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An Inquiry into the Nature of Service Economics

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Abstract: Modern economics is based on the pioneering work of Smith and Ricardo and subsequently supported to a large degree by Fawcett, Jevons, and Mill. Early work focused on products and commodities, and that emphasis is evident in supporting activities in business and accounting. Service currently constitutes approximately 90% of the GNP of developed nations, so academics have begun to place some emphasis on an up-to-date model of the new commercial environment. Traditionally, economic theory was based on tangible resources, embedded value, and transactions, whereas an economy based on service is based on intangible resources, the co-creation of value, and relationships. All commercial, governmental, and educational endeavors actually involve service, as do most products and social activities. This paper takes the view that the study of service economics subsumes traditional economics, as well as manufacturing, supply chains, transportation, finance, law, medicine, government, education, and practically all other undertakings in the modern commercial ecosystem. This paper builds on the groundbreaking work of Adams, Mill, Jevons, and Fawcett and explores how the knowledge of service principles can serve as the basis for today's complex civilization.

Key words: capital; cooperation; distribution; information; labor; profit; specialization; value; wages; wealth; service; service systems

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1. Introduction to Service Economics

In its most general sense, service is regarded as a provider/client co-creation that creates and captures value for both entities, and in so doing, encompasses practically everything we do in everyday life (Katzan, 2008). Whereas traditional economics focuses on the exchange of goods, service economics concentrates on the value obtained by the instantiation of a service process. Services are derived from societal needs, such as medical care, transportation, fire and personal safety, and education. Service may involve the use of a product, such as an automobile, but is not the product per se. Products, on the other hand, are developed from anticipated needs and are created independently of the specific entity that will eventually use them. The framework for service is created beforehand, and the service is established when a given need arises — that is, when that specific service actually takes place. Service of various kinds is widely available, and differing approaches to the subject matter exist. Outsourcing, as a familiar example, may actually involve the manufacture of products or the management of service provisioning. Service, therefore, is the use of knowledge and skills for the benefit of another entity, and service economics is a subject that studies the nature of wealth generated by service (Fawcett, 1870).

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1.1 Service Science

Service is the primary activity of persons and organizations in the 21st century, yet very little is known about the subject. There are no theories of best practice, and no principles of precisely what constitutes good service. From a business viewpoint, service sustainability has not even been considered. People are interested in service, and its academic basis known as service science, because it will eventually change the predominant economic focus in developed countries from products to service. The subject is important to providers and consumers of service, since most service providers, such as individuals, businesses, governments, and other organizations, are also consumers of service (Katzen op cit.).

At the elementary level, service is straightforward, and a conceptual view of the subject matter is easily acquired. It is work performed by one person or group that benefits another person or group. Clearly, the provider and client have differing roles, and they need to exchange information to execute the service event. If one were to consider the interactive component of basic service, it would be considered to be a social activity that is consumed at the point of production. The service provider and the service client co-produce a service. Thus, service is a process, usually referred to as a service event, characterized by customer participation, simultaneity, perishability, and heterogeneity. Customer participation refers to fact that the customer brings an asset to the service event, and it essentially establishes the domain within which the event takes place. Simultaneity refers to the unique instance where the service is produced and consumed at the same time. Perishability denotes that if the opportunity to engage in the service event by the provider or client is not taken, then the service opportunity is lost. Lastly, heterogeneity specifies that each service event is unique.

With service, both participants contribute in the interchange and both benefit, even though the sense of participation is diverse and varies between different forms of service execution. The domain of service providers includes individuals, teams, products, electronic systems, groups, and ad hoc units organized to execute a particular service delivery scenario. Similarly, service clients include persons, groups, social organizations, governments, and commercial entities. In some cases, the object receiving the service is the responsibility of the client, as in cleaning and repair services. In this instance, the entity receiving the service is known as the service object. A service is often complex requiring supplementary and subsidiary services, so that a complex chain of services, called a service system, is necessary to achieve a particular result. Even though most social, commercial, educational, and governmental activities are actually service, most people don't give the subject much thought. Actually, a complete knowledge of the diverse forms of service would require a lifetime of study (Jevons, 1880).

1.2 Service Process and Organization

At the global level, an organizational entity that provides a service normally goes through a service lifecycle consisting of service commitment, service production, service availability, service delivery, service analysis, and service termination. As such, the service organization can be characterized, as being composed of a layered set of activities that constitute a value chain for services, comprised of people, technology, and organizations. This is essentially a process view of generic services supplied by a governmental or economic entity, such as a governing body, a business, an institution, or an individual acting in a service capacity. Service commitment refers to the formal agreement to provide a class of services to a service audience by a principal or trustee with proper administrative control over the service domain. The agreement, such as a charter, to provide fire service by a municipality and the establishment of a health clinic are common examples. The mayor of a city is a common example of a service principal. Service production pertains to the operational aspects of service provisioning that encompass service design, infrastructure, availability, quality management, and back-office processing. The

producer is the agent of the principal in a prototypical principal-agent scenario. The principal and the agent may be the same economic entity or different entities in a distinct service relationship. The producer is responsible for insuring that the resources are available to execute a service, including those persons charged with performing that service. Service availability denotes the time when a service is available, including initiation and termination dates. Service delivery is a comprehensive class of activities, regarded as the “service”, that is the layer where the service client comes into the picture. The doctor/patient relationship is a good example of this layer. The service provider, who could have a dual role as a producer, is an agent of the producer as the primary source of service revenue and is the primary provider of service. Service delivery normally consists of several inherent services constituting a service value chain. Service analysis refers to the measurement activities and the determination of value propositions needed to sustain service operations. Service termination reflects the inevitable consequence of evolving services where a total service operation has to be retired, because of insufficient activity or realigned opportunities (Katzan, 2009).

1.3 Service Economy and Service Economics

In the traditional world of economics, the efficiency of labor, production processes, marketing, and sales is paramount to a successful and sustainable enterprise. The concepts apply to non-profit organizations as they do to profit-making businesses, and equally well to education and government. Because the interactions in service are more complicated, the initial success of a particular service within a specific application domain engenders an increased demand that leads to additional service provisioning and also a larger client population.

Service economy and economics are related terms concerned with the value proposition of a service and how it is provisioned and consumed. Service economy is the study of the nature of services that underpin the activities of persons, organizational entities, institutions, governments, and nations. It is based on derived value that enables one entity to be more successful as a service provider than another. Service economics is the study of the interactions of service entities that essentially constitute a service experience. Service economy operates at the general level, and service economics operates at the detailed level. A service economy is concerned with how a service is formulated through a life cycle of commitment, production, availability, delivery, analysis, and termination. Most services adhere to this life cycle. The service interaction in service economics incorporates activities, primarily based on the client, that include service acquisition, invocation, execution, and service termination. These topics will be expanded upon in subsequent pages.

1.4 Learning and Applying Service Concepts

It is important to recognize that service is a science, as is chemistry or biology, in the sense that knowledge of the subject matter increases the ability to provide and consume service (Jevons, 1880). There is a body of knowledge supporting the subject of service science together with characteristic problems and a wealth of appropriate solutions. The mistake that people make about the subject matter is that they think they can learn all they need to know about service without studying it, because a good service process or product is often viewed as an end result, rather than a process. It is commonly thought that all that is needed is the desire and the wherewithal to execute the service and somehow the results will be commensurate with the perceived needs. The key point is that people do not become familiar with a subject until the underlying principles have been exposed. The nature of service should be considered when any political, financial, or business question arises. Service systems are socially constructed forms of interaction wherein entities exchange beneficial forms of action through the combination of people and technologies that adapt to the changing level of information in the system. Thus, service is a social reality constructed through a dynamic process replicated and maintained by social interactions

within a service and between services.

Service economics deals with the value derived from services, how that value is derived, and how it can be enhanced by modern technology. Certainly, wealth derived from service provisioning is an important consideration in the availability of service, but there are other non-monetary benefits to be derived from service, such as success, happiness, and opportunity.

2. Structural Dynamics of Service

Most services adopt a common structure that essentially determines how the provider and client interact in order to execute a service process. Ordinarily, the total service process incorporates several well-known steps that constitute what is commonly regarded as the service: service acquisition, service invocation, service execution, and service termination. Clearly, this is a provider view of service. The prevailing opinion is that the client is involved as a secondary participant. However, what would occur if there were no clients. Without clients, a doctor is a person with an MD degree, and a bricklayer is someone that knows how to position bricks or similar objects. Thus, a client provides a service to the provider by engaging in the service process as being a receiver of service. The concept is that there is a certain duality in services, wherein the client depends on the provider and the provider depends on the client. We will refer to this phenomenon as service duality. Thus, the common practice of denoting the client as a secondary participant is not valid in the modern view of service execution. The provider and the client, in the most general sense regarding service, are on an equal footing.

2.1 Service Collective

In many instances, the provider and client are not singular, but are groups. A group of service providers, known as a provider set, is a collection of service systems designed to support a particular endeavor in its respective domain, such as a university, medical group, or even a newspaper. Each element in the set provides a specific service to a client. Associated with the provider set is a client set composed of elements that function in a complementary manner with provider set elements to instantiate a service event. A service is thereby an interaction between an element from the provider set and an element from the client set, represented as a mapping between the sets. Accordingly, the collection of mappings is a service set. It follows that a service collective is a 3-tuple consisting of a provider set, a client set, and a service set, all of which can interact through an eclectic platform designed to sustain a unified service system. A unified service system is created when a client set is combined with the provider and service sets, and the inherent process is called unification.

Examples of service collectives are commonplace. A university, for example, provides services to students. The provider set would consist of administrative, student, and academic services. The students comprise the client set. Similarly, a newspaper consists of sections, such as sports news, national news, international news, financial news, and so forth. Readers are the clients. In both instances, not all clients use all of the services, and a section of providers do not supply all services.

A service value chain is a progression of activities adopted to materialize a service. Not all service resources perform functions that are specifically evident in a provider/client interaction. In fact, there are three major stages in a service value chain: service commitment, service production, and service delivery. The three stages are collectively referred to as service provisioning. When practitioners refer to service, they normally intend the service delivery stage.

In many cases, the provider set operates as a connected service system that interacts through shared

information to provide a service. Two forms are clearly distinguished: flow and interactive. In a flow system, information is passed between service providers on a sequential basis. Operationally adjacent providers are coupled to provide service delivery. Essentially, one provider performs the initial step in a service procedure; a second provider performs a second step; and so forth. In an interactive system, members of a collection of providers interact on a needs basis to execute a service. Thus, the provider set can be viewed as a partitioned set in which sections demonstrate coupling or cohesion.

2.2 Duality

In the classic view of service, the roles of the provider and client are not symmetrical. In the most general sense, and even though the provider supplies a service to the client, and the client provides a service to the provider by being a client, the roles each entity plays are markedly different. In actuality, a team of providers may supply the service, and the client may be a singleton. For example, a team of doctors may service a single patient. The converse is also true, in the sense that a mayor provides leadership to an entire town. As mentioned earlier, the client provides a reciprocal service to the provider. This is an example of service duality. Clearly, the question is “Does the mayor provide service to the town or does the town provide service to the mayor?” It is conceivable that service duality is a form of exchangeable value in service.

2.3 Collaboration

In some instances, a set of service providers collaborates to execute a service. A primary service is the core service for which the provider and the client interact to produce demonstrable value. Accordingly, the key person, in a human instance, is the primary service provider, and in all but exceedingly simple cases, that person has helpers that provide secondary services. A secondary service is a service that ordinarily does not exist separately as a primary service and plays a supportive role to a core service. A doctor that supports a surgeon is functioning as a secondary service provider. It is important to note at this point that the name “secondary service provider” does not imply capability, but what is actually performed during the execution of a service process. The notion of a secondary service traditionally encompasses separate functions involved in the performance of the core service process, existing in close physical and temporal proximity. A core service is dependent upon a secondary service, and the reverse is also true. The cohesion between core and secondary service processes is high. When this phenomenon occurs, the core and secondary service providers are regarded as collaborating in the service process. Examples of secondary services are numerous and have a substantial variation. Three instances are the weigh in and blood pressure checks associated with a doctor’s visit, the acceptance and delivery of garments at a dry cleaning establishment, and the routine support functions performed in support of an automobile mechanic. When two service providers are cooperating to perform a task, or set of tasks, but working independently as with a couple of masons building a structure, the concept of core and secondary service processes does not necessarily apply, since the cohesion of the two participants is low.

3. Fundamentals of Service Economics

Service economics is a subject that studies the nature of wealth generated by service (Fawcett, 1870). It is an important subject because the modern view of the service economy must be considered when any political, financial, or business question arises. People do not generally become familiar with a topic until its underlying principles have been identified. Service is largely a utilitarian discipline (Mill, 1861), wherein a coherent set of underlying principles are not yet available, so that in everyday affairs, it is not prudent to defer analyzing the

subject until those principles have been verified or confirmed. Every social question involves service, so that service economics would necessarily involve the following endeavors: production, exchange, distribution, and commerce. Another consideration is that the focus of economics has changed from land, labor, and capital to participants, knowledge, and capital. Capital is an important component, but not a defining characteristic, and necessarily encompasses wages and infrastructure.

3.1 Wealth and Service Value

Wealth is an important part of the end result of any commercial activity. Like service, wealth is a term with many different meanings. In business, wealth refers to money and things that have exchangeable value. In government, wealth refers to the capability of having commercial and political power using money as a facilitator. In education, wealth is usually reflected in facilities and instruction. A wealthy country would have more exports than imports resulting in an importation of money, using the precise form of money available at the time. Mill (Mill, 1885) wrote that the wealth of a country is dependent on the skill with which its labor is employed, and Smith (Smith, 1776) remarked that labor is the basis of all production. This leads, of course, to the modern reflection that an increase of wealth is not only an increase in money, but it is the potential for providing service. Early political economists considered wealth as anything with exchange value (Fawcett, 1870). However, many things with useful purpose, such as the air and sunlight, are not wealth unless modified by human intervention. Money, as a public instrument, is solely a measure of value and a medium of exchange. A wealthy person or organization has a large collection of desirable or necessary items, or the means of obtaining them, provided that they are not a direct product of nature without the requirement of involving some form of labor. Another consideration is that wealth is increased by producing where and by whom it is produced most expeditiously (Ricardo, 1817).

Although service can and does involve products, it is not a material product of nature, so that service wealth, in its most basic form, is useful activity that produces value through human involvement. Service wealth lies in the potential for providing service, so that service-provisioning agents are the basis of all service. Clearly, humans, products, and informational resources can provide service. Thus, value is established by an exchange of service through a provider-client relationship. Service is usually associated with business, where value is produced through the manipulation of goods, capital, people, and events. Thus, service is a refinement of the business process.

A vertical is used to establish the value of service, consisting of value, price, and cost. The difference between cost and price yields the margin, and the difference between price and willingness to pay is the service value.

There is no explicit exchangeable value in service, per se, because you can't purchase someone else's service. A service is established at the point of instantiation and ends when the service is complete. The particular service under consideration is then finished. It no longer exists — only a record (or memory) of that service persists, along with tangible or intangible results, as determined by the specific incident. Separate from the actual service process, the facility of obtaining service, in the general view of society, can be scheduled, rescheduled, unscheduled, transferred, and purchased. The access to service is transferable, but the actual performance of a service is not. Moreover, it is possible to purchase the ability to obtain a service, and it is possible to pay for actually receiving a service by the client or a client's advocate.

A clarification is in order. One might view the purchase of an airline seat or of an automobile, as something of exchangeable value. However, the purchase of a seat or an automobile provides only an entity capable of

providing or sustaining a service; it is only a *service facilitator*, but it is not a service per se. A service is the execution, or more properly the instantiation, of a process that provides the service, as in the airline and automobile forms of transportation.

On the other hand, there must be some explicit value in service, since it serves as the basis of the modern economic system. Thus, the wealth inherent in service results from the co-creation of value. The execution of a service yields two or more distinct values: the act of performing or receiving the service and the result of having the service process performed. Accordingly, a service value can have two related components: commercial value and personal value. The result may be tangible or intangible, as covered previously. During the act of performing a service, it is useful to recognize two things: the provisioning dimension and the “receiving” dimension, to which we can add the service object dimension that may coincide with the receiving dimension.

When a service provider executes a service, including auxiliary and supplementary services, it is done for its economic value — salary, a fee, or another form of compensation. When a service client receives a service, it is often the case that a personal value is obtained — a state that is inconvenient to obtain or impossible to achieve independently.

The reasons are clearly evident, since most services result from one or more of the following circumstances: (1) Something you can’t do; (2) Something you don’t want to do; and (3) The opportunity cost of the client performing the service. There are, of course, two points of view: that of the element of the provider set and the element of the client set. From the provider’s perspective, the service value lies in the performance of the service process, and from the client’s perspective, the service value results from the end state after the service is performed.

3.2 The Domain of Service

It is clearly obvious that the work of a professional entity is a service. Retailing is a service in that it changes the ownership property of an item within its domain. Employees of an organization provide a service, as does the mayor of a city or governor of a state. Federal, state, and local governments provide a service to their constituents. Police and fire departments provide a service. The religious clergy provides a service. Educators and parents provide a service. Products provide tangible and intangible services. Most forms of commercial and social activity involve service of some sort. Yet, we, as a society, actually know very little about service; we can elicit no principles of good service behavior, and very little evidence of best practices—in spite of the fact that at least 80% of persons are engaged in service—through commercial or social activity.

3.3 Service Structuralism

The thesis of service structuralism concerns the concept that what really matters about service is not the concrete elements of provider, client, and object, but rather the manner in which the constituent elements relate to each other. Thus, a service system is a collection of abstract objects with relations on how the objects may interact with each other, such that the structure is an abstract form of a system. Only when concrete objects are abstracted from the service system can principles of behavior be developed.

A property is an attribute or characteristic of a service element. There are two forms of study: conceptualism and realism. In the former case, properties exist but are dependent upon the mind. In the latter case, properties exist independently of the mind. We are concerned with realism for the development of principles that govern service. Again, there are two forms. Within rebus realism, a property exists only if it has instances. With ante rem realism, a property can exist if it has no instances. This paper takes the ante rem view of service economics. To sum up, what we are concerned with in service economics is not the characteristics of the provider, client, and

service event, but the relationship between the various constituent elements.

3.4 Service Requisites

Service economy is a discipline that investigates the operational conventions that govern the production, exchange, and distribution of value resulting from the execution of a service process, a service event, or the use of a service artifact. Value is a demonstrable result of the application of the operational conventions.

