a study by Srivastava & Sinha (2009), wherein a supportive organizational climate and conducive working conditions are found to be related to managerial effectiveness.

Industry-wise analysis shows that employees in the service sector have a higher level of stress and anxiety compared to those in the manufacturing sector. The service industry in this study comprises of IT, ITES and consultancy organizations. The logic could be that in India, the service sector has seen a major push as compared to the traditional manufacturing sector. Among other important factors, the rise in the service sector is also due to tough working hours and demanding work culture. Research shows that professionals from the service sector often suffer from burnout due to highly demanding and stressful job conditions (Singh, 2000; Rod & Ashill, 2009; Kanwar, Sing & Kodwani, 2009). Secondly, marital status and age level also make a difference in terms of perceiving high stress and anxiety. Unmarried employees as well as employees from the younger age group have more stress and anxiety compared to married ones. It's possible that at the earlier stages of life, career ambitions and expectations are very high, and individuals are not satisfied easily. Research has indicated that older adults are better able to regulate their moods and display a higher level of emotional intelligence (Chapman & Hayslip, 2006; Ng Thomas & Feldman 2008). Marital status, in a way, brings support and steadiness to personal lives of people, thus uncertainty about the future and high expectations may increase the stress level among the young and unmarried employees.

**Workaholism research and the global world**

Research shows that the phenomenon of a demanding job, stress and workaholism is spread across the globe and impacts working professionals. A study of Turkish managers and professionals by Burke, R.J. & Koksal, H (2002), found the existence of workaholic behaviour pattern with its consequences. Australian female managers and professionals were studied for workaholism and its consequences (Burke, R.J., Burgess, Z and Fallon, 2006). Findings showed that workaholism
components generally had significant relationships with the validating job behaviors, work outcomes and indicators of psychological well-being, but not with extra-work satisfaction. Their findings provided a partial replication of previous conclusions based primarily on male samples. In an another research by Burke, R.J., Richardsen, A.M. and Mortinussen, M. (2004), workaholism among Norwegian managers and their well-being outcomes were studied. The study examined the relationship of three workaholism components proposed by Spence and Robbins (1992), and several work and psychological well-being outcomes using hierarchical regression analysis. Data was collected from 171 construction company owners and senior managers in Norway using questionnaires. Work enjoyment was found to be positively related with work outcomes. Work enjoyment was also generally positively related with psychological well-being while feeling driven to work was generally negatively related with psychological well-being. In another study on motivational orientation and well-being at work, researchers (Salmela-Aro, K. and Nurmi, J.E, 2004) studied a person-oriented view to examine what kind of motivational orientation employees have, and how they contribute to their well-being. Two separate studies were carried out. A total of 286 white-collar workers employed in a public sector educational institution in a middle-sized town in Central Finland participated in the first study (116 men and 170 women). Analysis of the results found four motivational orientations, work-, self-, hobby- and health-orientations among the employees. The work-orientation was related to burnout and low working ability, the self-orientation was related to depression and burnout, and the hobby- and health-orientations were related to high-life satisfaction. Study 2, conducted among 186 IT workers replicated the main results.

Issues of work stress, workaholism and work-life imbalance have also been researched upon with reference to gender at the national and cross-national level. Aziz, S. & Cunnigham, J. (2008) explored the issue at the national level in the US with a purpose to examine potential differences between male and female workaholics in relation to work stress and work-life imbalance. Findings showed that work stress and work-life imbalance correlated with workaholism, regardless of gender. Gender did not moderate the relations between workaholism with work stress and work-life imbalance.

Snir, R and Harpaz, I (2006) examined workaholism from a cross-national perspective through representative samples of the labor force in Belgium, Israel, Japan, The Netherlands, and the USA. Their findings showed that the Japanese worked more hours per week than all other nationalities. The following findings have remained stable across nations: respondents with a high level of work centrality worked more hours per week than those with a low level of work centrality. Men worked more hours per week than women. Married women worked fewer hours per week than unmarried women, while married men worked more hours per week than unmarried men. Private-sector employees worked more hours per week than public-sector employees.