The value of a service essentially incorporates three entities: the service provider, the service customer, and the service object. The important element, as least at this point, is the junction where the three entities interact. Recall that the customer is typically more concerned with the result than the service process. The service provider is more concerned with the service process, because if the service is performed correctly, then the result will be satisfactory. The service object is independent of the service process, unless it coincides with the customer.

The basis of classical economics stems from the writings of Smith (op cit.) and Mill (op cit.) and is recorded in the publication of Fawcett (op cit.), and is synthesized from the coordination of land, labor, and capital, serving as the input to production. Within a background of classical economics, the tenets of service provisioning are specialization, division of labor, and comparative advantage. A client arranges for service with a specific provider to obtain the knowledge and experience in a particular domain. The service process is designed to utilize the notion of service itself—the division of labor—to enhance efficiency and achieve quality of the service experience. Comparative advantage results from the practice of employing a service provider with the most prudent infrastructure to achieve the highest quality results from the service process.

The basic tenets of service model those of classical production that have stood the test of time. Specialization allows the service producer to take advantage of existing abilities (Fawcett op cit.). Division of labor allows specialization to be applied where it is most applicable, and comparative advantage permits outsourcing to be employed to provide service efficacy. The three basic tenets expedite large-scale provisioning, yielding a better quality of service and efficient operations.

3.5 Focus of Service Economics

The view of service economics was described earlier as being focused on the participants, knowledge, and capital. The participants in a generic view of service are the provider and the client sets that result in the notions of collaboration and duality. Technological, organizational, and human elements are traditionally combined to create service.

Knowledge, as in the case of professional endeavors, and capability, as in the case of manual procedures, are paramount to service. Knowledge and capability supersede specialization, provide the basis for division of labor, and often constitute the requirement for outsourcing.

Capital takes on its traditional value, as the part of wealth that is advanced to establish infrastructure, stock, and supplies and to cover wages until service renders a return on investment. Owners of capital will ordinarily appropriate funds unless they are rewarded with a share of the value generated by service — referred to as the profits of capital. It has three components: interest on the money expended, compensation for risk, and the variability of the service domain. If the profits of the capital investment are not greater than the interest on the funds, for example, then clearly the investment would not be made — unless special considerations apply.

Participants, knowledge, and capital are the forerunners of further work on the development of service economics.

4. Summary

It is generally recognized that service is a provider/client collaboration that creates and captures value for both participants. Both entities contribute in the interchange and both benefit, even though the sense of participation is diverse and varies between different forms of service execution. An example is the relationship between a doctor and patient that relies on the participation of both persons, since both entities are required in order for the service to be instantiated. Moreover, a doctor's service varies between patients and yields different results, depending on the situation. This characteristic is typical of most service. The entity supplying the service is known as the service provider, and the entity receiving the service is known as the service client. The domain of service providers includes individuals, teams, products, electronic systems, groups, and ad hoc units organized to execute a particular service delivery scenario. Similarly, service clients include persons, groups, social organizations, governments, and commercial entities. In some cases, the object receiving the service is the responsibility of the client, as in cleaning and repair services. In this instance, the entity receiving the service is known as the service object.

Most commercial and social activity involves service, yet very little is known about the subject. This paper covers the structure and operation of services, as well as a lifecycle of service processes. The relationship between service and traditional economics is explored as a basis for the study of service economics.

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Integrating Technology into Marketing Courses via SAP Enterprise Resource Planning (ERP) System

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Abstract: The use of simulation games have been a popular means of teaching business and marketing content for numerous years. As more and more software is being utilized to conduct business, some of those companies have developed simulation games to help teach and train students and employees on how to utilize the software. SAP is one such company that has created an ERPsim simulation game to familiarize existing and future employees with SAP's enterprise resource planning (ERP) system. The paper covers the assessment of the student's experience of playing an ERPsim game in marketing classes. Students indicated ERPsim should continue to be used in marketing classes while noting several suggestions and recommendations for making business software usage in marketing classes more relevant to the marketing discipline.

Key words: marketing; marketing technology; marketing sap; ERPsim and marketing, ERP and marketing

JEL code: M

1. Background

Since they arrived on the scene in the late 1950s, business games and the business gaming movement they fostered have diffused rapidly into corporations and business schools across the nation (Azriel et al., 2005; Curry & Moutinho, 1992; Davis & Comeau, 2004; Keys & Wolfe, 1990; Seaton & Boyd, 2008; Xu & Yang, 2010). The evaluation literature on the business gaming movement provides ample evidence of its educational efficacy (Keys & Wolfe, 1990; Xu & Yang, 2010). In contrast to traditional teaching methods such as the lectures and even case studies, business games or simulations bridge the gap between the comparatively static, controlled environment of the classroom and the dynamic, unpredictable world of real-life business decision making (Xu & Yang, 2010). Lainema and Lainema (2007), report that complex learning environments, such as simulations, provide the learner the possibility of facing a real-life problem as a professional. Furthermore, simulations enhance learning considerably through group interaction, feedback, and results that provide the opportunity for intense experimentation, as well as collective and experiential learning.

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While the utilization of business simulation games in business management education presents clear advantages for an enhanced learning experience, many factors work against the open adoption of such complex technologies in university business schools for teaching and learning purposes — even when they present the opportunity to learn business technologies that are actually used by potential employers (Davis & Comeau, 2004). Enterprise Resource Planning (ERP) systems — generic, packaged software systems that provide functionality and business process integration across a company — are relied upon by more than 90 percent of Fortune 100 companies to integrate accounting, human resources distribution, manufacturing, and other back-end processes for businesses of all sizes (Davenport, 2000). In recent years, they have also evolved to include front-end processes that involve customers — such as customer relationship management (CRM), supply chain management, and e-commerce (Gale Virtual Reference Library, 2002). However, in spite of the numerous improvements in usability in recent years, ERP systems are notoriously very challenging to learn and thus teach. SAP, one of world's leading providers of ERP software systems, may have had this issue in mind when they developed the ERP Simulation Game (ERPsims) in 2009. The simulation game consists of two components: (1) ERP processes and (2) ERPsims — a simulation program that automates and simulates business processes (SAP University Alliances, 2012). It is touted as an easy way to ease students into SAP's ERP system without having to fully understand the SAP ERP system.

Many schools have joined the SAP University Alliance thus enabling access to SAP software such that SAP ERP can be integrated into their respective school curriculum. A Southern California Public University decided to join the SAP University Alliance Fall quarter, 2010. The Marketing Department deciding to investigate the feasibility of introducing SAP into marketing courses, participated in the on-campus workshops as well as attending various SAP Academic Conferences to learn SAP. Initial attempts to learn SAP ERP, even marketing related SAP programs, ended up being extremely complicated thus frustrating and difficult making SAP introduction into marketing courses totally unrealistic. However, upon attending an ERPsims (simulation game) workshop and being exposed to the various simulation games, the simple ERPsims game was identified as an easy and realistic tool to introduce SAP ERP to marketing students. Further workshops were taken to qualify a faculty member to administer ERPsims. Starting Spring quarter, 2012, ERPsims was introduced into a couple of marketing classes. Given the stretch of introducing ERP software in a marketing class and having a positive reaction, assessments were undertaken to determine if ERPsims should be included in marketing classes and did students understand the importance of ERP in performing and evaluating marketing activities.

2. Methodology

The original motivation that started the project was to see how SAP could become part of the curriculum in a Marketing class or classes such that marketing courses could be identified as SAP certificated classes. It was decided to introduce the game in a graduate and undergraduate retailing class given the category-product-nature of the product in the simple ERPsims game. The project was then extended to the graduate MBA core marketing management class to illustrate the relationship between product type, price and marketing activities. Adding the SAP activity in the graduate MBA marketing management core class made it the third SAP certified MBA core course to be offered at a southern California university thus enabling an SAP certificate to be automatically available for all MBA students.

The simplest game ERPsims labeled as a “distribution” game is based on three different flavored bottled

waters offered in two different sizes. It basically allows for three twenty-day months to be played over a period of time that the instructor can regulate. Instruction sheets are available enabling navigation of the SAP ERP software with little or no prior knowledge. A trial round is played before starting the official game to give students exposure to the software, actually execute the SAP ERP “distribution” game tasks and give students a feel for the market so they can plan quarterly goals and objectives before playing the game. The inclusion of ERPsim was also motivated by the need to expose students to technology and how even marketers need to utilize technology if they want to have instant access to business and market data that affect marketing tasks and the related decisions.

Given technology is not always marketing discipline friendly, it was determined there was a need to assess the utilization of the ERPsim in marketing classes. An assessment tool was designed to determine if integrating SAP ERP activities in a marketing class was justified and then if utilizing the simulation game had a positive impact on learning marketing activities. To evaluate the inclusion of the simulation in the classes, a post assessment survey was administered in the graduate and undergraduate classes where the simulation was introduced. The post assessment survey was administered Spring quarter 2012 to a retail graduate and undergraduate class consisting of twelve MBA graduate students (five females and seven males) and seventeen undergraduate marketing major students (eleven females and six males). Based on the positive feedback regarding the inclusion of the simulation, ERPsim was introduced into the graduate MBA core marketing management class and further integrated into the graduate and undergraduate retailing classes during the 2012-2013 academic year. The assessment of the classes including ERPsim during the 2012-2013 academic year focused on the student’s knowledge of SAP, the ability to implement and utilize technology to perform marketing tasks and the ability to develop and implement a tactical marketing plan for a convenience/commodity good. Three classes were included in the assessment, the graduate MBA marketing management core course, and the graduate and undergraduate retailing course. A total of fifty-one students were included in the assessment with fifteen being in the graduate marketing management class (six females and nine males), five students in the graduate retailing class (three females and two males) and thirty-one undergraduate retail students (twenty-two females and nine males).

3. Results

The results section will be divided into two section, Spring 2012 ERPsim Assessment and 2012-2013 ERPsim Assessment.

3.1 Spring 2012 ERPsim Assessment

The post survey indicated students were not sure what to expect when playing ERPsim; yet, were excited while playing the game. The majority of students had not been exposed to SAP. However, the graduate students were also exposed to SAP via another graduate class while they were also taking the retail class meaning the majority of the graduate students had other exposure to SAP while over 80% of the undergraduate students had no other exposure (Table 1). Due to the exposure to SAP in another class, the graduate students had more knowledge and felt navigating SAP was easier than did the undergraduate students. The undergraduate students had not played a simulation game before and were less likely to think a simulation was a good way to learn compared to the graduate students. Graduate students believed ERPsim was easier to play and liked how the game was played compared to the undergraduate students. Reasons why the undergraduate students found ERPsim hard and did not like the way ERPsim was played was due to two factors: (1) the speed of the ERPsim rounds as well as (2) the inability to see how ERPsim related to retailing. The majority of the students enjoyed the experience and

recommended ERPsim utilization in future retailing classes. The results are presented in Table 1.

Table 1 Spring 2012 ERPsim Assessment Results

Question	Variable	ALL (29)	Grad Retail (12)	Under Retail (17)
1	Not exposed to SAP	58.6%	25%	82%
2	SAP Knowledge(7 pt. scale) ^a	4.14	3.83	4.35
3	SAP Navigation (7 pt. scale) ^a	3.45	3.25	3.59
4	Not played Simulation Games	69%	41.7%	88.2%
9	Simulation as way to learn	62.1%	91.7%	41.2%
11	Recommend using again	82.8%	91.7%	76.5%
12	Hardness to play ERPsim (10 pt. scale) ^a	4.55	3.58	5.24

Note: ^a1 represents very knowledgeable, very capable, or very easy and 7 or 10 no knowledge, no clue, or very hard.

3.2 Spring 2012 ERPsim Assessment Recommendations

From an observation point of view, the simulation game was a great success in engaging the students in the class. The interacting during the game, while reviewing the results, and discussing what happened during the game was beyond expectations. The students were totally engaged with the process. Based on the Spring 2012 assessment results, it was evident the students thought that ERPsim should continue to be utilized and played in classes offered in the 2012-2013 academic year. The assessment did identify two things to change when utilizing the ERPsim game in future classes. First, the ERPsim game was played in “20 minutes rounds” which the students indicated made the game go too fast to adequately implement their desired actions. Thus, it was decided to extend the round times for each round to 30 minutes. Second, it was evident that it was not enough to just play the game with the winning team being determined by the team that maximized profits. Students needed to be held accountable for what and why they were doing what they were doing from a retailing/marketing perspective. Thus, a retailing/marketing plan with overall tactical game goals and other product objectives will be required when the ERPsim game is played again. Their final team ERPsim report assessment of the team will be based on their ability to successfully implement their plan’s strategy and objectives plus their reflections on why they were or were not able to reach their plan goals and objectives.

3.3 2012-2013 ERPsim Assessment

Given the positive feedback from the first introduction of ERPsim, ERPsim was included in marketing classes during the 2012-2013 academic year. To better assess the SAP ERP impact, the assessment instrument was changed from a post-test only to a pre-test and a post-test to enable better assessment of student learning associated with SAP ERPsim relative to marketing/retailing activities. Most of the students had not been exposed to SAP ERP, over 83% of the undergraduates and 93% of the graduate marketing management students. As with the 2012 results, the graduate students had more knowledge and were better able to navigate SAP than the undergraduate students (Table 2). However, the graduate marketing management students had less knowledge and were less able to navigate the ERPsim game compared to the 2012 graduate students as they were not concurrently taking another core course which included SAP ERP thus meaning for most students, it was their first exposure to SAP ERP. As a result, graduate student results were similar to the undergraduate student knowledge and navigation levels. The graduate retail students had stronger knowledge and navigation results indicating the integration of SAP content into several MBA classes which the students completed prior to taking the graduate retail class. Most students indicated they had not done a simulation game before, but still felt simulation exercises were a good way to learn. Many felt the ERPsim would be hard to play with the

undergraduate students believing it would be the harder to play than the graduate students. Overall, the students were not sure what to expect when playing ERPsim, yet were excited to play. Pre ERPsim 2012-2013 assessment results are presented in Table 2.

Table 2 2012-2013 Pre ERPsim Assessment Results

Quest	Variables	ALL (51)	Mkt Mgt (15)	Grad Retail (5)	Under Retail (31)
1	Not exposed to SAP	79.6%	93.3%	20%	82.8%
2	SAP Knowledge (7 pt. scale) ^a	6.04	5.93	5.00	6.28
3	SAP Navigation (7 pt. scale) ^a	5.65	4.93	4.80	6.17
4	Not played Simulation Games	87.8%	93.3%	20%	96.6%
6	Simulation as way to learn	68.1%	64.3%	60%	71.4%
7	Hardness to play ERPsim (10 pt. scale) ^a	5.34	4.54	4.50	6.06

Note: ^a1 represents very knowledgeable, very capable, or very easy and 7 or 10 no knowledge, no clue, or very hard.

After playing ERPsim, the student's gained in their knowledge as well as navigation skills in SAP (Table 3). However, most students indicated they were not comfortable or confident of their ability to navigate SAP based on ERPsim alone. The majority of the students felt ERPsim was a good way to learn and would recommend playing it again. What was interesting from this assessment was students indicated after playing the simulation, they though it was harder to play than they through before playing the simulation. Comments from the students indicated that playing the game was viewed as harder because they had to develop a plan, could not control the market, and thus the implementation of the plan to generate the simulation results according to their plan was more difficult than expected. The undergraduate students rated the simulation harder to play than the graduate students because they felt the game/rounds went "too fast". In addition, there were several complaints about how difficult or non-user friendly the SAP system was which reinforced observed problems students encountered following the ERPsim task instruction sheets. These reasons were also the major factors why the undergraduate students were less likely to see the simulation game as a good way to learn. Students continued to be very engaged in the game and enjoyed the process. However, many students blamed the non-user friendly interface, the difficult of executing the game activities, and the lack of disclosure on how to play the game as the reasons for failure to successfully reach their planned goals and objectives. Undergraduate students found the game hard and did not like the way the game was played due to three factors: (1) the speed of the game, (2) the inability to see how the game related to marketing/retailing, and (3) the need to develop and defend a marketing/retailing plan. 2012-2013 Post ERPsim results are presented in Table 3.

Table 3 2012-2013 Post ERPsim Assessment Results

Question	Variable	ALL (52)	Mkt Mgt (16)	Grad Retail(5)	Under Retail (31)
2	SAP Knowledge (7 pt. scale) ^a	3.87 ^b	3.8 ^b	3.50 ^b	3.96 ^b
3	SAP Navigation (7 pt. scale) ^a	3.09 ^b	3.0 ^b	3.00 ^b	3.15 ^b
9	Simulation as way to learn	71.7%	66.7%	100%	70.4%
11	Recommend using again	65.5%	73.3%	100%	55.6%
12	Hardness to play ERPsim (10 pt. scale) ^a	5.58	5.25	5.20	5.81

Note: ^a1 represents very knowledgeable, very capable, or very easy and 7 or 10 no knowledge, no clue, or very hard; ^bSignificantly different from Pre scores at .000 level.

4. Recommendations and Conclusions

Based on the assessment results, four things were identified that needed to be addressed when incorporating ERPsim into future graduate and undergraduate marketing classes. First, there needed to be further adjustment in the time for each round based on if the class is an undergraduate or graduate class. The simulation recommended allowing 20 minutes per round. Given the simulation was designed to expose students to SAP versus learn a business functional area; the timing for the rounds was not critical. However considering students are learning SAP and executing marketing/retailing plans, the round time were too short and should be extended to at least 30 minutes. This time extension worked for the graduate students, but the undergraduate students still complained; thus, the round time for undergraduate students will be increased to 45-50 minutes.

Secondly, even though plans were required per 2012-2013 assessment results, the development and evaluation of the plans were not of an acceptable quality. It was evident from the submitted plans that the students had only basic marketing/retailing tactical and strategy planning plus objective development knowledge that proved to be inadequate for the class and simulation standards. In addition, since ERPsim involves the implementation of a plan and students had no experience implementing or adjusting a plan before playing ERPsim, they struggled. Discussions regarding marketing/retailing plan development and implementation need to be made more robust, discussions need to occur at the end of each round to assess team performance, strengths and weaknesses that were encountered during the game to enable adjusts to be made for the next round.

Thirdly, the plan requirement needs to be revised to include a predetermined level of ending inventory. Previously, there was not an ending inventory requirement attached to the plan. By adding a predetermined ending inventory, it will create a more realistic, continuation feel to the game. It will reinforce the marketing/retailing concept of having the right product available at the right time at the right place in order to continue the business even though the game can only be played for three rounds.