Kanai, a., & Wakabayashi (2004) studied the effect of economic environmental change on job demand and workaholism in Japan. Results of the analysis indicated that the driven component of workaholism remained high from the beginning of the 1990s when the bubble economy collapsed, and throughout the 1990s. However, the enjoyment of work component has decreased for this period, causing the workaholic tendencies to be more serious in the worsening economic and employment circumstances. Moreover, the level of work overload actually increased for engineers and
workers in their 30s and 40s in the middle of the economic depression.

Implications of the research
The results of this exploratory study provide some interesting insights into the variables that relate to employees’ perception of stress and, at the same time, suggest avenues for future research. Though the sampling was purposive and drawn from organizations located in Mumbai, it is noteworthy that Mumbai, being a metropolitan city and financial capital of India, attracts people from all parts of the world. The sample of the study had work experience not only in Mumbai but at various other Indian cities as well as different parts of the world. Therefore, it is assumed that findings of the research are not just restricted to professionals working in Mumbai, but also to other Indian professionals working in similar conditions.

There is not much empirical research on workaholism and its impact on industry for the Indian business environment. It is just emerging, though the issue of work-life balance has been taken up widely by Indian researchers. There is a need to understand the phenomena of workaholism in more depth. Future research may look into the antecedents and consequences of workaholism. Another area of concern is understanding the mindset of the current generation with respect to their choice of job. The research highlights the positive orientation of executives towards certain types of extreme jobs as they do not relate it to their anxiety and stress. It is worthy to make note of cognitive-emotional power of job goals and expectations of executives.

Since it is already proven that workaholic behaviour is detrimental to mental and physical health and that work values promoting fast growth and competition lead to stress, organizations need to help their employees by avoiding a demanding work culture. Training should be given to them for strategies to cope with stress. Employees in the service industry especially seem to be facing more stress and anxiety. Organizations in the service sector need to reassess the nature of the job, the working conditions and work values promoted within the culture. Again at the individual level, developing skills to cope with stress and relaxation techniques may be an important step towards reducing stress, and therefore depression and anxiety levels.

Contribution and limitations of research
Towards the end, it is recapitulated that contribution of this study is towards (a) identifying the various underlying dimensions of workaholism, work values and job demands. (b) Identifying the relationship among predictors and outcome variables. (c) Finding out the difference in stress and anxiety of professionals with respect to their age group, marital status and the type of industry they worked for.

The work is valued for its originality and for examining an important phenomenon in the context of present realities especially in the Indian environment. The research attempts to understand the working conditions and workaholism along with the changing social milieu in our society.

There are several limitations of this research. The results need to be treated with caution as generalization is limited due to purposive sampling. This study did not include professionals belonging to the lower level of management thus losing out on a significant part of the working population. The study was based upon the authors’ own assessment. The study has a scope of verifying the data from family, friends and co-workers. A longitudinal study would facilitate more accurate measurement of workaholism and its co-relates.
References


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The effect of Macroeconomic Determinants on the Performance of the Indian Stock Market

Samveg Patel

Abstract
The study investigates the effect of macroeconomic determinants on the performance of the Indian Stock Market using monthly data over the period January 1991 to December 2011 for eight macroeconomic variables, namely, Interest Rate, Inflation, Exchange Rate, Index of Industrial Production, Money Supply, Gold Price, Silver Price & Oil Price, and two stock market indices namely Sensex and S&P CNX Nifty. By applying Augmented Dickey Fuller Unit root test, Johansen Cointegration test, Granger Causality test and Vector Error Correction Model (VECM), the study found that Interest Rate is I(0); Sensex, Nifty, Exchange Rate, Index of Industrial Production, Gold Price, Silver Price and Oil Price are I (1); and Inflation and Money Supply are I (2). It also found the long run relationship between macroeconomic variables and stock market indices. The study also revealed the causality run from exchange rate to stock market indices to IIP and Oil Price.