The fourth change will be the discussion of “what marketing is” and how it varies depending on the type of market and product. Evidently, because ERPsim indicated “marketing” was “advertising only”, students bought into that as the definition of marketing. In the assessment post survey, students indicated they did not think the simulation was meaningful in a marketing class as marketing had “little or no impact” on the ERPsim results. Even though the students have been exposed to a definition of marketing in numerous marketing classes, the students totally forget the full definition of marketing while playing the game because the ERPsim game designed by IS professionals, operationalized marketing as advertising only. Students do not see that having the right product, at the right price, in the right place, at the right time as marketing or retailing. Further, students do not understand how advertising and advertising expenditures would vary depending on the type of economic market they are operating in as well as the type of product. Thus, the presentation of what marketing is, how it varies depending on market and product type, and how the entire game is marketing related needs to be included in the presentation on why the ERPsim game is part of marketing classes.

Finally, students view ERPsim as a simulation game that should reflect the same user friendly front end presentation as the video games they play. Students complained about the game infer-face being less than user friendly and indicated it is a reason not to use ERPsim in marketing classes. Somewhere while playing the game, the game mode overrode the fact that ERPsim is based on SAP’s ERP operating system. The presentation of ERPsim needs to emphasize it is an ERP system simulation that will not necessarily be user friendly as the system was built by IS professionals nor will it be easy to navigate ERP software given the complicated process of

designing software over several years that integrate business functions and actions.

Overall, the assessment of including SAP ERP via ERPsim in marketing classes was positive. However, via the assessment, it was clear it is still a work in progress. Trying to take a technology tool not designed for another business function and integrate that technology tool into another business function is not without issues. Only with time and implementation will creative ways to integrate technology into marketing courses occur as we prepare our students for the 21st century.

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The Selection, Modeling and Training Framework (SMTF) for Managers in Business Innovation and Transformation Projects an Executive's Business Architecture and Modeling Strategy

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Abstract: Today business companies are struggling for survival in a very competitive market; and it is not a top secret that the main path for solid business sustainable future, is the continuous process of business transformations to optimize the business companies' resources. Unfortunately, most of the business transformation projects fail, because of the very difficult business transformation project's implementation phase. In order to insure the successes of such business transformation projects and to follow the (re)structuring process of the business company, which is a part of the standardized global economy, it is recommended to the apply business modeling and integration strategy and standards in the business transformation project's implementation phase. Today many standards exist and they are very advanced; these standards and their related tooling environments can help in the unbundling of the actual traditional business environments, through the execution of business transformation projects; to help the business company become part of a dynamic business ecosystem; and to interconnect it easily to the standardized global economy using a modeling strategy. An important factor in the business transformation project of a business environment into an innovative is the role of business modeling and the integration of atomic business services and the business transformation manager must have the knowledge for these two domains. The profile of such a manager has not been sufficiently investigated and this research paper focuses on the business transformation manager's business modeling skills and the related applied modeling strategy; where he/she (he or she, in further text "his" for simplicity reasons) must be capable to design a modeling pattern for the transformed business environment. The business environment must be unbundled into a pool of business processes and atomic business services; this unbundling procedure will help the business environment face its uncertain future and to become a part of the interconnected global economy. The specification of the optimal business transformation manager profile's modeling and integration skills is one of the goals of the authors' selection, modeling and training framework's related research. In this research, the authors try to prove that business modeling is cornerstone for a strategy on how to successfully transform business environments (The Economist, E-management, 2000). These modeling-based transformations need a specific set of skills, which are crucial for the difficult implementation phase (Trad, Kalpic, IMRA, 2013; Trad, Kalpic, IMRA,

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USA, 2014; Trad, Kalpic, IMRA, UK, 2014).

Key words: modeling strategy; business architecture; atomic business services; restructured global economy; business transformation project; business transformation manager and failure rates

JEL codes: M1

1. Introduction and Business Domain

“Chief information officers say, supporting business transformation projects is the top objective for business-outcome-driven enterprise architecture. Enterprise architects, business architects and information technology leaders can learn how one enterprise architecture team delivers detailed analysis to design and execute the successful reinvention of an industrial and automated products company” (Gartner, ID: G00246943, 2013). That implies that business transformation projects are crucial for future of any business and hence an adequate business modeling strategy must be established.

The business transformation manager must insure: (1) A modelling approach that unites all domains in the organization and to improve collaboration, in order to make the business transformation project successful; and (2) that he/she has the technical skills to model the complete solution and equally important, also require skills to insure consensus between all affected stakeholders (Uppal, Rahman, 2013).

1.1 Failure Rates in Business Transformation Projects

This research project delivers managerial recommendations for the business transformation manager's selection, modeling strategy establishment skills and training (and education) skills. The business transformation manager has to manage the technical implementation phase of complex business transformation projects; knowing that business transformation projects implementation phase is the major cause of very high failure rates (CapGemini, 2007, 2009); as shown in Figure 1. The implementations of such business transformation projects require a specific set of enterprise and business architecture strategy knowledge. The authors have based their research on the main fact that only around 12% of business organizations successfully terminate innovation-related business transformations projects (Tidd, Bessant, 2009). It is known that organizations that are successful in managing business transformation projects, outperform other companies in growth and financial performance (Tidd, 2006). Therefore, there is an essential need for more research on the business transformation manager's profiles, especially her/his modeling skills and to enhance the related managerial recommendations.

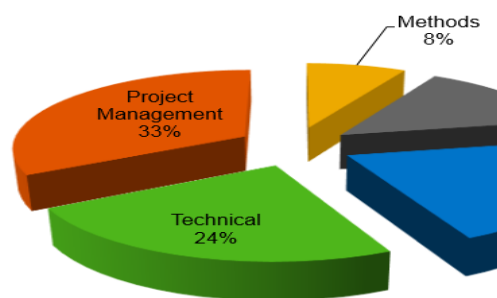


Figure 1 The Difficulties in Managing Business Transformation Projects, Sub-divided by Activities (Uhl, SAP, 2013)

The biggest danger in business transformation projects is to over simplify the very complex and technical implementation phase; which sometimes resembles to a structured chaos management. A successful finalization of the implementation phase can give an important business advantage and guarantee the transformed company's

survival (Farhoomand, 2004). The business transformation manager must implement and apply a in-house heuristic's based reasoning mechanism that is founded on the measurement of success, that consults critical success factors. These critical success factors can be also applied to the business transformation manager's selection, modeling strategy establishment, training needs and to estimate the healthiness of the business transformation project. Business transformation managers can't manage what you can't measure (Chaffey, Ellis-Chadwick, Johnston, Mayer, 2008), this paper's authors add that you can't manage what you cannot model or do not understand. The selection, modeling strategy establishment and training can assist managers' in the profile definition and in the initial coaching in modeling complex business transformation projects, where innovation and standards are used; that will also help to minimize the failure rates, through the application of an atomic iterative approach.

1.2 Complexity in the Implementation Phase

The selection, modeling skills and training framework gives the possibility to support the business transformation manager's modeling capacities are in question. In order to manage the overall complexity and achieve a successful integration of business services; hence achieve the business transformation project's success. That implies that the mentioned framework main philosophy is the modeling strategy skills of the business transformation manager, who must be capable of putting together a standardized modeling strategy and architecture for the business transformation project's implementation phase. This strategy and architecture focuses on the creation and development of the "transformation business program" and "solution projects" to support the architecture of business transformation projects (TOGAF, Architecture Transformation, 2007).

Business transformation project's management, face: (1) limitations of traditional business management methods; (2) integration problems in traditional information system management approaches; (3) complexity of business transformation projects' modeling architecture. To counter these complexity issues, there is a need for holistic (meta)management of continuous and extensive changes. On these changes the organization's future success and its survival strongly depend (SAP, BTA, 2014). The holistic management and modeling strategy of complex and business systems need the coordination between various teams with different professional cultures; young professionals can hardly cope with the complexity in the implementation phase. A very dynamic business and avant-garde technology model is required there.

These vital business projects have a very high failure rates and although a lot has been written on the complexity and the important failure rates of business transformations integrating innovation, the rate is growing. To confront this phenomenon, there is a need for a basic profile that is flexible and intelligence based, that has cross-functional modeling capacities. Transformed organizations and business transformation managers need more than basic business information systems knowledge and traditional educational techniques to exploit the inter-related avant-garde modeling technologies in order to successfully conduct business transformation projects. Managing complexity needs modeling strategy skills and education. These failure rates are caused by the lack of a holistic approach (TOGAF, 2014; Uhl, Gollenia, 2012).

In this paper the authors would like to introduce the atomic and iterative "1:1" concept, in order to promote an efficient modelling strategy that would simplify (or atomize) the business transformation project's implementation phase and increase the chances that the business transformation projects succeed. This strategy is mainly a "bottom-up" approach that forces the architect of adaptive business environments to unbundle the monolithic business environment and then to the implement the end business system. Therefore the authors think that a successful business transformation project (and its enterprise architecture) blueprint should be made up of:

(1) an architecture and modelling of an unbundling strategy; for breaking down the business functionalities into atomic business services and (2) a business architecture for assembling atomic business services into business scenarios (Capgemini, 2007; Capgemini, 2009).

1.3 Architect of Adaptive Business Environments

The business transformation manager must have extensive experience in business transformation projects' modeling and architecture; to manage the implementation phase; and that is why she/he needs empirical hands-on skills. This research process showed that the business transformation manager is an architect of adaptive business environments. The research was mainly based on the qualitative hyper-heuristics pattern that can be used to tune the selection, modeling skills and training needs framework factors to estimate the risks of such a project. A concrete selection, modeling strategy establishment and training environment was prototyped and the research defines the managerial recommendations for business transformation managers; where her/his educational background is an essential factor. The actual business and educational environments produce general profiles that can hardly cope with heterogeneous complexity and fast changes. These high frequency changes are mainly due to the hyper-evolution of technology (Trad, Kalpic, EDEN, 2014).

The role of the holistic meta-management approach, implies that the business transformation manager has: (1) a holistic profile with cross-functional skills; (2) with a business modeling background (HEC, 2014); (3) is a flexible and intelligence based person; who is capable to align business requirements, business modeling, business services, information systems' resources and the business entity's strategic objectives (TOGAF, 2014).

1.4 Modeling Strategy — A 1:1 Mapping Concept

To manage the complexity in the implementation phase; an architecture concept must integrate business standards; that is the main concern in keeping the architecture pattern feasibility with so many methodologies and artefacts; that establishes a real world iterative model (TOGAF, 2014). The proposed architecture presents an atomic business services pattern to keep every business artefact simple (or atomic); at the same time these atomic business services must be well classified and "standard" wise interconnected. This simplicity is achieved by the application of the "1:1" mapping rule that is based on atomic business services (Fowler, 2014).

1.5 Atomic or Micro Business Services

The domain of micro-service architecture has advanced and it describes a way of designing business environments as business processes of an independent set of atomic business services. Today there is no precise definition of such an architectural style, there are certain common characteristics around organization around business capability, business intelligence, and decentralized control of business environments (Fowler, 2014). The resultant transformed agile business environment becomes fully automated by the unbundling of the monolithic business environment; that was mainly based on manuel business activities. This unbundling is mainly achieved by using atomic business services. The unbundling process starts with the classification of atomic business services into various categories. The business transformation manager must have extensive knowledge of business services and service oriented architectures for business transformation projects to unbundle the actual business monolithic environment into an automated bank of stateless atomic business services. This process is setup up so that the business transformation manager can rationalize the enterprise's resources and synchronize them with the business processes thru the use of a standardized enterprise architecture framework.

The business service-oriented architecture's paradigm has become a widely adopted solution for enterprise business environments. Hence the atomic business services architecture pattern promises: (1) successful business modeling and integration improvement, (2) business and information technology alignment, (3) traditional

business environments reusability, and (4) fast adaptability to business transformation projects, and (5) changing requirements (Kabzeva, Niemann, Müller, Steinmetz, 2010).

1.6 Lean and Automated Business Systems for an Agile Business Enterprise

The business transformation project's success is also measured by intangible factors and benefits; because they insure its long-term business survival. Business environments; like the agile mechanist organizations; need to implement a generic approach based on business service oriented architecture, that has created a deep paradigmatic shift in the business world. It is replacing colossal monolithic traditional business systems with its traditional business applications, which split across different business corporations. Atomic business services in the form of web services calls are a paradigm shift within a paradigm shift; this is a new business revolution within the innovation revolution. Atomic business services break-up the traditional business environment of an application into independent set of services that can interact together and roam across the internet, with a standardized, unique and flexible interface protocol. The selection, modeling strategy and training proposes using the atomic business services architecture pattern, to help business transformation managers (or enterprise architects and system designers) in building modern lean (or agile) business environments; using a bottom-up approach (Trad, Kalpic, ITI, 2002).

2. The Selection, Modeling Establishment Strategy and Training Framework

Business transformation project's goal is to build agile business environments and for that the selection, modeling strategy and training framework proposes a set of real world managerial recommendations and a concrete modeling strategy. This framework is in the form of a proof of concept, is made up of the following concrete components and sources:

- (1) The cockpit, a client component, that manages all the other selection, modeling strategy and training components;
- (2) The survey sub-system that is a dynamic document that reflects the survey results.
- (3) The aggregator samples and aggregates the presented survey results.
- (4) The charting component represents in the surveys' results; in the form of charts and diagrams artifacts.
- (5) The selection, modeling strategy and training system can receive input files from a flat file or a relational database.
- (6) The heuristics module represents the research's applicative action research model that is the basis of the grounded hyper-heuristics approach.
- (7) The Gartner Inc. sources.

2.1 The Enterprise and Business Architecture Skills of the Business Transformation Manager

The selection, modeling strategy and training uses already established standards and recognized sources for enterprise and business architecture's skills (TOGAF, 2014); it builds on top of that these recommendations a modeling strategy on how to finalize the business transformation project's implementation phase.

2.1.1 The Business Modeling Skills

Business modeling strategy establishment skills, as shown in Figure 2 typically comprises: (1) business use cases design; (2) business process modeling; (3) business integration; (4) strategic planning; and (5) atomic business services modeling etc... The business transformation manager must understand the business requirements, then he has to probe for business information, influence business transformation project's team members, facilitate

The Selection, Modeling and Training Framework (SMTF) for Managers in Business Innovation and Transformation Projects an Executive's Business Architecture and Modeling Strategy

consensus in the implementation phase, synthesize and translate strategic requirements into actionable tasks, manage factors based risks, etc... The business transformation manager participates in the discovery, modeling and design/documentation of the customer's business scenarios that are the initial driving phase for the solution. The business transformation manager uses the requirements and develops well-formulated business models of the various components for the final agile business environment, and then he has to tune these business models through iterations to fit all business scenarios. The modeling strategy is based on multiple views that are based on a pool of business processes and business services. The business transformation manager is responsible for the overall business transformation project business architecture integrity, modeling and for the maintenance of the modeling pattern that is based on atomic business services. The business transformation manager also ensures the coordination by using atomic business service, and the liaison between the functional groups (especially the management, implementation and marketing groups) to ensure that the business transformation project is realized. The business transformation manager provides and maintains these business models and atomic business services in a business catalog that has to be implemented. He also represents the organization's view of the business transformation project business architecture and modeling strategy (TOGAF, Skills, 2011).

© The Open Group	Architecture Board Member	Architecture Sponsor	Enterprise Architecture Manager	Enterprise Architecture Technology	Enterprise Architecture Data	Enterprise Architecture Applications	Enterprise Architecture Business	Program/Project Manager	IT Designer
Roles									
Business Skills & Methods									
Business Case	3	4	4	4	4	4	4	4	2
Business Scenario	2	3	4	4	4	4	4	3	2
Organization	3	3	4	3	3	3	4	3	2
Business Process	3	3	4	4	4	4	4	3	2
Strategic Planning	2	3	3	3	3	3	4	3	1
Budget Management	3	3	3	3	3	3	3	4	3
Visioning	3	3	4	3	3	3	4	3	2
Business Metrics	3	4	4	4	4	4	4	4	3
Business Culture	4	4	4	3	3	3	3	3	1
Legacy Investments	4	4	3	2	2	2	2	3	2
Business Functions	3	3	3	3	4	4	4	3	2

Figure 2 TheOpen Group's Architecture Framework Business Modeling Strategy Skills Table (TOGAF, Skills, 2011)

2.1.2 The Enterprise Architecture Skills

© The Open Group	Architecture Board Member	Architecture Sponsor	Enterprise Architecture Manager	Enterprise Architecture Technology	Enterprise Architecture Data	Enterprise Architecture Applications	Enterprise Architecture Business	Program/Project Manager	IT Designer
Roles									
Enterprise Architecture Skills									
Business Modeling	2	2	4	3	3	4	4	2	2
Business Process Design	1	1	4	3	3	4	4	2	2
Role Design	2	2	4	3	3	4	4	2	2
Organization Design	2	2	4	3	3	4	4	2	2
Data Design	1	1	3	3	4	3	3	2	3
Application Design	1	1	3	3	3	4	3	2	3
Systems Integration	1	1	4	4	3	3	3	2	2
IT Industry Standards	1	1	4	4	4	4	3	2	3
Services Design	2	2	4	4	3	4	3	2	2
Architecture Principles Design	2	2	4	4	4	4	4	2	2
Architecture Views & Viewpoints Design	2	2	4	4	4	4	4	2	2
Building Block Design	1	1	4	4	4	4	4	2	3
Solutions Modeling	1	1	4	4	4	4	4	2	3
Benefits Analysis	2	2	4	4	4	4	4	4	2
Business Interworking	3	3	4	3	3	4	4	3	1
Systems Behavior	1	1	4	4	4	4	3	3	2
Project Management	1	1	3	3	3	3	3	4	2

Figure 3 The Open Group's Architecture Framework Enterprise Skills Table (TOGAF, skills, 2011)

As shown in Figure 3, another perspective of skills is business transformation project architecture modeling

skills, typically comprises: (1) detailed business modeling; (2) business building component design; (3) business applications and actor's role design; (4) standardized business integration, etc... The business transformation manager has the responsibility for business architectural design and he coordinates business technical reference model level; she/he has to often lead a group of the "segment architects and/or solution architects" related to a given business transformation project's sub-project (TOGAF, Skills, 2011).

2.2 "S" for the Selection of the Business Transformation Manager

The business opportunity, problem and implementation phase of such business transformation projects causes high failures rates, therefore there is a need for a risk measurement concept and a predictive approach for the business transformation's manager's profile and role selection formalization. The mentioned framework needs a risk measurement concept approach for the business transformation manager's profile and role selection. The riskiest factor in the transformation process is the role and of the profile of the business transformation manager; more specifically the influence it has on the concrete implementation phase of business transformation project; the authors defined a set of related managerial recommendations of the optimal business transformation manager profile.