Keywords: Macroeconomic determinants, Indian Stock Market Return, Unit Root Test, Cointegration Test, Granger Causality Test and Vector Error Correction Model
1. INTRODUCTION

Financial markets play a crucial role in the foundation of a stable and efficient financial system of an economy. Numerous domestic and international factors directly or indirectly affect the performance of the stock market. The relationship between macroeconomic variables and a developed stock market is well documented in literature. The present study extends the existing literature in the Indian context. This study takes into consideration eight macroeconomic variables - Interest Rate, Inflation, Exchange Rate, Index of Industrial Production, Money Supply, Gold Price, Silver Price and Oil Price, and two widely used composite indices of the stock market of India - Sensex and S&P CNX Nifty.

Money supply and Inflation have a positive relationship among themselves. However, Money Supply and Inflation have a dual effect on stock returns. First, increase in Money Supply will increase Inflation, which will again increase expected rate of return. Use of high expected rate of return will decrease value of the firm and will result in lower share prices. Secondly, increase in Money Supply and Inflation increases future cash flow of the firm, which in turn, increases expected dividend, and will increase stock prices. For this reason, the relationship between Money Supply, Inflation and Stock Return need to be investigated.

A depreciation of the domestic currency against foreign currencies increases export, therefore exchange rate should have a negative relationship with the stock return. But, at the same time, depreciation of domestic currency increases the cost of imports which indicates a positive relationship between them. Hence, the relationship between exchange rate and stock returns needs to be checked. The Index of Industrial Production reflects the growth rate of industries. Positive relationship is expected between the Index of Industrial Production and Stock return. Gold and silver are used as investment avenues. Increase in gold and silver prices attracts investors towards the commodity market, which might decrease investor preference towards the equity market. This indicates that a negative relationship is expected between gold and silver, and stock market returns. For oil supply, India is dependent on the international oil market. Therefore, higher international oil prices increase cost of production, which might decrease profit of firms, and hence decreases stock prices. Therefore, the expected relationship between oil price and stock price is negative.

The aim of this paper is to investigate the effects of macroeconomic determinants on the performance of the Indian stock market. The remainder of the paper is organized in the following sections. Section 2 provides Review of Literature. Section 3 discusses Data and Methodology. Empirical Analysis is presented in Section 4. The study is concluded in Section 5.

2. LITERATURE REVIEW

Literature related to this study is divided into the following two parts.

2.1 Macroeconomic Factors Affecting Foreign Stock Markets

Shanken and Weinstein (2006) concluded that only Index of Industrial Production is a significant factor for stock markets. Yang and Wang (2007) concluded that in the short run, although bivariate causality exists between RMB exchange rate and A-share stock index, bivariate causality does not exist.
between RMB exchange rate and B-share stock index. Frimpong (2009) concluded that with the exception of exchange rate, all other macroeconomic variables impact stock prices negatively. Aydemir and Demirhan (2009) reported bidirectional causal relationship between exchange rate and all stock market indices. Adebiyi et al. (2009) established a causal relationship from oil price shocks to stock returns, and from stock returns to real exchange rate. Ali et al. (2010) found that co-integration exists between industrial production index and stock prices. However, no causal relationship was found between other macro-economic indicators and stock prices in Pakistan. Cagli et al. (2010) found that the stock market is co-integrated with gross domestic product, U.S. crude oil price, and industrial production. Hosseini and Ahmad (2011) found both long and short run linkages between stock market indices and macroeconomic variables like crude oil price (COP), money supply (M2), industrial production (IP) and inflation rate (IR) in India and China. Buyuksalvarci (2010) concluded that interest rate, industrial production index, oil price, foreign exchange rate have a negative effect, while money supply has a positive influence on Turkish Index return. On the other hand, inflation rate and gold price do not appear to have any significant effect. Daly and Fayyad (2011), after studying seven countries (Kuwait, Oman, UAE, Bahrain, Qatar, UK and USA), found that oil price can predict stock return better after a latest rise in oil prices. Liu and Shrestha (2008) found that a co-integrating relationship exists between stock prices and the macro-economic variables like money supply, industrial production, inflation, exchange rate and interest rates. Azizan and Sulong (2011) found that the Malaysian stock market is more integrated with other Asian countries’ economic variables. It also found that stock prices and exchange rates of other Asian countries have the most impact on Malaysian stock markets.