2.3 "M" for the Modeling Strategy by the Business Transformation Manager

The business modeling strategy of business transformation project is based on existing standards which are supported by many tools and methodologies. This article proposes how to define the modeling strategy of integration of these standardized methodologies and avoid problems in the implementation phase.

2.4 "T" the Training of the Business Transformation Manager

The selection, modeling strategy establishment and training framework defines a training program; that can be based on the concept of having three skill groups: (1) business requirements modeling; (2) business process modeling; and (3) information systems modeling and management. Future business transformation managers need to have the skills to model the company's "unique" business architecture and to swiftly identify business transformation iterations, in order to effectively implement them into their business processes as the basis for a sustainable profit based agile business environments. According to the latest Gartner study, the ability to apply versatile and extensive modeling skills in managing and modeling business transformation processes is the most important business priority for a successful business transformation project (Gartner, 2014). The implementation of such business processes requires a specific set of business architecture, implementation, educational and training set of skills (Trad, Kalpic, EDEN, 2014).

3. Research Design and Methodology

This research's project flow, as shown in Figure 4, is based on a grounded hyper heuristics reasoning model that is based on factors. Unfortunately because of the type of the research project, which may take for each iteration more than five to ten years, it was not realistic to adopt the full version of this approach. Business transformation projects take a very long time and are difficult to be used for experimental and research purposes. So how is it possible to quantify the data for such a research project?

3.1 The Grounded Hyper-heuristics Pattern, a Mixed Model

Hyper-heuristics are increasingly used in business functional and combinatorial optimization. Instead of trying to solve a problem using a static heuristic, a hyper-heuristic approach attempts to find a combination of heuristics to give a solution to the problem (and in turn it makes it suitable for a class of problem instances). Hyper-heuristics have been little explored in data mining business transformation fields. Here we apply a

hyper-heuristic approach for problem solving, by searching a space of decision tree induction algorithms; as shown in Figure 5. The result of the hyper-heuristic search process can be a new decision tree (Vella, Corne, Murphy, 2009). In this research the hyper-heuristics approach is used, in order to find a combination of heuristics that solve a complex research question. The authors have decided to apply an adequate research model rather than try solving a simplistic problem using a fixed heuristic or descriptive statistics. In fact, the grounded hyper-heuristics can be used as a template to solve future problems related to profile selections. The research showed that the business transformation manager is an architect of adaptive business information systems. The initial selection, modeling and training framework (STF) concept comes from the authors' professional experiences, while during this phase one of the authors designed and implemented an intelligent re-scheduling system (IRS) for the SwissAir airline. The IRS was based on the heuristics pseudo beam search decision tree that strongly influenced the STF's heuristics model (SwissAir, 1998).

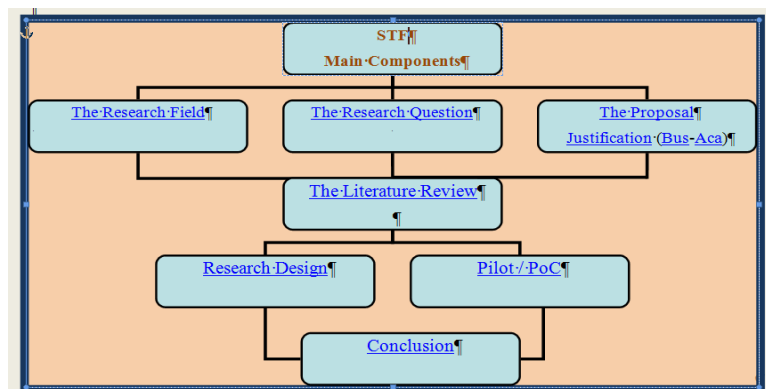


Figure 4 The Research Project Flow Diagram (Trad, Kalpic, Centeris, Literature Review, 2013)

DSS for TBM - TreeView

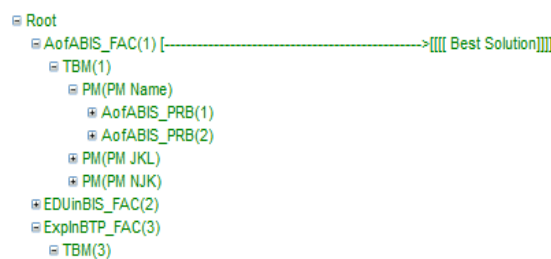


Figure 5 A View on the Selection and Training Framework's Tree Solution Node

This research is based on a mixed “ground hyper-heuristics based reasoning model”, shortly named the grounded hyper-heuristics. As this research aims, to qualify the business transformation manager's: (1) profile capacities, (2) background and (3) modeling skills, the requested business transformation manager characteristics are fed as factors in the grounded hyper-heuristics; that in turn should deliver the optimal business transformation manager tunable profile. Business transformation managers, who are also basically technocrats and advanced knowledge workers, design and modeling pattern for the transformation of the business environment in a pro-active hands-on manner. These “requested” factors are also fundamental for the future coordination of business transformation projects; within the global transformed business enterprise. It is an enterprise that is eventually transformed into an “Enterprise 2.0” environment.

The initial selection, modeling strategy establishment and training framework's concept come from the

authors' professional experiences, while during this phase the author designed and implemented similar systems. The heuristics module represents the research's applicative action research model that is the basis of the grounded hyper-heuristics approach (grounded hyper-heuristic. The grounded hyper-heuristics component can be launched independently, after that the business transformation manager's basic profile has been defined. Afterwards other factors, are shown as the children of the parents in the decision tree, Figure 5 This component is used to tune the business transformation manager's profile required by the business transformation project's requirements.

3.2 The Selection, Modeling Strategy Establishment and Training Framework's Factors

This reasoning model offers the optimal business transformation manager's skills needed requested by complex business transformation projects. These skills are fed in the form of factors into the reasoning model. That is in fact based on a mixed research method, which will deliver the most important business transformation manager's characteristics. These factors are used also to manage the business transformation project's risks; because there are no standard decision systems that can be applied for such projects, therefore the company can build its own decision support system, with its own list of critical success factors and the weightings strategy.

3.3 The Gartner Group Sources and the Role of Experience

As already explained this research project has a minor quantitative part, because of its nature, that is why the authors have decided to use widely used data and information sources, like the Gartner Group Institute.

4. Recommendations and Roadmap

4.1 The Hype Cycle — Business Architecture and Modeling Strategy Establishment

In the second edition of Gartner's hype cycle for enterprise transformation architecture, that describes aspirations are running high for "enterprise architecture & modeling strategies" and their related applicable business transformation architecture patterns, it describes also the underlying avant-garde technologies; it concludes that business artifacts lag maturity and concrete market penetrations. These are at the tipping point of broader support and adoption status and on completion of the hype cycle for enterprise transformation architecture. Gartner reflections on the mentioned strategy looks as follows (Ylimäki, 2006; Schekkerman, 2004; Gartner, G00201646, 2010):

(1) The Gartner's hype cycle methodology identified two clear business enterprise transformation architecture generations:

- Early-generation enterprise architecture, which corresponds to the right side of the hype cycle, is considered to be a mature business modeling strategy and information technology-oriented disciplines, such as enterprise technology architecture and architecture assurance, that have been supported by the traditional or holistic approach, which is the information technology standards. This corresponds to the traditional business environments transformation projects management.
- Actual enterprise transformation architecture, which is the latest generation of enterprise architectures that is emerging today, which reveals a new set of business practices, avant-garde techniques and holistic viewpoints; business architectures and modeling strategies... This approach that clients are employing to try to integrate and engage with the business as a partner.

(2) that the evolution of enterprise transformation architecture is focused on the following:

- Engaging and integrating with the standardized global business environment.
- Approaching business transformation project architecture with a focus on the human factor, information

&data modeling, governance and business modeling strategy; and not just on technology.

- Supporting hyper-connected enterprises, through atomic business services integration.

(3) Today these two generations of enterprise and business architectures continue to exist and cohabit. However, the aspirations (and thus the hype) in enterprise and business architectures are very high, as several of the entries, including enterprise and business architectures overall, begin to shift toward the regions of high productivity and business automation. Gartner's surveys also reflect this aspiration, that was done in December 2010, shows that 87% of organizations that were surveyed in that in the European and Middle-east area and 66% in North America, affirmed that their highest priority focus for enterprise and business architectures during the years 2011 and 2012 was the aligning the business modeling strategy and information technology vision and strategy; that delivered a strategic business value and enabling a major business transformation project.

4.2 The Role of Standards and Avant-garde Technologies

By standardizing and classifying the behavior and interoperation of atomic business services, it becomes possible to limit the impacts of frequent changes and it also helps to understand in advance the chain of business transformation problems (TOGAF, Directory, 2011). Today most of the business resources and components that make up the business environment are standardized. These standards are: business requirements, business process oriented knowledge management, business process modeling, service oriented architecture, the open group's architecture framework... The business transformation manager will rely on these standards to integrate his company in the global economy, using modeling standards:

(1) The role of business process modeling standards: The evolution and dominance of business process modeling imposed a de facto standard for building and integrating business environments in the standardized global economy. It also shifted the business project management and business transformation manager profiles from pure information technology profiles to business management profiles. That enabled the business transformation project to become a business driven activity, although it had traditionally been driven by information technology managers. The 2012 year's hype cycle for business process management highlights a range of emerging and standardized technologies and methodologies that enable business process modeling to continue to deliver significant, tangible business value to organizations, regardless of industry, culture and size (Gartner, BPM Hype, 2012); business process modeling will be the dominant technology for a long time.

(2) The role of business process integration standards: The selection, modeling strategy and training focuses on the business transformation manager's skills related to his capabilities in business process integration of avant-garde business process through the use of advanced enterprise application integration infrastructure (Gold-Bernstein, William, 2005). The global inter-business environments business process integration is achieved by the use of business process integration techniques.

(3) Business enterprise's processes and knowledge integration standards: business process integration techniques, knowledge services and business services-oriented architecture, are the basis of business enterprise's processes integration that respects business knowledge standards; that is achieved with the use of business process oriented knowledge management standards. This type of adaptive knowledge management model can be used dynamically (Süß, 2011; Gartner, BPM Survey, 2012), to enhance just-in-time knowledge. The business transformation manager can use metrics (or the critical success factors) to integrate decision making into the BPs; in order to improve the business environments responsiveness to future business transformation project's problems (Markides, 2011).

(4) Business documents standards: Modern business environments are based on lean extensible markup

language architectures; therefore the business transformation manager must have skills in the design of markup language-based business related documents. This standard is due to business and technology standards that have been boosted by Fortune 500 companies. Business environment business documentation loads have been standardized on the basis of the markup language format (Christensen, Thomsen, Thomsen, 2007).

(5) Governance standards: applying overall governance for business transformation projects and its agile business environment artifacts is crucial for its success. One of the main reasons for developing a modern business transformation project is to apply governance and monitoring to all its lean business environment's components where financial governance and control of transformed business environments must be automated. It is expected that the business transformation manager is familiar with financial and fraud auditing standards, like Sox-Cobit, Basle II/III, CPA; and he has to have the capacity to integrate them in the business environments transformed processes (TOGAF, ACF, 2014).

(6) Rich internet applications and web 2.0/3.0 standards: The business transformation manager must understand the role of the standardization of various business client technologies such as dynamic web pages, style sheets and the link to the agile business environments. That will help him in the design and implementation phases of the business transformation projects. These technologies are also the basis of the integration of social networks in the business environments. The business transformation manager must have also deep knowledge in social networks and eventually the selection, modeling strategy and training will guide him to enhance his knowledge in that field.

(7) The standardization stack: represents various levels of business resources and technologies needed for the business transformation project standardization. This business standardization stack, is made up of: (1) a lower layer, which is the business infrastructure, (2) atomic business services catalog, and (3) an upper layer that contains the enterprise's business modeling and architecture.

4.3 Enterprise Architecture as a Holistic Architecture — The Case of Capgemini

The open group's architecture framework is a global concept that integrates major standards; the question is how to keep the enterprise architecture project feasibility with so many methodologies and artefacts; and in the same time insure the real world iterative model; as shown in Figure 6. Enterprise architecture is a methodology for a holistical for leading enterprises to model the business transformation project and to insure an optimal business vision and business outcomes. The output of the transformation architecture is the modeling and communication of business-outcome-driven artifacts that support decision making processes needed for the evolution of the future-state architecture required to deliver the desired business direction. The scope of the business transformation architecture and modeling pattern must include: business cases, actors, business processes, information models, business applications, business models and technology for the new transformed agile enterprise, which standardizes the automated relationship to its external environment. A differentiating characteristic of the discipline of business transformation architecture is that the selection of the right modeling pattern to deliver the expected business outcomes that will reflect its business strategy and future-state vision. Worldwide groups, like Capgemini, where Gartner group's studies prove, that they rely on enterprise architecture (or business transformation projects) frameworks and business transformation managers, enterprise architects (and modelers), rather than leading with traditional business outcomes. Business transformation managers (or enterprise architects) should use this Gartner analysis, which one in a series on enterprise architecture, to analyze Capgemini's vision, strategy and strengths in delivering "business-outcome-driven" enterprise architecture (Gartner, ID: G00247547, 2014).

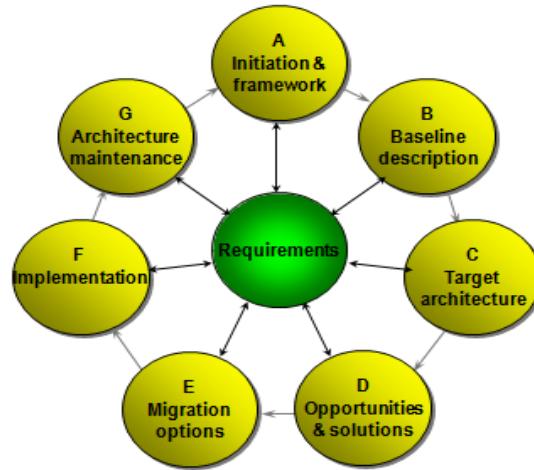


Figure 6 The Diagram Shows the Open Group's Architecture Framework's Main Components (Gartner, G00246931, 2013)

Gartner's research activities suggest also that a high-quality business transformation architecture conforms and maps to the designed business requirements, and applies its purpose (Gartner, G00247547, 2014). That defines a holistic approach with the following disciplines:

- (1) Business modeling and architecture design
- (2) Information systems management
- (3) Organizational engineering

All these disciplines should be based on the atomic business services; where the business transformation manager must take into account that defining a holistic approach can provoke the following types of problems:

- (1) Atomic business services architecture can generate a hair ball effect; therefore there will be a need for a strong classification of these services.
- (2) Antagonism and resistance between the business entities and information technologies entities.

4.4 Business Outcome Approach

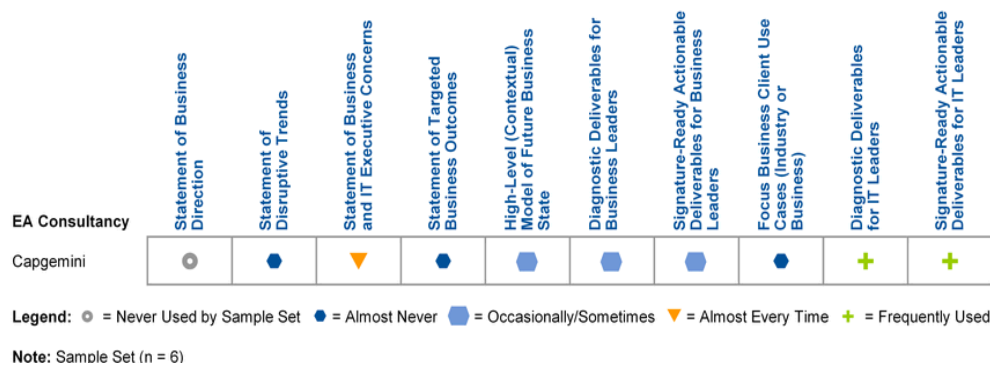


Figure 7 Capgemini's Use of Business-outcome-driven Business Transformation Architecture in Client Engagements

Business environments become more sophisticated and very complex, the challenges facing business transformation projects are shifting away from questions of primitive efficiency and automation towards questions of complexity of management, hyper-time transformations and atomized business agility. Complex transformed environments of existing monolith business systems and actual business information systems create highly complex environments where business transformation become more and more risky and their impacts on changes

become harder to predict (TOGAF, Directory, 2011). To achieve this complex goal there is a need to unbundle the business environment using atomic business services.

4.5 Atomic or Micro Business Services

Cross-functional business process management in the open group architecture framework adoption concept, permits that the business transformation manager holistically manages the business transformation project; and to link the business environment's components using the business information technology, automated business processes and atomic business services, as shown in Figure 8. The unbundling of the monolithic business environment, is modelled by the business transformation manager (or architect of adaptive business environments) who must have extensive knowledge of business services oriented architecture for business transformation projects; she/he breaks down the actual monolithic business environment into an automatized bank of stateless business services. This is basically an alignment of the business environment's resources that is based on the 1:1 concept. Business environments must support a variety of different business actors including browsers, mobile browsers and native mobile applications. The business environment handles atomic business service requests by executing business processes (Richardson, 2014).

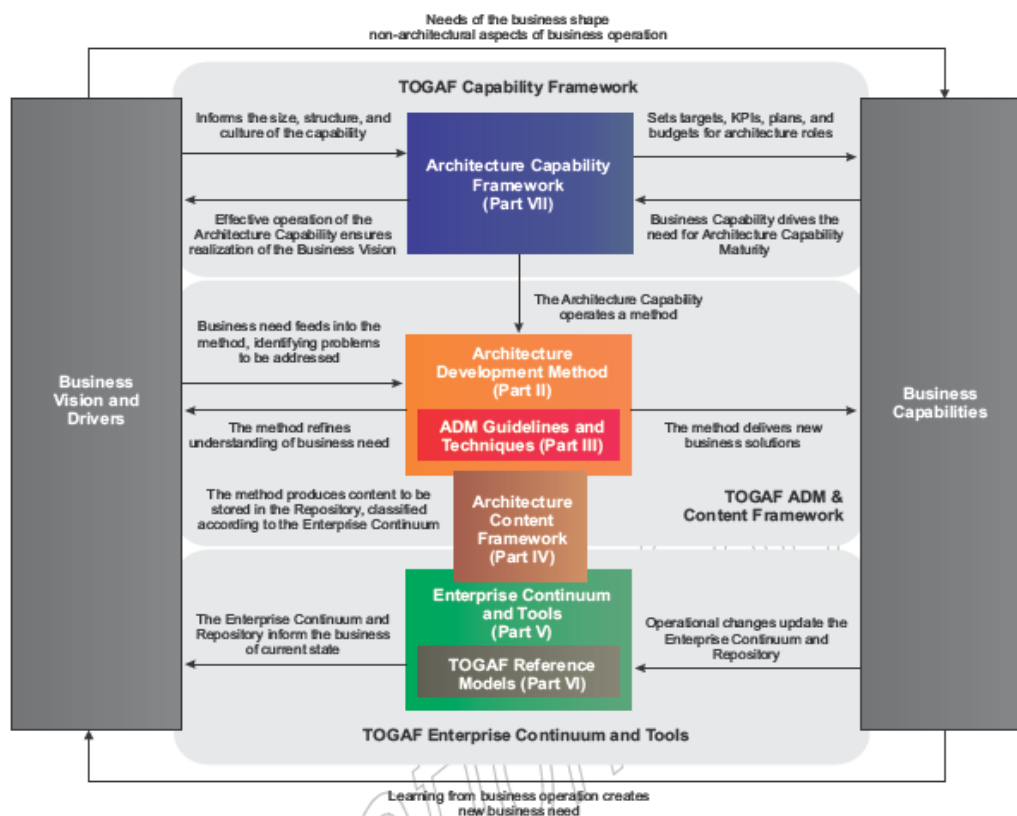


Figure 8 Linking Business to Business Information Technology

4.5.1 Business Services Modeling Strategy

In the case of Capgemini, the business services architecture framework's strategy, methodology and transformation environment, upstreams business scenarios which are not altered to integrate traditional service oriented architecture. Capgemini also believes that a strong business and modeling architectural foundation is needed for a successful business transformation project; this article's authors share this concept. Capgemini is a

member of the open group, where it actively works on the adoption of international certification standards for business and enterprise architects; it participates also in the alignment of the relevant sections of the open group's architecture framework approach; where its service oriented architecture framework provides a conceptual and logical view of services across business, information, application and technology components of the its framework; as shown in Figure9 (Gartner, ID:G00129890, 2005). The business transformation manager must adopt an established business service oriented architecture framework and the authors recommend a bottom-up approach, where the atomic business service development strategy is the business transformation project is its entry point.

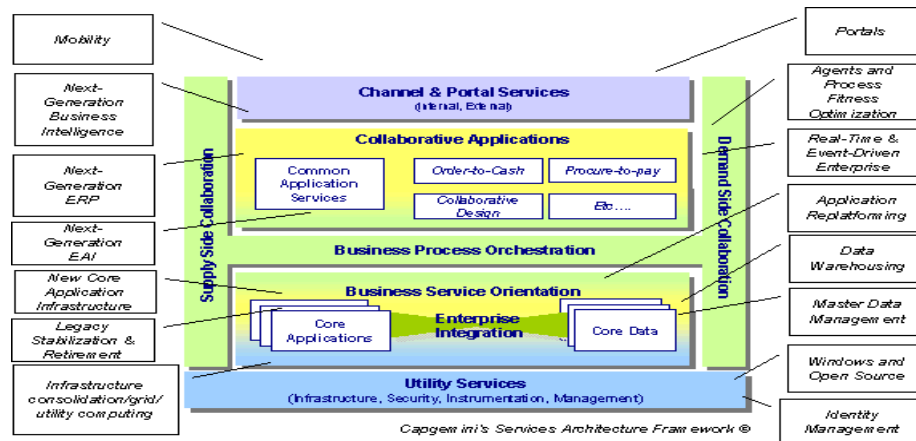


Figure 9 Capgemini Service Oriented Architecture Framework (Capgemini, G00129890, 2005)

4.5.2 The Role of Directories of Business Services

When a business transformation project starts the executive management, senior business analysts and business system designers, create the top level organizational design artifact which is used to create the classification concept and that becomes a point of reference for the modeling process. This classification concept is used to classify the atomic business services and business processes. This concept of atomic services provides a business architectural style that is specifically intended to simplify the business transformation and the interoperation of different parts of the (re)structured business company. By structuring and transforming capability, the authors refer to the notions of atomic, unique, meaningful, granular unbundling into business services as opposed to the opaque, silo'ed business units; this enables to quickly discover the functional capabilities of the new digital company, and to avoid duplicating similar business capabilities across the organization and to assemble just-in-time new business capabilities & models. From a business engineering perspective, business services focuses on (re)structuring the old business environments in a manner that enables business system's flexibility and agility. Agility is a necessity in today's complex and fast-changing business environment. Business services modeling strategy's aim is to break down the traditional business "silos" into portfolios of more granular business services that operate in a standardized, open and inter-operable concept (TOGAF, Directory, 2011). The unbundling of business activities and their decomposition in the form of atomic business service that can be filtered, traced, and queried, from the business transformation project's business models; are stored in the business environment's business environment catalogs. Catalogs contain the following entities: 1) Organizational units' information, business function; and 2) the atomic business service & its information system service equivalence (TOGAF, Catalog, 2011).

4.5.3 Business Monitoring, Management and Administration

The survival of the transformed business environment depends on the way the employees react to various types of business transformation project tasks, and to just-in-time business problems; like for example in logistics, hotline, production... Managing these problems would surely improve the company's churn rate. It would be optimal to define a problems management concept that is based on atomic business services assembly. The business transformation manager must be capable of designing, preparing, and managing the agile business environment's administration & monitoring concept, of: (a) the maintenance and production of the agile business environment; (b) the synchronized error management system; (c) the integration of the business administration monitor environment (BAM); (d) an "Ishikawa-like" problem solving concept (Whitten, Bentley, 2011); and (e) the integration of trace logging systems.

4.6 A Bottom-up Approach

To avoid problems in the implementation phase, the bottom-up approach is highly recommended; where the first step would be to convert the monolith environment into a structured ocean of atomic business services. Nevertheless this new structure needs a well-defined "umbrella" that is a high level top-down concept (Desfray, Raymond, 2014). Therefore, a mixed approach is needed, where the priority is given to the bottom-up approach; where this concept is hands-on and will define the "go/no-go" criteria. The bottom-up "1:1" approach for a specific business requirement will look as follows:

- (1) Describe the business "use case" for a specific business activity.
- (2) Model the corresponding class and business process diagram.
- (3) Add this atomic business service to the business transformation project's architecture repository.
- (4) Document and persist in directory for classification, the newly created atomic business services.

4.7 Organizational Engineering and the Unified Process

When modeling the top-down approach, the executive management (executive management, business transformation managers...) have to define the new business company's organizational structure, where its outputs will serve to link the various company's actors, business units & resources, external partners... to concrete business processes models and atomic business services. This will help mainly in the classification and mapping concept that is needed for the atomic business services.

4.8 The "1:1" Approach and Mapping

This research's methodology was based on the axiom that "1" hypothesis has a "1:1" relationship with "1" selection, modeling strategy establishment and training's managerial recommendation and also has a "1:1" relationship with a corresponding factor. The same "1:1" concept can be adapted for modeling of the business transformation projects' business artifacts. Where a model maps to a single business feature independently of the whole environment and that mapping can generate all the related business artifacts; this basic atomic feature generates all the other business system relevant elements. That makes the iterative changes easier to manage and the modeling just an assembling of the atomic business services. The promotion of the "1:1" modelling concept is based on the idea that all the business artefacts are inter-related; where a business feature is all-over related with a "1:1" relationship. For example a business feature like "register a new client", decomposition will look as follows:

- (1) Business feature or requirement definition.
- (2) Feature version management.
- (3) Business actor's definition.
- (4) Use case or business case modelling.

- (5) Atomic business service modelling.
- (6) Business (process) model implementation.
- (7) Critical success factor discovery or selection.

4.9 Business Architecture and Modeling

Business architecture and modeling strategy for the selection, modeling strategy and training framework, is to establish a modeling pattern that plugs-in a standardized business architecture's framework like the open group's architecture framework and the unified modeling language methodology. For the architecture and business modeling pattern a generic tool must be used, that makes the transformation project independent from any vendor, it should be used to model the following business activities:

(1) Business cases or "use case" modelling, that is a starting point for any new artefact generation; where these models should generate all the other artefacts, using the "1:1" concept.

(2) The "1:1" mapping concept application, which is based on the use case design results, then all the other artefacts are generated, where the main element in this process is the business process model.

(3) The use case model will map to a business process model diagram, which links to a set of atomic business services, as shown in Figure 10. The atomic business services are developed or selected to serve one or more business processes. Where a business process modelling uses: (a) the business information needed to support one or more atomic business service, (b) the data that is consumed by the set of atomic business service, (c) an initial representation of the business information that is present within the business transformation project architecture and therefore forms a basis for elaboration and refinement (TOGAF, Catalog, 2011).

(4) The business transformation and enterprise architecture patterns, are chosen parts of one or more models representing a complete business environment's architecture, focusing on those aspects that address the concerns of one or more business enterprise's major business scenarios. These patterns can provide support in designing new business activities, and in composing various views based on them. Relevant business architecture patterns may be identified in the work on business scenarios. The notion of "forces" equates in many ways to the model strategy qualities that business transformation project architects seek to optimize, and the concerns they seek to address, in designing business transformation architecture patterns. For example: security, robustness, reliability, fault-tolerance, manageability, efficiency, performance, throughput, bandwidth requirements, space utilization, scalability (incremental growth on-demand), extensibility, evolvability, maintainability, Modularity, independence, re-usability, openness, composability (plug-and-play), portability, Completeness and correctness, Ease-of-construction, Ease-of-use, etc., ... (OpenGroup, TOGAF Patterns, 2006).

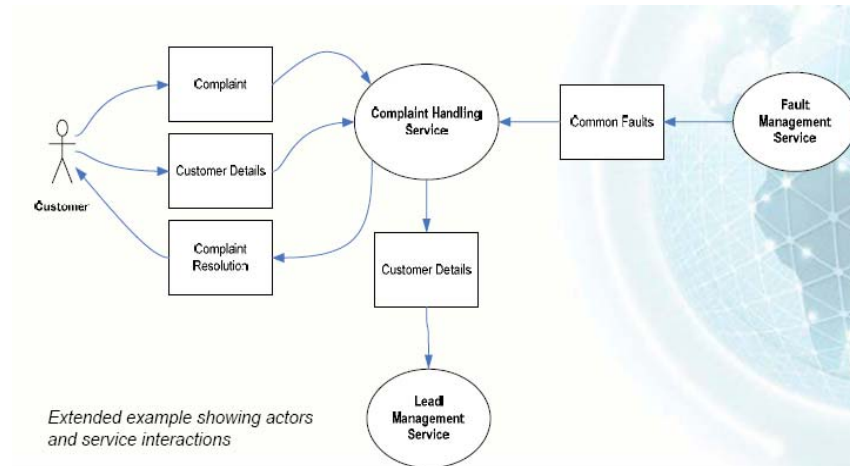


Figure 10 A Business Model and Atomic Business Service Interaction (TOGAF, Catalog, 2011).

The objectives of business transformation project architecture patterns (or the open group's architecture framework's "Phase B" are to: (1) model the final business architecture pattern that describes how the business transformation project needs to operate to achieve the business goals, and to respond to the strategic drivers set out in the architecture vision, so that it addresses the request for business architecture blueprint and business transformation project's stakeholder concerns; (2) identify the optimal business architecture roadmap components, and (3) develop the business rules for the implementation phase (TOGAF, Business Architecture, 2011).

4.10 Business Data Modeling Pattern

The complex description of business data models and related modelling patterns, does not do depend on the types of databases that are used; but the diversity of data-sources generates major problems in business transformation projects, especially in its implementation phase. Atomic business data services for the business infrastructure focuses primarily on the encapsulation of the data schema (Pavel, 2011). The "1:1" mapping concept is to applied for business data management and access, where the business requirement corresponds to a data entity or a "business data view", if the data can be encapsulated in a single entity.

4.11 Business Knowledge Management Pattern

The business processes has to persist business knowledge and today there are the following artefacts:

(1) The business process oriented knowledge management framework will be applied for the business transformation project's knowledge management component that will help in the selection, modeling strategy establishment and training activities which will use just-in-time knowledge assistance. It will also help the business transformation managers in updating and delivering the acquired knowledge on: a) business users requirements and experiences, b) the holistic business transformation project strategy models and experiences, c) the human factor (mainly related to resistance management), d) business process modeling patterns, e) atomic business services classifications and f) the business transformation projects implementation phase design and status.

(2) The DECOR (Delivery of Context -Sensitive Organizational Knowledge) that supports business process oriented knowledge management can be used by the business transformation project pattern. As shown in Figure 11. DÉCOR that implements, integrates, and maintains an enterprise solution for business-process oriented knowledge management, including a business process analysis method and tool, a business-process oriented

intelligent knowledge archive system, and a workflow enactment (Abecker, Papavassiliou, Mentzas, Müller, 2014). The DÉCOR approach to business process oriented knowledge management is based upon the extension of business process modelling paradigm, that includes the automation of knowledge access mechanisms, complementary knowledge management sub-processes, and business rules processes (Papavassiliou, Ntioudis, Mentzas, Abecker, 2002).

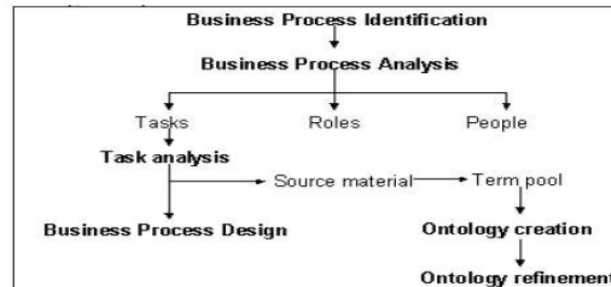


Figure 11 Overview of Business Process Knowledge Interaction (Papavassiliou, Ntioudis, Mentzas, Abecker, 2002)

(3) Business processes and business process oriented knowledge management services, are offered by the DECOR framework; it offers to the business transformation manager and his business transformation project team a just-in-time business knowledge and information atomic services (Abecker, Papavassiliou, Mentzas, Müller, 2014).

4.12 Critical Success Factors and Risks Estimations

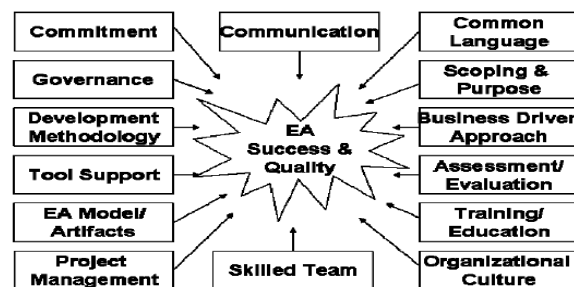


Figure 12 Initial Set of Potential Critical Success Factors for Enterprise Architecture (Ylimäki, 2006)

Understanding the business transformations, business environments, enterprise architecture and the related critical success factors, can affect the business transformation project's success, survival and competitiveness. The critical success factors correct implementation fallouts, and that is an important step towards a successful business transformation project finalization. The business transformation manager has to hammer the "Business Transformation Risks and Mitigation Activities". S/he has to identify the possible business transformation project's risks related to the "Business Architecture Vision" and implementation, then he has to assess the initial weighting of risks, that is in fact the decision system's reasoning tree's root node (e.g., catastrophic, critical, marginal, or negligible) and the number of needed iterations can be configured. The business transformation manager has also to assign a mitigation strategy for each business transformation project risk that is related to a specific critical success factors. The selection, modelling establishment strategy and training adopts the open group's architecture framework's risk management framework, that has two levels of risks to be managed: (1) the "Initial Level of Risk": risk categorization prior to determine and implement mitigating actions; (2) the "Residual Level of Risk": risk categorization after implementation of mitigating actions (if any risks exist) (TOGAF, Risk

Management, 2014). Critical success factors for business transformation projects are a set of potential key domains factors selected by the transformed business company to be the most critical factors for the business transformation project. This choice is based on its business objectives and the success factors for the implementation phase. These factors, when carefully chosen by the business transformation manager using the “1:1” concept; should enable the achievement of a high-quality enterprise architecture decision support system, which will make the implementation phase predictable and hence successful (Ylimäki, 2006).

4.13 Business Transformation Readiness

The business transformation manager who has a profile of an architect of adaptive business environments profile, must have in-depth knowledge of the open group's architecture framework's “Business Transformation Readiness Assessment”; which means that s/he has the capacity to execute all the business information technology tasks required by the business transformation project, including the holistic management skills, modeling background, tools management, business processes, and hands-on management capability for the implementation phase. In the last years, there has been successful execution of a similar complex undertaking, and there are appropriate standardized processes, methods, modeling skills, and a heuristics based model for deciding what skills and activities are needed. The business transformation manager must also design the enterprise capacity to execute; which is the ability of the enterprise to perform all the business transformation project's tasks, in areas not related to information technologies, including the ability to making decisions, using the built-in tree reasoning model, within the limited time constraints. The business transformation manager has to demonstrate the ability to manage such a business transformation project decision systems, related issues and business requirements and there a need for knowledge and skills (OpenGroup, TOGAF, 2014).

4.14 Business Integration and Inter-operability

Business integration insures that the business company easily executes real-world integration in the business eco-system and in turn insures its business sustainability. The following artefacts modelling enables the business integration process:

- (1) Atomic or micro services inter-operability pattern.
- (2) Holistic and standardized enterprise and hence business architecture methodology pattern.
- (3) An anti-locked-in tools and environment strategy setup.
- (4) Unified modelling language and business process modelling conversion and inter-operability pattern.
- (5) Unified process and enterprise architecture inter-operability pattern.
- (6) A generic and inter-operable business process modelling and integration concept.

Business inter-resources operability is supported by the extensiblemarkup interchange format, that makes the transformed business environment generic, standardized, independent of implementation tools, methods and consulting companies. Enterprise and business architecture of business transformation project tools support serializing business process models. The serialized and standardized format file contains both the model semantics as well as the diagram-interchange information (Sparxsystems, XMI, 2014). This standardized interchange format, supports the business integration process, that facilitates the use of the business interaction matrix; as shown in Figure 13, the business interaction matrix shows the mapping between the business services and various business functional domains (TOGAF, Catalog, 2011).