2.2 Macroeconomic Factors Affecting the Indian Stock Market

Ahmed (2008), by applying Toda and Yamamoto Granger causality test, variance decomposition and impulse response functions, concluded that stock prices in India lead economic activity except movement in interest rate. Interest rate seems to lead the stock prices.

Debasish (2009a) concluded that spot price volatility and trading efficiency was reduced due to introduction of future trading. Debasish (2009b) found that the futures market clearly leads the cash market. It also found that the index call options lead the index futures more strongly than futures lead calls, while the futures lead puts more strongly than the reverse. Debasish (2009c), by using GARCH analysis, confirmed no structural change after the introduction of futures trading on Nifty. Besides Bansal and Pasricha (2009) found volatility is significantly reduced after the permission of foreign investment in the equity sector. Goudarzi and Ramanarayanan (2011) established that BSE500 stock index and FII series are co-integrated and bilateral causality exists between them. Gupta (2011) concluded that foreign institutional investment affects stock prices significantly.

Ghosh et al. (2010) found that dollar price, oil price, gold price and CRR have a significant impact on stock market returns. However, food price inflation and call money rate do not affect stock market return. Agrawal and Srivastava (2011) found bidirectional causality between exchange rate and stock market; and positive significant relationship
between volatility in stock returns and exchange rates through the GARCH model. Agrawalla and Tuteja (2007) provided evidence of a stable long run equilibrium relationship between stock market developments and economic growth in India. Srivastava (2010) concluded that in the long term, stock market was more affected by domestic macroeconomic factors like industrial production, wholesale price index and interest rate than global factors. Agrawalla and Tuteja (2008) reported causality running from economic growth proxies by industrial production to share price index. In support to this, Padhan (2007), by applying Toda-Yamamota non-causality tests, found that both the stock price (BSE Sensex) and economic activity (IIP) are integrated of order one, i.e. I (1) and bi-directional causality exists.

3. DATA AND METHODOLOGY
The aim of this paper is to investigate the effects of macroeconomic determinants on the performance of the Indian Stock Market. The study uses monthly data over the period January 1991 to December 2011. Data for all macroeconomic variables except oil price is collected from the database of the Indian economy maintained by Reserve Bank of India. International oil prices data is collected from the database of International Monetary Fund. Sensex and S&P CNX Nifty data is obtained from the respective stock exchanges.

Table 1: Description of Data

<table>
<thead>
<tr>
<th>Name of Variables</th>
<th>Symbol Used</th>
<th>Proxy Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rate</td>
<td>IR</td>
<td>Weighted Average Call Money Rates</td>
</tr>
<tr>
<td>Inflation</td>
<td>IF</td>
<td>Consumer Price Index (CPI)</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>ER</td>
<td>Monthly Average Rupees per unit of US $</td>
</tr>
<tr>
<td>Index of Industrial Production</td>
<td>IIP</td>
<td>General Index Numbers Of Industrial Production</td>
</tr>
<tr>
<td>Money Supply</td>
<td>MS</td>
<td>Broad Money(M3)</td>
</tr>
<tr>
<td>Gold Price</td>
<td>GP</td>
<td>Mumbai Average Price Rupees per 10gms.</td>
</tr>
<tr>
<td>Silver Price</td>
<td>SP</td>
<td>Mumbai Average Price Rupees per kg.</td>
</tr>
<tr>
<td>Oil Price</td>
<td>OP</td>
<td>International Crude Oil Price, Dated Brent, US$ per barrel</td>
</tr>
<tr>
<td>Stock Indices</td>
<td>Sensex, Nifty</td>
<td>Sensex Closing Price, S&amp;P CNX Nifty Closing Price</td>
</tr>
</tbody>
</table>

Table 1 indicates symbol and proxy used for macroeconomic variables. The following model is used to identify the effect of macroeconomic variables on stock market return:

SENSEX = f (IR, IF, ER, IIP, MS, GP, SP, OP)
NIFTY = f (IR, IF, ER, IIP, MS, GP, SP, OP)

There can be both short-run and long-run relationships between financial time series. Correlation coefficients are used for examining short-run co-movements and multi-collinearity among the variables. If correlation coefficient is greater than 0.8, it indicates that multi-collinearity
exists. The population correlation coefficient, \( \rho \) (-1 \( \leq \rho \leq 1 \)) measures the degree of linear association between two variables.