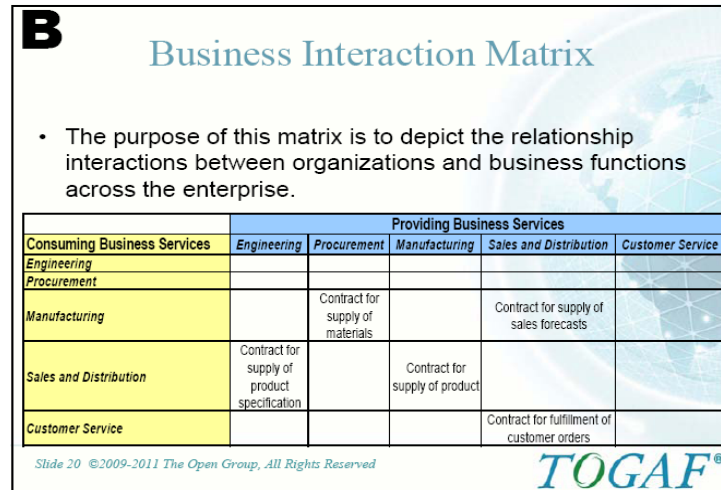


Figure 13 The Open Group's Architecture Framework Business Interaction Matrix(TOGAF, Catalog, 2011)

4.15 Business Infrastructure and Business Development Environments

Managing the enterprise and business modeling infrastructure, by the business transformation manager implies that he must be capable of modeling the transformed agile business environment's platform infrastructure that is based on: (1) resources sharing; (2) high business availability; and (3) load-balancing. Business security is also important, where the business transformation manager has to have the skills needed to define the business transformation project standards on how to design and implement security concepts for business processes patterns, in a way to protect the business logic from being copied, so the company can avoid erosion. There are many modeling strategies to achieve that goal.

4.16 Tools for Business Architecture and Modeling

Business transformation managers who focus on delivering business outcomes must understand that the BTP's architecture & modeling tools, which comprise an important investment that can be wasted if not prepared correctly. Selecting and adapting any tool requires understanding also the vendor placement in the market. The tools capability is also a crucial factor. A tools roadmap is centralized and inter-operable across the entire organization and some recommendations are following (Gartner, ID:G00247547, 2014):

(1) In addition to modeling solutions, much of the actual technology is aging and must be transformed-modernized to ensure that it can meet the future business transformation directions; especially the load-balancing factor is important. The current technology environment is managed in separate projects; whereas the whole business transformation project must be managed in a holistic manner.

(2) Today's focus on business transformation project programs is not just implementing the traditional technical enterprise architecture or creating a repository of dispersed project artifacts that business transformation managers might find important, it is in fact much more about delivering concrete business outcomes that provide actionable models, diagnostics and business transformation recommendations.

(3) Design business transformation projects' functional requirements for tool selection, design use cases, and task editing in a prototype to determine how those business requirements will be finalized. The prototype must include functional requirements that may become actual in the next 18 to 24 months as the business transformation project matures.

(4) From the selection, modeling strategy establishment and training's point of view, business transformation

project management, would be based on the following concepts: 1) extreme programming and spiral model that correspond to the applicative action research and 2) project tasks are automatically generated from the modeling environment.

5. Conclusion

Today in 2014, a company's survival heavily depends on business automation, and the business executives must adapt to this major paradigm shift that affects not only how business is done but also how the information technology domain has been reshaped. The economic downturn has made restructuring through business transformation projects, a way of life at many companies; the gap between those who recognize the need for business transformations and those who think to be capable of insuring a business advantage through the maintenance of their actual business environment, is three times higher than it was two years earlier. This inability to implement the business transformation projects that businesses companies' executives know are crucial is often caused by inflexible monolithic business information systems and teams; that are the major cause of failure for business transformation projects. These rigid monolith business systems are, in reality, holding their business organizations hostage and in danger of business erosion. However it has been proved that agile businesses that align and apply holistic approach, their business requirements and business environments actions have 29 percent higher earnings per share. Many organizations have limited this agility by building business information systems in silo-style that at the best are, fragile, complex and unchangeable. Linkages between them are inexistent. Business services are a category of services that capture the business functionalities and that are modeled to improve a given business scenario and can be monitored through iterative refinement of real-time business metrics (or factors). Automated monitoring of these metrics (or factors) can reflect improvements to the business modeling process to achieve the business objectives (IBM, SOA, 2014). The authors recommend that the first step of the traditional business environment unbundling starts with the splitting of the old business information system into various categories of business services. They also recommend that agility can be insured by the application of atomic business services to inter-connect an agile transformed business environment.

Today business transformation architecture that include the open group architecture framework are very much used, knowing that the federal enterprise architecture and the Gartner business transformation architecture framework, all have a business architecture dimension that specifically includes business modeling work and other modeling concepts similar to business capability modeling. Added to that, the Gartner business transformation architecture market request on business capability models is very high. The architecture capability framework and business capability modeling are techniques for modeling the organization's business reference model. This reference model is independent of the organization's structure, business processes and human. Business capabilities are modeling technics in which business transformation projects integrate information systems resources, business processes and the business environment to insure more value to customers. The benefit of this business modeling strategy, is that it insures that business modeling, atomic business strategy infrastructure and information technology business transformation managers to model on and prototype business possibilities, strategies and investments (OpenGroup, TOGAF, 2014). The authors recommend the application of a business process modeling strategy and pattern that will facilitate the implementation phase of the business transformation project.

For a skilled business transformation manager, who has to manage a business transformation project,

business information technology is a commodity that is used to glue the various business components, to create a standardized and integrated business process oriented environment. For various business environments; like the machinist organizations, an integrated (glued) business transformation approach is needed. As the selection, modeling strategy establishment and training is specialized in the architect of adaptive business environment's selection and business modelling skills definition; therefore it recommends the integration of the open group's architecture framework's "Architecture Skills Framework" component; which defines the following possible roles for a business transformation manager: (1) architecture board members, (2) architecture sponsor, (3) architecture manager and (4) enterprise architecture (which can be considered as a superset of business, data, application and technology architecture). The authors recommend that the business transformation manager is a architect of adaptive business environments who is basically a very experienced cross-domain enterprise architect.

This research article's aim is to support business transformation managers in their business transformation projects undertaking using an selection, modeling strategy establishment and training "modeling pattern" that is based on atomic business services. This research and resulting framework has a business driven and a cross-functional approach where the technology is just a very important glue; and proposes the use of atomic business services, to bind the various components of the business environment. That gives it the needed business environment the needed leanness. It is applicable to various business environments; that are transformed into mechanist organizations; with a generic business driven approach. The authors recommend that the business transformation manager designs a business modeling pattern for the business transformation project that is based on: (1) business processes and (2) atomic business services, and these two factors are very important to glue various companies into an eco-system, and that gives them the needed leanness.

This research paper defines the concept of modeling in the selection, modeling strategy establishment and training, which was previously known as the selection, modeling strategy and training. In fact the authors do not want to reinvent the wheel when talking about various standards, they just want to define a modeling pattern on how to use various business architecture and modeling concepts. In this modeling pattern the authors recommend a bottom up approach that is based on the choreography of atomic business services. This business modeling pattern should improve the business company's business outcome and is a business driven approach.

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The Selection, Modeling and Training Framework (SMTF) for Managers in Business Innovation and Transformation Projects an Executive's Business Architecture and Modeling Strategy

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FASB and IASB Harmonization of Leases

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Abstract: In an effort to harmonize worldwide accounting standards, the two primary parties, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB), are taking a topic-by-topic approach in an attempt to develop accounting standards that are acceptable to both bodies. Upon completion of this project, the similar accounting standards will be used worldwide. However, the harmonization of accounting standards is made more difficult by the different approaches taken toward accounting standards setting. The FASB uses a rules-based approach to standard setting while the IASB uses a principles-based approach. The current project under discussion by the two boards is one of the more difficult areas to harmonize — accounting for leases.

Key words: harmonization, leases, FASB, IASB

JEL code: M

In an effort to harmonize worldwide accounting standards, the two primary parties, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB), are taking a topic-by-topic approach in an attempt to develop accounting standards that are acceptable to both bodies. Upon completion of this project, the similar accounting standards will be used worldwide. However, the harmonization of accounting standards is made more difficult by the different approaches taken toward accounting standards setting. The FASB uses a rules-based approach to standard setting while the IASB uses a principles-based approach. The current project under discussion by the two boards is one of the more difficult areas to harmonize-accounting for leases.

The joint FASB and IASB committee has been discussing the harmonization of lease accounting since 2009. The boards issued the first exposure draft in 2010; however, many concerns about the proposed treatment of leases were brought to the boards' attention. It is expected that a second exposure draft will be issued in mid-2013. The topics addressed in the second exposure draft include the accounting for leases during a transition period, the scope of the new standard, the lessor accounting for leases, and several other areas of clarification of the material in the first exposure draft.

The most controversial change being proposed relates to the recognition, in the balance sheet, of the assets and liabilities related to ALL leases with a term of 12 months or more. This change will reduce the amount of off-balance sheet financing now used by many firms; thereby having substantial negative impacts on the total debt

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reported on firms' balance sheets. Members of the US Congress sent the FASB a letter requesting the proposed change be eliminated (Cohn, 2012). Leasing companies have lobbied for the removal of the reporting of leases with a life of more than 12 months (Cohn, 2011). However, the political pressure has not changed this aspect of the proposed lease standard. The recognition of these short-term leases reduces the necessity of drawing a "bright line" between capital leases and operating leases, but an analysis of the differences between the FASB and the IASB positions highlights the difficulty in reaching a common set of accounting standards.

1. IASB Rules for Capitalization of Leases

The IASB has taken the position that any lease which is similar to an installment purchase is a financing lease (referred to as a capital lease by the FASB) and must be capitalized. If the lease is not similar to an installment purchase it should be treated as an operating lease and costs are expensed as they are incurred. To determine whether it is a financing lease or an operating lease, the lease documents are analyzed in light of the following five rules:

- (1) Does the lease transfers ownership of the asset to the lessee by the end of the lease term?
- (2) Does the lessee has the option to purchase the asset at a price that is expected to be sufficiently lower than the fair value at the date the option becomes exercisable for it to be reasonably certain, at the inception of the lease, that the option will be exercised?
- (3) Is the lease term for the major part of the economic life of the asset even if title is not transferred?
- (4) At the inception of the lease, does the present value of the minimum lease payments amounts to at least substantially all of the fair value of the leased asset?
- (5) Are the leased assets of such a specialized nature that only the lessee can use them without major modifications? (IAS 17, para. 10)

If the answers to any of the five questions are yes, then the lease is a financing lease and capitalized. If the answers to all five questions are no, then it is an operating lease and all costs are expensed. In answering the five questions, the content of the lease is analyzed rather than the form of the lease. Several indicators of situations that individually or in combination could also lead to a lease being classified as a finance lease are:

- (1) if the lessee can cancel the lease, the lessor's losses associated with the cancellation are borne by the lessee;
- (2) any gains or losses from the fluctuation in the fair value of the residual accrue to the lessee (for example, in the form of a rent rebate equaling most of the sales proceeds at the end of the lease); and
- (3) the lessee has the ability to continue the lease for a secondary period at a rent that is substantially lower than market rent. (IAS 17, para. 11)

The IASB has concluded that the classification of a lease is to be based on the substance of the transaction rather than the form. In essence it is up to the accountant to use their professional judgment in determine whether a lease is a financing lease or an operating lease.

2. FASB Rules for Recognition of Leases

The FASB has very specific rules in determining whether a lease will be classified as a financing (capital) lease and capitalized or an operating lease and expensed as the costs are incurred. To determine how the lease is to be categorized, both the lessee and a lessor must consider the terms of the lease using the following four criteria:

(1) Does the lease transfers ownership of the property to the lessee by the end of the lease term? This criterion is met in situations in which the lease agreement provides for the transfer of title at or shortly after the end of the lease term in exchange for the payment of a nominal fee, for example, the minimum required by statutory regulation to transfer title.

(2) Does the lease contain a bargain purchase option?

(3) Is the lease term equal to 75 percent or more of the estimated economic life of the leased property? However, if the beginning of the lease term falls within the last 25 percent of the total estimated economic life of the leased property, including earlier years of use, this criterion shall not be used for purposes of classifying the lease.

(4) Does the present value at the beginning of the lease term of the minimum lease payments, excluding that portion of the payments representing executory costs such as insurance, maintenance, and taxes to be paid by the lessor, including any profit thereon, equals or exceeds 90 percent of the excess of the fair value of the leased property to the lessor at lease inception over any related investment tax credit retained by the lessor and expected to be realized by the lessor. If the beginning of the lease term falls within the last 25 percent of the total estimated economic life of the leased property, including earlier years of use, this criterion shall not be used for purposes of classifying the lease. (FASB para. 7)

The FASB requirement is that if the answer to any of the four questions is yes, then the lease is a financing lease and must be capitalized. If the answers to all four questions are no, it is an operating lease and is not capitalized.

3. Comparison of IASB and FASB Rules

(1) Rule # 1

IASB: Does the lease transfers ownership of the asset to the lessee by the end of the lease term?

FASB: Does the lease transfers ownership of the property to the lessee by the end of the lease term?

The only difference between IASB and FASB is that the former uses the term asset while the latter uses the term property. Thus, the rules are essentially identical.

(2) Rule # 2

IASB: Does the lessee have the option to purchase the asset at a price that is expected to be sufficiently lower than the fair value at the date the option becomes exercisable for it to be reasonably certain, at the inception of the lease, that the option will be exercised?

FASB: Does the lease contain a bargain purchase option?

The differences between IASB and FASB relates to whether the bargain purchase option will be exercised. The IASB states that based on reasonable judgment at the inception of the lease agreement that the bargain purchase option will be exercised. The FASB simply states that the lease contains a bargain purchase option and there is no consideration as to whether the bargain purchase option will be exercised.

(3) Rule # 3

IASB: Is the lease term for the major part of the economic life of the asset even if title is not transferred?

FASB: Is the lease term equal to 75 percent or more of the estimated economic life of the leased property? However, if the beginning of the lease term falls within the last 25 percent of the total estimated economic life of the leased property, including earlier years of use, this criterion shall not be used for purposes of classifying the lease.

The IASB rule states that the lease is for a major part of the assets economic life. The judgment as to what

constitutes the major part of the economic life is left to the accountant's discretion. The FASB has a rule that if the lease term equals 75 percent or more of the economic life of the lease asset it must be capitalized and treated as a financing lease. Other than estimating the length of the economic life of the leased assets, the accountant operating under the FASB rules does not have any discretion concerning the accounting for the lease. The difference concerning the percentage of economic life that requires a transaction is a clear example of the FASB being a rules-based accounting standards-setting entity and the IASB being a principles-based accounting standard-setting entity.

(4) Rule # 4

IFER: At the inception of the lease, does the present value of the minimum lease payments amount to at least substantially all of the fair value of the leased asset?

FASB: Does the present value at the beginning of the lease term of the minimum lease payments, excluding that portion of the payments representing executory costs such as insurance, maintenance, and taxes to be paid by the lessor, including any profit thereon, equals or exceeds 90 percent of the excess of the fair value of the leased property to the lessor at lease inception over any related investment tax credit retained by the lessor and expected to be realized by the lessor. If the beginning of the lease term falls within the last 25 percent of the total estimated economic life of the leased property, including earlier years of use, this criterion shall not be used for purposes of classifying the lease.

The IASB rule states that the present value of the minimum lease payment must be at least substantially all the fair market value of the leased asset. This allows the accountant recording the transaction to use professional judgment concerning what substantially means. The FASB, on the other hand, defines the percentage that the present value of the minimum lease payment must meet. Under the rules adopted by the FASB, if it is equal to or greater than the 90 percent of the economic life then it is a financing lease and must be capitalized. If it is less than 90 percent, then is an operating lease and all expenses will be expensed as incurred.

(5) Rule # 5

IFER: Are the leased assets of such a specialized nature that only the lessee can use them without major modifications?

The FASB has no rule concerning the specialized nature of a leased asset. Thus, this IASB requirement has no FASB counterpart.

4. Conclusion

The IASB standards were developed using a principles-based approach, and the FASB standards were developed using a rules-based approach. The differences that result from developing standards using two different approaches may be difficult to reconcile. There appear to be three methods for achieving harmonization: (1) the FASB will have to forego the comfort of having the rules that protect accountants them from legal battles that ensue when those rules are open to interpretation, (2) the IASB is going to sacrifice the accountant's ability to use professional judgment in determining the proper reporting for uncertain items, or (3) the IASB and the FASB will have to negotiate standards that are somewhere between the two approaches. The accounting for leases is an excellent opportunity for both standard-setting bodies to work towards true harmonization of accounting standards.

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The Causal Model of Green Marketing Strategy from View of Stakeholder Theory and Marketing Exchange

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Abstract: This research intended to be discussed in this study is those important antecedents included in companies' green marketing strategies under the view point of exchange between stakeholder theory and marketing exchange. The research architecture proposed in this study includes such three main dimensions as the management's commitment on environment, green culture of company and green strategy planning, among which green strategy planning can be divided into such two sub-dimensions as environmental corporate strategy and environmental marketing strategy. This study researched total 34 hotel practitioners in Taiwan, both local and international, and has taken composite hotels providing both accommodation and meals as the main objects. According to the analysis results of this study, after the possible influence of social desirability has been excluded, the management's commitments on environment have a significant positive influence on green culture of company and corporate environmental strategy, corporate green culture will have significant positive influence on environmental corporate strategy, corporate green culture plays a meditation part, and environmental corporate strategy will also have significant positive influence on environmental marketing strategy.

Key word: green marketing; green culture; stakeholder theory; marketing exchange; environmental marketing strategy

JEL code: M140

1. Introduction

In the traditional concept of marketing exchange (Bagozzi, 1975), subjects of stakeholders of exchange are mainly companies and consumers. However, if natural environment, which can influence the corporation operation and survival of the society, is considered as an exchange subject with everyone's attention, stakeholder subjects exchanged in green marketing will include companies, consumers and natural environment (Chamorro & Banegil, 2006). Therefore, before achieving its economic target, a company will have to face the environmental protection pressure from the customers and be required to lower the impact to the natural environment in the course of exchange, so as to sustain continued existence of the society. If a company is willing to launch environmental friendly operations voluntarily, the company itself will also achieve sustainable operation environment, complete its social responsibilities, increase customers' reliance on and purchase of company, thus

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benefiting all the three parties.