As an essential step of Vector Error Correction Model, Augmented Dickey - Fuller (ADF) (1979, 1981) test has been applied. It is based on the simple logic that non-stationary process has infinite memory as it does not show decay in a shock that takes place in the process. Therefore, it behaves like AR (1) process with \( \rho = 1 \). Dickey Fuller test is designed to examine if \( \rho = 1 \). The complete model with deterministic terms such as intercepts and trends is shown in equation (1):

\[
\Delta y_t = c + \mu + \delta y_{i-1} + \sum_{i=1}^{m} \beta_i Y_{t-i} + \varepsilon_t \tag{1}
\]

The ADF unit root test is based on the null hypothesis \( H_0 : y_t \) is not I (0). If the calculated ADF statistic is less than the critical value, then the null hypothesis is rejected; otherwise accepted. If the variable is non-stationary at level, the ADF test will be performed at the first difference. In the second step, the Johansen’s cointegration test (Johansen and Juselius, 1990) has been applied to check whether the long run equilibrium relationship exists between the variables. The Johansen approach to cointegration test is based on two test statistics, viz., trace statistic, and maximum eigenvalue statistic. The trace statistic can be specified as:

\[
\text{Trace (r, k)} = -T \sum_{i=r+1}^{k} \ln (1- \lambda_i) \tag{2}
\]

where \( \lambda_i \) is the \( i \)th largest eigenvalue of matrix \( \Pi \), and \( T \) is the number of observations. In the trace test, the null hypothesis is that the number of distinct cointegrating vector(s) is less than or equal to the number of cointegration relations (\( r \)). The maximum eigenvalue test examines the null hypothesis of exactly \( r \) cointegrating relations against the alternative of \( r + 1 \) cointegrating relations with the test statistic:

\[
\lambda_{\text{max}} (r, r+1) = -T \ln (1- \lambda_{r+1}) \tag{3}
\]

At the end, the Granger Causality test (Engle and Granger, 1987) has been used to find out the direction of causality between the variables. To test for Granger Causality, the following bi-variate regression model can be used:

\[
y_t = \alpha_0 + \sum_{i=1}^{m} \alpha_i y_{t-i} + \beta_0 x_{t-1} + \varepsilon_t \tag{4}
\]

\[
x_t = \alpha_0 + \sum_{i=1}^{m} \gamma_i y_{t-i} + \sum_{j=1}^{n} \theta_j x_{t-j} + \varepsilon_t \tag{5}
\]

If all the coefficients of \( x \) in the first regression equation of \( y \), i.e. \( \beta_i \) for \( i = 1, \ldots, l \) are significant, then the null hypothesis that \( x \) does not cause \( y \) is rejected.

4. EMPIRICAL ANALYSIS

First, descriptive statistics like Skewness, Kurtosis, Jarque-Bera Statistic, and Probability Value are calculated for all eight macroeconomic variables and two stock indices. Results of the same are presented in Table 2.
Table 2: Descriptive Statistics of Variables

<table>
<thead>
<tr>
<th>SENSEX</th>
<th>NIFTY</th>
<th>IR</th>
<th>IF</th>
<th>ER</th>
<th>IIP</th>
<th>MS</th>
<th>GP</th>
<th>SP</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skewness</td>
<td>1.08</td>
<td>1.08</td>
<td>2.65</td>
<td>0.58</td>
<td>-0.88</td>
<td>0.57</td>
<td>1.16</td>
<td>1.93</td>
<td>2.45</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.64</td>
<td>2.68</td>
<td>12.09</td>
<td>2.65</td>
<td>2.91</td>
<td>2.26</td>
<td>3.24</td>
<td>6.12</td>
<td>8.99</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>50.80</td>
<td>50.50</td>
<td>1165.28</td>
<td>15.58</td>
<td>32.68</td>
<td>19.30</td>
<td>57.28</td>
<td>259.43</td>
<td>630.26</td>
</tr>
<tr>
<td>Probability</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0004</td>
<td>0.0000</td>
<td>0.0006</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

From Table 2, it is clear that all variables except exchange rate are positively skewed. Kurtosis values reveal that Interest Rate, Gold Price and Silver Prices follow Leptokurtic distribution; Sensex, Nifty, Inflation, IIP and Oil Price follow Platykurtic distribution and Money Supply follows Mesokurtic distribution. Jarque-Bera statistic tests the null hypothesis that data follow normal distribution. By using probability values of Jarque-Bera statistics, null hypothesis is rejected for all variables even at 1% level of significance. This shows randomness and inefficiency of the market.

Table 3: Pair-wise Pearson Coefficient of Correlation

<table>
<thead>
<tr>
<th>SENSEX</th>
<th>NIFTY</th>
<th>IR</th>
<th>IF</th>
<th>ER</th>
<th>IIP</th>
<th>MS</th>
<th>GP</th>
<th>SP</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSEX</td>
<td>1.00</td>
<td>-0.33</td>
<td>0.88</td>
<td>0.44</td>
<td>0.91</td>
<td>0.92</td>
<td>0.87</td>
<td>0.84</td>
<td>0.92</td>
</tr>
<tr>
<td>NIFTY</td>
<td>0.99</td>
<td>1.00</td>
<td>-0.33</td>
<td>0.89</td>
<td>0.45</td>
<td>0.92</td>
<td>0.93</td>
<td>0.88</td>
<td>0.85</td>
</tr>
</tbody>
</table>

The result of ADF unit root test is reported in Table 4. The null hypothesis of no unit roots for all the variables except Interest Rate are not rejected at their level in both the models (i.e. constant and constant & trend) since the ADF test statistic values are higher than the critical values. This shows that Interest Rate is I (0). After taking the first difference again, ADF test statistics are compared with critical values, and found that null hypothesis of unit root are rejected for all variables except Inflation and Money Supply. Thus, Sensex, Nifty, Exchange Rate, IIP, Gold Price, Silver Price and Oil Price are stationary and integrated of the first order, i.e., I(1). Inflation and Money Supply become stationary at the second difference, so these two variables are I(2).
Table 4: Results of Augmented Dickey-Fuller Unit Root Test

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>Level ADF Test Value</th>
<th>Level ADF Test Value</th>
<th>First Difference ADF Test Value</th>
<th>First Difference ADF Test Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constant</td>
<td>Constant &amp; Trend</td>
<td>Constant</td>
<td>Constant &amp; Trend</td>
</tr>
<tr>
<td>Sensex</td>
<td>-0.72821</td>
<td>-1.9118</td>
<td>-15.1027*</td>
<td>-15.0804*</td>
</tr>
<tr>
<td>S&amp;P CNX Nifty</td>
<td>-1.00876</td>
<td>-2.49364</td>
<td>-6.95845*</td>
<td>-6.951165*</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>-6.41185*</td>
<td>-7.66021*</td>
<td>-14.4251*</td>
<td>-14.41896*</td>
</tr>
<tr>
<td>Inflation</td>
<td>1.625297</td>
<td>-0.54835</td>
<td>-2.07243</td>
<td>-2.748777</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>-2.69988***</td>
<td>-2.93564</td>
<td>-11.7991*</td>
<td>-11.87369*</td>
</tr>
<tr>
<td>Money Supply</td>
<td>2.593617</td>
<td>1.984509</td>
<td>1.672333</td>
<td>-0.985938</td>
</tr>
<tr>
<td>IIP</td>
<td>3.646512</td>
<td>0.557808</td>
<td>-6.17785*</td>
<td>-7.29449*</td>
</tr>
<tr>
<td>Gold Price</td>
<td>5.853275</td>
<td>3.37149</td>
<td>-6.91757*</td>
<td>-15.36092*</td>
</tr>
<tr>
<td>Silver Price</td>
<td>2.892092</td>
<td>1.502587</td>
<td>-5.43735*</td>
<td>-6.068685*</td>
</tr>
<tr>
<td>Oil Price</td>
<td>-1.22174</td>
<td>-3.86585**</td>
<td>-10.0131*</td>
<td>-10.02126*</td>
</tr>
</tbody>
</table>

*, **, *** indicates ADF test value is significant at 1%, 5% and 10% level of significance respectively.