Under this logic, it can be derived that the formation of companies' green marketing strategy and activities comes from corporate operators' intent to use their environmental protection achievements to gain acceptance of social values, so as to achieve economic and social objectives in tripartite exchange. However, a company's complete planning and execution of green marketing strategy and activities requires the involvement of all stakeholders, internal and external, of the company. Therefore, the history and causal model of green marketing may be investigated in a relatively complete architecture in virtue of the discussion of viewpoints of stakeholders (Freeman, 1984; Mitchell, Agle & Wood, 1997). This research intended to be discussed in this study is those important antecedents included in companies' green marketing strategies under the view point of exchange between stakeholder theory and marketing exchange.

2. Theoretical Background

2.1 Top Management Commitment of Green Marketing

In traditional marketing, the subjects of exchange include manufacturers and customers, while in green marketing they are manufacturers, consumers and the environment. The target of traditional marketing includes consumer satisfaction and target of the manufacturer, while in green marketing, the target is social responsibilities. In marketing strategy making, traditional marketing pays attention to phases from manufacture to use of products, while in green marketing, it pays attention phases from obtainment of raw material to post consumption phase. As to the requirements of ecological aspect, traditional marketing follows legal requirements, while green marketing surpasses legal requirements and customize around the environment. Finally, as to the requirements on green groups, traditional marketing adopts the attitude of confrontation or negativity, while green marketing adopts relationship of openness and cooperation (Chamorro & Bañegil, 2006)

It is known that, by deriving from the perspective of stakeholders, it could be more clearly learned factors to be included in the causal model of green marketing and about the difference between it and traditional marketing model. Firstly of all, Freeman (1984) defined stakeholders as "in an organization, stakeholders mean individual or group influencing or being influenced by the achievement of the organization's objective". Therefore, if an organization will have considerable reverse impact on the natural environment and ecology in its operation, stakeholders caring environmental protection will exercise its power as well the legitimacy of his relation with the company and propose dimensions such as urgency of his requirements, etc., to try to influence the organization with green ideas (Mitchell, Agle & Wood, 1997). Banerjee, Iyer & Kashyap (2003) used stakeholder theory to explain that the definition of environmental stakeholders is individuals or groups that may have influence on the company's achievement of environmental protection objectives or that will be influenced by whether such objectives have been achieved or not. Under this definition, environmental stakeholders may include regulatory makers, organization members, community members or media. The influence of these stakeholders on the organization will have direct impact on the senior management of the organization, and greening of the organization will then be influenced through senior management. Therefore, senior groups' support and faith in company greening will be the first step for a company to launch green marketing.

2.2 Green Culture

Organizational culture refers to assumption, values, beliefs and meaning systems shared by organization members, which is different from other organization (Levin, 2000). Besides integrating staff and guiding the

personnel to achieve some targets of the organization, it can also help the organization make appropriate rapid response to adapt to the outside environment. According to Chamorro and Bañegil (2006), green culture is an organizational culture, looking for a long term environmental performance in accordance with environment protection. Environment -oriented enterprises will shape the common value of organization through the culture, therefore producing environmental behavior. Banerjee, Iyer and Kashyap (2003) argued that corporate green culture will clearly show environmental responsibility in the company's mission, emphasizing the value, standards, that can reflect the ethical behavior of the internal enterprise to environmental protection and commitment to environment protection. The external reflection of a company's attention to its orientation of environment equals to the effect on major stakeholders. The more enterprise culture is of environmentally friendly spirit, the more likely it will be to invest more resources in environmental management, the more the environment will be guided by the spirit of enterprise value chain green to influence environmental performance.

Schein (1985) indicated that the formation of corporate culture comes from the beliefs and values of founder of the organization. Sathe (1985) argued that the leader and founder are the primary source of organizational culture, indicating that the company green decisions often requires a push from the highest level for the concrete implementation. Unite the consensus with other senior leaders together to forge a consensus to form a green corporate vision, develop environmental management plan, and allow enterprises to be more eco-friendly, to encourage organizations members to practice environmental behavior. Organizational green culture is culture shall be implemented by top-down, because in order to the organization member can be formed and rooted within the organization, recognition and support of top management must be obtained first, to influence the staff from within. Action like that can form the green culture. The first hypothesis is that that the management's commitments on environment have positive influence on the corporate green culture.

H₁: The top management's commitments on environment have positive influence on the corporate green culture.

2.3 Green Culture as a Mediator

Corporate environmentalism could be interpreted as corporate accept and integrate the concept of environmental protection in the corporate decision-making process. Banerjee (2002) divided corporate environmentalism into the corporate environmental orientation and environmental strategy focus, of which corporate environmental orientation refers to the opinion about corporate responsibility for the environment, and importance of awareness of companies about minimizing the environmental impact. Corporate environmental orientation is the corporate value, similar to the corporation green culture. Content of corporate environmental orientation, on the one hand can contain internal corporate values, behavior and ethical standards, and commitment to environmental protection, called the internal environment orientation. On the other hand it contains the awareness of manager about external stakeholders responding to their concerns which can be called as the external corporate environment orientation, from which we can know that the corporate green culture contains the relevant concept of internal corporate environment orientation. However, the main content of corporate green culture is about the spiritual delivery between values and cognition, while the measurement of internal corporate environment orientation giving much emphasis on guidelines and standards in the respect of behavior. Besides, scale development of corporate environmentalism is limited by operational capacity. The concept theoretical definition is too broad, and hard to be implemented practically (Menguc & Ozanne, 2005). Hence, it is necessary to redefine a suitable concept for the analysis of the concept of the internal environment orientation.

Environmental policy focus refers to the degree of integration of environmental issues to the strategic planning process, which is also divided by the policy hierarchy into corporate strategy focus and business/functional strategy focus. In corporate environmentalism, the enterprise environment orientation will positively affect the environmental policy focus construct. According to the study, it can be found that due to the internal corporate environment orientation are partial to measure of corporate values, so the impact on the environment corporate strategy is more significant. Conversely, the external corporate environment orientation emphasize much on the balance between environmental protection and various external stakeholders, therefore, most of such decisions will belong to the functional level, especially on the marketing decisions. Therefore, external corporate environment orientation will have a strong impact on environmental marketing strategies (Banerjee, Iyer & Kashyap, 2003). According to the above results, values and constructs of cognition level will be more applicable to the investigation of the influence of company's environmental spirit on strategy planning, and if investigation is carried out around corporate green culture, the influence relationship between each dimension will be more consistent with theoretical implications. Therefore, the H2 can be inferred. The corporate green culture will influence the degree of corporate green strategy positively, and corporate culture will primarily affect the company- level policy, while functional level strategy will be affected by the level of corporate level strategy

H₂: The corporate green culture has a positive influence on the degree of corporate green strategy.

H₃: Environmental corporate strategy has a positive influence on the degree of environmental marketing strategy.

Support from top management will improve the employees' eco-initiatives (Ramus & Steger, 2000), and the attitude of managers will also affect the preference of resource reducing activities of the organization (Flannery & May, 2000). Even in industries with strong environment impact (such as refinery or gas industry), different management interpretation of the manager on environmental issues (deemed as opportunities or threats on management) will affect the choice of strategy of manager, and different strategy selection will influence the content of subsequent environment management activities of the company (Sharma, 2000). Therefore, it can be reasonably believed that environmental commitment of top management will affect the development of green culture in the company and the progress of green strategy planning of the company, especially environmental protection strategy at corporate level. That means green culture plays a partial mediation between environmental commitment and corporate green strategy planning of the top management team. H4 is proposed concerning the extent of positive influence of the management's commitment on environmental corporate strategy.

H₄: The top management's commitments on environment have a positive influence on environmental corporate strategy.

3. Research Method

The research architecture shows as Figure 1. Since environmental protection issues are susceptible to social desirability, this study controls social desirability dimension and eliminate joint influence and effect of social desirability on other study dimensions. The social desirability dimension uses Scale SDRS-5 developed by Hays, Hayashi and Stewart (1989). There are 5 questions in total, among which question No. 2, 3 and 4 are reverse questions and may be used to determine the effectiveness of respondents' completion.

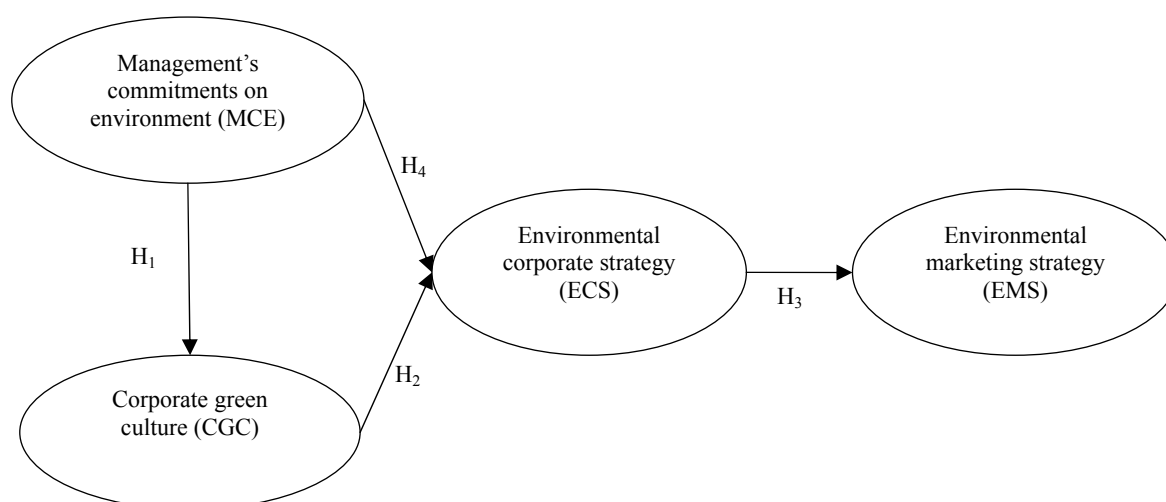


Figure 1 Research Model of Green Marketing Strategy

Note: Social desirability is the control variable

The definition of social desirability is that an individual, based on the social code he perceived, answers the question with his favorite method, trying to express himself instead of his real feelings (Roper & Parker, 2008). Questions of this section are not related to environmental protection and are able to clear the dependency of consumers' answers on variable questions and to separate questions of measure which depend on dependent and independent variables. Since consecutive questions of measure will have the respondents measure the dimension with similar methods and thus cause similarity between measures of questions by same method variance. If the respondents have to spend more time and effort on separate questions not related to the respondents, method variance caused by common method will be reduced (Feldman & Lynch, 1988).

The definition of the management's commitment on environment is that top management of the company, under the environmental protection requirement of external stakeholder, is willing to promote and support the progress of green internal operation and activities, so as to guide the environmental values and environmental protections of internal stakeholders. This study has introduced 3 questions of measure developed by Banerjee, Iyer and Kashyap (2003). This study defines green culture of company as a kind of environmental thinking and faith in corporate culture which change and influence the behavior of individuals and organizations unobtrusively and imperceptibly. An organization's awareness and attitude about environmental protection will also affect its objective, strategy, operational mode and strategy making behavior, etc., having the organization and member of all levels show their environmental protection spirit in daily operation activities. Revision (i.e., Fraj, Martínez & Matute, 2011; Bastič & Gojčič, 2012) has been made after reference to environmental protection scale provided by relevant literature, and total 8 questions of measure were developed to fit the green corporate culture dimension defined by this study.

In the section of corporate green planning, this study will carry out assessment using the scale developed by Banerjee, Iyer and Kashyap (2003). The scale includes two sub concepts, respectively being environmental corporate strategy (4 questions) and environmental marketing strategy (3 questions). Environmental corporate strategy is defined as environmental strategy planning at corporate level, which belongs to objective planning of internal integrity; environmental marketing strategy is defined as environmental strategy planning at function

level, which belongs to external objective planning of marketability. All of the above questions of measure are measured in Likert 5 point scale, and two open questions are designed in the questionnaire requiring the respondents to fill in their employer and title.

This study researched total 35 hotel practitioners in Taiwan, both local and international, and has taken composite hotels providing both accommodation and meals as the main objects. Hoteliers to be researched must be legally registered by the government and have considerable operation scale. Self-run hoteliers without registration or small hoteliers without brand effect were not considered. Questionnaires were distributed in both paper and network, and 34 effective questionnaires were fed back. There was 1 invalid questionnaire which was filled by non-managerial personnel and was therefore not included in subsequent statistical analysis.

4. Analysis

This study includes 5 dimensions in total, namely environmental protection commitment of top management (mean = 2.71, S.D. = 1.23), corporate green culture (mean = 2.75, S.D. = 1.20), green strategy planning (mean = 2.68, S.D. = 1.10), corporate strategy of environmental protection (mean = 2.69, S.D. = 1.24), and environmental protection marketing strategy (mean = 2.68, S.D. = 1.02) as well as social desirability of control variables. The reliability value of each dimension is above 0.94, and relevant coefficient, after controlling the influence of social desirability, is between 0.60~0.85, which has achieved the significance level of 0.001. That means the theoretical dimensions to be studied are highly relating, thus satisfying the necessary condition for causal relation inference.

In the section of regression analysis, this study has sequentially tested the influence relation from H1 to H4, and has added social desirability dimension in the regression mode as control variable. Regression mode 1 analyzed the influence of the management's commitment on environment on green culture, and according to the analysis, the influence coefficient β was 0.95 ($t = 16.75$, $\alpha < 0.001$), having achieved the traditionally suggested significance level of 0.5. Regression mode 2 measured the influence of social desirability as the control variable, and the results shown that the influence of social desirability on green culture had not reached the significance level ($\beta = -0.05$, $t = -0.43$, $\alpha = 0.67$) and that the influence ability of the management's commitment on environment ($\beta = 0.98$, $t = 8.99$, $\alpha < 0.001$) had not been obviously affected, indicating that social desirability had not influenced the causal relation derived by this study. The above analysis results proved the influence relationship derived by H1.

Regression mode 3 analyzed the influence of the management's commitment on environment on strategy of environmental corporate strategy, and the result shown that the influence coefficient $\beta = 0.95$ ($t = 17.43$, $\alpha < 0.001$). This was the basic comparison mode. Regression mode 4 added influence analysis after green culture dimension. The coefficient of influence of the management's commitment on environment and green culture on corporate strategy of environment was respective $\beta = 0.57$ ($t = 3.64$, $\alpha < 0.01$) and 0.40 ($t = 2.52$, $\alpha < 0.05$), the influence of the management's commitment on environment decreases as the addition of green culture dimension, indicating that green culture may be the mediating variable between them (Baron & Kenny, 1986). Regression mode 5 was the measurement of social desirability as the control variable, the analysis results showed that social desirability's influence on the strategy planning of environmental protection companies had not reached the level of significance ($\beta = 0.14$, $t = 1.49$, $\alpha = 0.15$), and the influence of the management's commitment on environment ($\beta = .44$, $t = 2.42$, $\alpha < 0.05$) and green culture ($\beta = 0.42$, $t = 2.67$, $\alpha < 0.05$) had not been affected, indicating that social desirability had not influenced the causal relation derived by this study. The above analysis results had

proved the influence relationship derived from H2 and H4. The inference that green culture of company and the management's commitment on environment has positive influence on the corporate strategy on environment is supported, and that green culture serves as partial meditation variable for the influence of the management's commitment on environment on corporate strategy on environment is supported.

Regression mode 6 analyzed the influence of environmental companies' strategy on environmental strategy of marketing, and the result shown that the influence coefficient $\beta = 0.82$ ($t = 8.22$, $\alpha < 0.001$). Regression mode 7 measured the influence of social desirability as the control variable, the analysis results showed that social desirability's influence on environmental strategy of marketing had not reached the level of significance ($\beta = 0.02$, $t = 0.13$, $\alpha = 0.90$), and the influence of environmental companies' strategy ($\beta = 0.80$, $t = 4.22$, $\alpha < 0.001$) had not been affected. The above analysis results proved the influence relationship derived from H3. The inference that environmental companies' strategy has a positive influence on the environmental strategy of marketing supports the empirical data. The above results of regression analysis and information of explanatory power are shown in Table 1.

Table 1 Statistic of Regression Model

Dependent variable	Model 1 DV: CGC	Model 2 DV: CGC	Model 3 DV: ECS	Model 4 DV: ECS	Model 5 DV: ECS	Model 6 DV: EMS	Model 7 DV: EMS
Independent variable							
MCE	0.95*** (16.75)	0.98*** (8.99)	0.95*** (17.43)	0.57*** (3.64)	0.44* (2.42)		
CGC				0.40** (2.52)	0.42* (2.67)		
ECS						0.82*** (8.22)	0.80*** (4.22)
Social desirability		-0.05 ^{n.s.} (-0.05)			0.14 ^{n.s.} (1.49)		0.02 ^{n.s.} (0.13)
R ²	0.90	0.90	0.91	0.92	0.93	0.68	0.68
F-value	280.69	136.84	303.74	180.36	125.70	67.48	32.71

Note: Number of the table is β coefficient (standard regression coefficient) and t-value shows in parentheses. *** means β coefficient achieve .001 significant level; ** means β coefficient achieve .01 significant level; * means β coefficient achieve .05 significant level; ^{n.s.} means β coefficient is non-significant. MCE is management's commitments on environment. CGC is corporate green culture. ECS is environmental corporate strategy. EMS is environmental marketing strategy. Social desirability is the control variable.

5. Discussion

It can be known from the discussion of stakeholder theory and viewpoints of marketing exchange that, to from an environmental marketing strategy in a company, it is a must to start promotion from the top management and then nurture the value of the entire employees so as to create a corporate strategy featuring environmental protection and to have the environmental marketing strategy practiced. This is consistent with the empirical result. However, in the past studies corporate green culture is considered as a part of the corporate environmental orientation, which makes it very easy to ignore the influence of nurturing of environmental values on strategy planning and as a result leads to the inference with behavior orientation as cause and strategy planning. By investigation of development and theory in the green culture dimension, this study expects to enrich the content of causal relationship model of environmental marketing strategy.

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A Discussion of Slave Labor at Meat Packing Industries

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Abstract: This article intends to introduce a category of activity — slave labor, where there is the hiring of workers without any legal ties, or honorable wages as well as labor rights and responsibilities. In this way, companies that engage in this type of activity reduce their operating costs, tax payments and increase profit margins, bringing on economic impacts, especially for the social worker as well as for society. For developing the article, qualitative research was applied to the meat packing segment, one of the sectors in the country where this harmful practice converges with society. It was concluded that the ever-growing state of development, improvement and protection of the workers is a constitutional imperative, especially because one of the foundations of the Federative Republic of Brazil is focused on the social valuation of work. Labor rights are the result of a long and arduous struggle against the dominance of archaic powers.