For constant model, critical values at 1%, 5% and 10% level of significance are -3.4563, -2.8729 and -2.5729 respectively.

For constant and trend model, critical values at 1%, 5% and 10% level of significance are -3.9950, -3.4278 and -3.1373 respectively.

In the next step, the cointegration between non-stationary variables has been tested by the Johansen’s Trace and Maximum Eigenvalue tests. The results of these tests are shown in Table 5. At $r \leq 5$, first time hypothesis of no cointegration is not rejected. Therefore, both the tests indicate that five cointegrating vectors exist at 5% level of significance.
Table 5: Results of Johansen’s Cointegration Test

<table>
<thead>
<tr>
<th>Sensex and Macroeconomic Variables</th>
<th>H0</th>
<th>Trace Test</th>
<th>5% Critical Value</th>
<th>Maximum Eigenvalues Test</th>
<th>5% Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>r = 0</td>
<td>393.6571*</td>
<td>197.3709</td>
<td>119.5208*</td>
<td>58.43354</td>
<td></td>
</tr>
<tr>
<td>r ≤ 1</td>
<td>274.1363*</td>
<td>159.5297</td>
<td>76.30895*</td>
<td>52.36261</td>
<td></td>
</tr>
<tr>
<td>r ≤ 2</td>
<td>197.8237*</td>
<td>125.6154</td>
<td>67.21131*</td>
<td>46.23142</td>
<td></td>
</tr>
<tr>
<td>r ≤ 3</td>
<td>130.6160*</td>
<td>95.75366</td>
<td>52.23492*</td>
<td>40.07757</td>
<td></td>
</tr>
<tr>
<td>r ≤ 4</td>
<td>78.38109*</td>
<td>69.81889</td>
<td>36.99501*</td>
<td>33.87687</td>
<td></td>
</tr>
<tr>
<td>r ≤ 5</td>
<td>41.38607</td>
<td>47.85613</td>
<td>21.53232</td>
<td>27.58434</td>
<td></td>
</tr>
<tr>
<td>r ≤ 6</td>
<td>19.85375</td>
<td>29.79707</td>
<td>13.52732</td>
<td>21.13162</td>
<td></td>
</tr>
<tr>
<td>r ≤ 7</td>
<td>6.326431</td>
<td>15.49471</td>
<td>6.109237</td>
<td>14.26460</td>
<td></td>
</tr>
<tr>
<td>r ≤ 8</td>
<td>0.217194</td>
<td>3.841466</td>
<td>0.217194</td>
<td>3.841466</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nifty and Macroeconomic Variables</th>
<th>H0</th>
<th>Trace Test</th>
<th>5% Critical Value</th>
<th>Maximum Eigenvalues Test</th>
<th>5% Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>r = 0</td>
<td>395.7781*</td>
<td>197.3709</td>
<td>118.5463*</td>
<td>58.43354</td>
<td></td>
</tr>
<tr>
<td>r ≤ 1</td>
<td>277.2318*</td>
<td>159.5297</td>
<td>80.38487*</td>
<td>52.36261</td>
<td></td>
</tr>
<tr>
<td>r ≤ 2</td>
<td>196.8470*</td>
<td>125.6154</td>
<td>68.23802*</td>
<td>46.23142</td>
<td></td>
</tr>
<tr>
<td>r ≤ 3</td>
<td>128.6089*</td>
<td>95.75366</td>
<td>51.62558*</td>
<td>40.07757</td>
<td></td>
</tr>
<tr>
<td>r ≤ 4</td>
<td>76.98336*</td>
<td>69.81889</td>
<td>34.95963*</td>
<td>33.87687</td>
<td></td>
</tr>
<tr>
<td>r ≤ 5</td>
<td>42.02374</td>
<td>47.85613</td>
<td>21.03714</td>
<td>27.58434</td>
<td></td>
</tr>
<tr>
<td>r ≤ 6</td>
<td>20.98659</td>
<td>29.79707</td>
<td>14.16242</td>
<td>21.13162</td>
<td></td>
</tr>
<tr>
<td>r ≤ 7</td>
<td>6.824175</td>
<td>15.49471</td>
<td>6.692389</td>
<td>14.26460</td>
<td></td>
</tr>
<tr>
<td>r ≤ 8</td>
<td>0.131786</td>
<td>3.841466</td>
<td>0.131786</td>
<td>3.841466</td>
<td></td>
</tr>
</tbody>
</table>

*indicates that test values are significant at 5% level of significance.

Trace test & Max-eigenvalue test indicates 5 cointegrating eqn(s) at the 0.05 level

Now, the pair-wise Granger Causality test is performed between all possible pairs of variables to determine the direction of causality. Only rejected hypotheses are reported in Table 6. The results show that the Exchange Rate granger causes both stock market indices, i.e. both Sensex and Nifty. Both these stock market indices, in turn, granger cause IIP and Oil Prices.

Table 6: Results of Granger Causality Tests

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>F-Statistic</th>
<th>Probability</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNER does not Granger Cause LNSEX</td>
<td>2.98946</td>
<td>0.0033</td>
<td>Reject</td>
</tr>
<tr>
<td>LNER does not Granger Cause LNNIFTY</td>
<td>2.44532</td>
<td>0.0148</td>
<td>Reject</td>
</tr>
<tr>
<td>LNSEX does not Granger Cause LNIIP</td>
<td>2.76363</td>
<td>0.0062</td>
<td>Reject</td>
</tr>
<tr>
<td>LNSEX does not Granger Cause LNOP</td>
<td>2.57435</td>
<td>0.0105</td>
<td>Reject</td>
</tr>
<tr>
<td>LNNIFTY does not Granger Cause LNIIP</td>
<td>1.99935</td>
<td>0.0476</td>
<td>Reject</td>
</tr>
<tr>
<td>LNNIFTY does not Granger Cause LNOP</td>
<td>2.45304</td>
<td>0.0145</td>
<td>Reject</td>
</tr>
</tbody>
</table>
5. CONCLUSION

This paper investigated the effect of macroeconomic determinants on the performance of the Indian Stock Market by using monthly data for the period January 1991 to December 2011. The empirical analysis found three interesting results. First, Interest Rate is I(0); Sensex, Nifty, Exchange Rate, Index of Industrial Production, Gold Price, Silver Price and Oil Price are I(1); Inflation and Money Supply are I(2). Second, there exists a long run equilibrium relation between stock market indices and all macroeconomic variables. Third, it provides evidence of causality running from exchange rate to stock market indices to IIP and Oil Price.

The findings of this study have some important policy implications. First, exchange rate contains some significant information to forecast stock market performance. Therefore, Reserve Bank of India should try to maintain a healthy exchange rate. Second, as Index of Industrial Production is a highly significant factor, policy makers should try to support industry growth through appropriate policy. Third, Money supply and Inflation are major factors affecting stock markets, so the regulatory body should try to control them through Repo and Reverse Repo rates. Fourth, commodity prices like Gold, Silver and Oil are also major determinants of stock markets. Mostly prices of these commodities are determined at the global level, but still by proper import duty and local taxes, policy makers should try to maintain competitive price levels. Finally, autonomous regulatory bodies and visionary system of government can definitely contribute in efficient working and development of the Indian Stock Market.

Acknowledgment

I would like to thank Dr. M. Mallikarjun, for his unending support, without which this work would not have been possible. The usual law of responsibility still applies.

References


The effect of Macroeconomic Determinants on the Performance of the Indian Stock Market


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