Key words: slave labor; meat packing industries; contemporary slavery; labor legislation

JEL code: M1

1. Introduction

Society has evolved economically through business growth and job creation. Economic activities generate jobs where workers' wages and taxes are intended to be directed towards the welfare of a society. However, companies do not always legally meet this working relationship and there can be work without a direct relationship with formal employment. This article seeks to discuss a category of activity — the slave, where there is the hiring of workers without legal ties and proper wages as well as labor rights and responsibilities. In this way, companies that engage in this type of activity will reduce their operating costs, tax payments and increase profit margins, bringing social and economic impacts for the workers as well as society. Summing up, we can conclude that the ever-growing state of development, improvement and protection of the workers is a constitutional imperative, especially because one of the foundations of the Federative Republic of Brazil is focused on the social valuation of labor.

Existing legislation, both in regards to the Constitution, or work safety issues present risks and existing sanctions.

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2. Methodology

For the development of this article, we applied qualitative research on the meat packing industry segment, which is one of the sectors in the country that converges part of this harmful practice with workers and society. For Lakatos, “qualitative methodology is concerned with analyzing and interpreting deeper aspects, describing the complexity of human behavior. Providing more detailed analysis about investigations, habits, attitudes, behavioral trends etc.” (2004, p. 269). In this case, we therefore, examined the working conditions of meat packing workers and how they are subjected to embarrassing situations of survival.

For the elaboration of the article as well, the study was qualified in two aspects: as to the ends and as to the means. This initiative started from taxonomy conducted by Vergara (2010).

As for ends, we used exploratory and descriptive research. Exploratory because the study is innovative, not verifying the existence of any studies that address the topic in a specific way. Descriptive, because it aimed to describe the situation and the conditions of meat packing employees.

As to the means, the bibliographical research was conducted in books, on *sites* and in articles. Also, with regard to the documentary analysis of the existing legislation on the subject.

3. Slave Labor in the World

Humankind has gone through several periods where slavery was an economically accepted practice. In the United States and Brazil, for example, it was a way of getting cheap labor that economically sustained the capitalist system. People were sold and purchased as mere merchandise. Today, this practice is no longer socially accepted however, certain economic sectors still practice a form that is characterized as slave labor. Skinner (2013) states those countries like China and India, for example, which have more slaves than the rest of the world. Part of this statement is supported by emerging countries which are in the process of economic growth; in this way, the size of the population, the need for large-scale production and an international consumer market motivating them that there is the possibility of having company groups that may adopt such illegal practices.

In Latin America, according to the same author, there are thousands of people, including children, who work in slave-like activities, either in manufacturing or in prostitution. Countries such as Haiti, Mexico, Russia and Brazil have people framed within the so-called contemporary slavery, according to the International Labor Organization — ILO (2012): forced labor and debt bondage, denial of freedom and prostitution, whether children as well as the traffic of women. However, this article focuses on the corporate aspect of the situation.

In Brazil, illegality is tied to generally degrading work, liberty deprivation, low wages and formal registration on the working papers according to labor laws. This largely occurs in a rural environment, but also in urban area, where part of the known examples are related to Latin Americans, particularly Bolivians in the manufacturing industry. Slavery was legally banned as of May 13, 1888 through the *Golden Law* (Lei Áurea). However, the lack of manpower to meet the demands mainly related to agricultural and livestock sectors, has led the Brazilian Government to seek on the international market another kind of slave labor, as the Japanese, portrayed by one of the authors of this book, did (Kuazaqui, 2007).

In this country, there are laws that aim to eliminate this social scourge, but they stumble on implementation issues, where farmers and cattle raisers pay fines and lose some rights such as the rural credit, but there are various subterfuges that promote their recurrence. In other words, the punishment is lenient compared with the

benefits to be gained from the illegality. In order to eradicate slave labor in the country, the National Commission for the Eradication of Slave Labor (CONATRAE) was established in August 2003, with a set of actions, where responsibility is shared by three Government bodies-Executive, Legislature and Judiciary, in addition to Federal prosecutors. Even so, the problem in Brazil persists.

4. Meat Packing Industry

To be able to understand the risks that meat packing workers are exposed to and what slave labor in this area can cause, it is important to know the law governing the safety of the same. Non-compliance with the legislation, intensive workdays, precarious cafeteria and dining areas and lack of individual and collective safety equipment.

On April 19, 2013 the Ordinance of the Ministry of Labor that created Regulatory Standard-NR-36, which establishes the minimum requirements for evaluation, control and risks monitoring in activities developed in the slaughter and meat processing and dairy products industries intended for human consumption, was published. In this way, the worker has a permanent guarantee of safety, health and life quality at work.

This legislation is based on Ordinance 3214/1978 of June 8, 1978 of the Labor Ministry and approved the regulatory standards relating to safety and occupational medicine.

A “slaughterhouse/meat packing industry is a complete establishment of plants and suitable equipment for the slaughter, elaboration, preparation and conservation of the species of animals in various forms, with complete, rational and correct use of non-edible by-products and must have industrial refrigerating facilities” (NR-36, annex I).

Currently the state of São Paulo takes first place in Brazil with a significant number of workers in meat packing industries, reaching more than 63 thousand. Following this come the states of Paraná, with 57 thousand and Rio Grande do Sul, with 52 thousand workers.

According to data from the Ministry of Social Welfare (MPAS), between the years 2010 and 2012, 61,966 accidents in industry were recorded, with 111 deaths in the same period. The number of health-accident benefits granted between 2010 and 2012 was 8138. According to the data of 2012, the state with the highest number of meat packing workers is São Paulo. There are 63,796 workers in the state (16.5% of the total meat packing workers in Brazil), with an average wage of R\$1,543.05. The second state with the largest number of workers in the sector is Paraná, with 57,413 workers (14.7% of the total) and average wage of R\$1,155.92. Then we found Rio Grande do Sul, with 52,531 workers and average wage of R\$1,285.82 (www.cntafins.org.br).

Despite the wages described above, informality and slave labor have shown that prolonged working hours and submission of workers to unhealthy activities have kept many individuals away from their jobs. Therefore, the Regulatory Standard is a tool that protects those people who work in meat packing industries.

The NR-36 determines that:

...for the workers who develop activities directly in the production process, in other words, from the receiving point up to the expedition, where repetition is required and/or excessive static muscle loads or dynamics of the neck, shoulders, back and upper and lower limbs, must be ensured Psycho-physiological breaks distributed...

The distribution of breaks for working loads of up to six hours, can have a tolerance time for implementing the pause in as much as 6hrs 20mins, being that the pause time is 20 minutes. For a workload of up to 7hrs20mins, the tolerance time for applying the pause will be up to 7hrs 40 mins and the set pause time is 45 minutes. In addition, finally, for a workload of up to 8hrs.48mins, with a tolerance of up to 9hrs10mins, the pause time will be 60 minutes.

Table 1 Wages for Slaughter House and Meat Packing Workers per State: Brazil 2012

State	Number	%	Average wage
São Paulo	63796	16.4%	R\$ 1543.05
Paraná	57413	14.8%	R\$ 1155.92
Rio Grande do Sul	52531	13.5%	R\$ 1285.82
Santa Catarina	44047	11.3%	R\$ 1441.36
Minas Gerais	32770	8.4%	R\$ 1072.11
Goiás	29151	7.5%	R\$ 1283.23
Mato Grosso	26580	6.8%	R\$ 1377.53
Mato Grosso do Sul	24620	6.3%	R\$ 1247.16
Rondônia	10064	2.6%	R\$ 1148.35
Rio de Janeiro	9421	2.4%	R\$ 1080.17
Pará	7628	2.0%	R\$ 1169.86
Bahia	6508	1.7%	R\$ 1036.05
Espirito Santo	5179	1.3%	R\$ 1181.21
Tocantins	4212	1.1%	R\$ 1172.56
Distrito Federal	3927	1.0%	R\$ 1159.23
Pernambuco	2469	0.6%	R\$ 1052.22
Maranhão	1463	0.4%	R\$ 1052.32
Ceará	1291	0.3%	R\$ 880.70
Paraíba	1212	0.3%	R\$ 917.04
Acre	1211	0.3%	R\$ 1080.54
Rio Grande do Norte	844	0.2%	R\$ 969.08
Piauí	547	0.1%	R\$ 1021.35
Roraima	424	0.1%	R\$ 1530.82
Amazonas	393	0.1%	R\$ 1468.14
Sergipe	356	0.1%	R\$ 815.45
Alagoas	276	0.1%	R\$ 860.77
Amapá	53	0.0%	R\$ 852.09
Total	388386	100.0%	R\$ 1286.29

Therefore, one verifies that the employer needs an administrative control that requires organizing tasks in a systematic way, where performance requirements must be compatible with the capacity of the worker, aiming to minimize static and dynamic physical efforts that could compromise their health and safety.

Violation of these principles implies in an illicit act that incurs in “submission of the workers to conditions similar to those of a slave”, according to what Neves has said (2012, p. 11).

In the case of meatpackers: exhaustive working hours, degrading conditions, non-compliance with preventive standards of risks of accidents.

According to Palo Neto, “slave labor is not limited to the violation of labor issues, but is a serious violation of human rights and, frequently, the finding of the existence of slaves or similar jobs that are accompanied by other crimes” (2008, p. 96).

These crimes and misdemeanors are denounced as environmental, land grabbing, document forgeries, in addition to physical injuries.

5. The Problems at Brazilian Meat Packing Industries

The departmental structure, processes and organizational chart of a company are developed from different factors such as initial investment, a need for financial return and mainly the analysis of the market demand. From this perspective, we see the need for a systemic view on the dynamics of the internal and external environment in which the company is inserted. According to Porter (1985, p. 31): “the value chain of a company fits into a larger chain of activities called a Values System”.

From the analysis of the value chain, it is possible to respond to and understand the internal and competitive environment in which the company is inserted:

- Which and how many resources — financial, human, material, for example, are needed so that the company can maintain its operations within the perspective of demand for products and services;
- How will such features be processed, how will internal relationships be developed, adding value and transforming to meet market expectations. A map of relationships is important in order to establish a guideline on how the processes and relationships will be made; and
- What and how will it be offered to the market in order to meet the needs of the market and consequently bring a financial return that generates the sustainability of the whole process.

The productive chain that includes meat packing industries, involves agricultural input producers who supply the farms, veterinary services, funding, the farm itself as a unit of production, raising and possible slaughter, meatpackers, distributors and even exports. Each component of the chain adds value to the services provided, which are duly incorporated into the final product — in this case, meat.

In order to ensure that the population consumes quality products from the point of view of health, the Federal Prosecutor and the Ministry of Labor, in conjunction with the Brazilian Environmental and Natural Renewable Resources Institute (*Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis*) (IBAMA), they maintained intense surveillance. In this way, they were able to identify meat packing industries that would be selling beef from farms that were practicing a series of irregularities such as damage to the environment, indigenous rights and slave labor, this being a constant irregularity in the sector.

6. Contextualization with Emerging Economies

According to the United Nations Organization (UNO) www.un.org (accessed on 12/12/2013), countries can be classified as emerging economies according to several factors. According to the Alexandre de Gusmão Foundation (2012), the prediction is that, countries classified as emerging have a growth that is greater than the world average in the coming years. The group formed by Brazil, Russia, India and China (BRIC), Indonesia, Mexico and Turkey will overcome the growth of developed countries, as for example the United States of America, Japan, Germany, United Kingdom, France, Italy and Canada (G-7). According to Dicken (2010, p. 375):

...food production remains an intensely local process, linked to climatic conditions, soil and often specifically sociocultural. At the same time, certain types of local production, mainly high-value foods, have become increasingly global in terms of their distribution and consumption. For wealthy consumers with access to abundant overflowing supermarket shelves, the “permanent global summers” have taken the place of the seasons. However, these seemingly idyllic circumstances for rich consumers have a dark and unpleasant side.

Analyzing in parts, livestock activities involve essentially local activities, these inserted within a legal-socio-economic context. Although this economic activity is not only the merit of developing economies,

which are the ones that sometimes have the productive resources and economic orientation to better develop these activities. These countries usually feature a precariousness of resources and infrastructure, favoring production that is more informal.

However, the major consumer markets are the more economically favored countries, who import food and derivatives and focus essentially on their economic skills related to industry and technology.

7. Employment Relationships, Labor Relations and Contemporary Slavery

The work has always been part of human activity. Ever since most remote time, humankind has labored, beginning with the search for foods to ensure their own survival. Subsequently, in clashes and battle with their fellow creatures, they realized that it was more useful to enslave them than to make them prisoners (Vianna, 1999, p. 44), thus giving birth to the phenomenon of slavery, which was considered at that time to be just and necessary.

According to Russomano (1984, p. 105), labor relations, in the course of history, took place in five phases, namely: “the slavery regime, the serfdom regime, the corporate scheme, the manufactures scheme, and finally the wage-earner regime”

The long journey through which slave labor passed up to its transformation into wage labor reveals the intensity of human struggles for labor rights, highlighting the contribution of the ideals of the French Revolution and the intervention of the state to this construction. The need for creating an instrument that would guarantee the implementation of such rights and provide security in legal relations between employee and employer brings about an employment contract, disciplining contractually working relationships.

Nowadays, it can be said that the employment relationship is the genus from which the employment relationship is a species. Within this, there are still embedded in the employment relationship other forms of employment provision, such as autonomous, freelance and temporary work. For Amauri Mascaro Nascimento (2003, p. 454), the employment relationship is “the legal relationship of a contractual nature having as subject the employee and the employer and as an object a subordinate, continued and wage earned employment”.

Slave labor, however, has not yet been effectively abolished, clothing itself in one of the most dismal realities of the human species present in all parts of the world, especially in Asia and South America. In Brazil, at the same time, ever since the 60s, there have been denunciations of enslaving practices, not only in the countryside, but also in urban area, persisting to the present day.

Brazil prohibits slave labor and the first foundation lies in the Federal Constitution of 1988, either by express provision or by the set of principles that it harbors. Already in its scope, the Higher Law offers as one of the foundations of the Federative Republic of Brazil the principle of human dignity (item III), contained in the protection of the worker; then, article 5, item III, deals with the prohibition of forced labor to ensure that, “no one shall be subjected to torture or to inhuman or degrading treatment”. Item (XIII) deals with the freedom of professional practice, with “free exercise of any work, trade or profession, meeting the professional qualifications which the law establishes”. Item XLVII, item “c” forbids the adoption of a penalty of forced labor, revealing that not even the State can force someone to work. Next, article 7 of The Magna Carta, ensures minimum social conditions for labor workers, bringing dignity to the condition of social and fundamental rights of the human person. In addition, throughout the body of the constitutional text references to labor protection, as for example in article 170 that rules on the valuing of human work with the support of the economic ordinance.

In the infra-constitutional plan, the consolidation of labor laws — CLT has a wide range of general and

special standards for work supervision, and in the same proportion punishment for employers who contravene such rules, which state that labor legislation also serves as the foundation for the prohibition of forced labor.

It is important to consider however, that both Labor Legislation as well as Brazilian Civil Legislation do not have a definition that expresses what slave labor is. In view of this legislative gap, the doctrine and the conventions of the International Labor Organization have been compelled to construct a complementary concept of slave labor.

Under the doctrinal optical, slave labor is characterized by the presence of coercion and the denial of freedom, being the fruit of the perverse combination of degrading work and deprivation of freedom. These are however open concepts, take as an example the demeaning work, which is possible to fit into a wide range of situations. Slave labor *can* still be classified as rural; an environment in which workers meet serious obstacles when severing ties with their employers. This can consubstantiate in document retention, debts that they are forced to acquire, generally resulting from the acquisition of food for their livelihood, or other nefarious practices, such as the hiring of workers by labor contractors, known as “cats”. As an urban nature, where there can even be a payment of wages, but it would be in very small amounts, as well as introducing other standards of work supervision, like the exaggeration of workday hours beyond the legal limit, the denial of a vacation, not meeting the minimum safety and occupational medicine standards etc.

The International Labor Organization, in turn, treats slave labor in conventions 29 and 105, in agreement with the following: Convention 29: forced labor (1930): provides for the elimination of forced or compulsory labor in all its forms. There are some permitted exceptions, such as military service, properly supervised penitentiary work and obligatory work in emergencies, such as wars, fires, earthquakes, etc. In Convention 105: abolition of forced labor (1957): prohibits the use of all forms of forced or compulsory labor as a means of coercion or political education; as punishment for political or ideological expression of opinions; the mobilization of work forces; as a disciplinary measure at work, punishment for participation in strikes, or as a measure of discrimination(Combat, 2014).

As previously stated, there is no legal definition of slave labor under labor or civil law. However, criminal legislation, in order to contribute in the confrontation of such a delicate issue, treats slave labor as being defined as the crime of slavery in article 149 of the Penal Code, aiming at conceptualizing the conducts that configure the “condition similar to that of a slave”, according to the following:

Art.149. Reduce someone to a condition similar to that of a slave, submitting to forced labor or the exhaustive work hours, whether by subjecting them to degrading work conditions, restricting, by any means, their locomotion because of debts contracted with the employer or manager:

Penalty: imprisonment from two to eight years, and a fine, in addition to the penalty corresponding to the violence.

§ 1ºUnder the same penalties incur those who:

I - curtails the use of any means of transport by the worker, with the purpose of detaining him/her at the workplace.

II - keeps overt surveillance in the workplace or seizes documents or personal belongings of the worker, with the purpose of detaining him in the workplace.

§ 2ºThe penalty is increased by half if the crime is committed:

I - against a child or adolescent;

II- by reason of prejudice of race, color, ethnicity, religion or origin.

Noting that the article mentioned above is the result of law n. 10,803, of December 11, 2003, which sought to clarify, as much as possible, the concept of “conditions similar to that of slavery”. It features that when the victim is subjected to forced labor or exhaustive working hours, both in the event of degrading work conditions, as in the

case of restriction of locomotion due to debts contracted with the employer or manager. As one can see, the current text of article 149 of the Penal Code meets entirely with the international conventions against forced labor of which Brazil is a signatory.

On the other hand, it is processed in the National Congress proposal for the amendment to the Constitution known as SGP on slave labor, number 438/2001, which gives new wording to article 243 of the Federal Constitution of 1988, allowing the expropriation of lands where workers are found in slavery conditions. For final approval in the Senate, where it is processed under the identification of PEC 57A/1999, a vast network of conspiracy between parliamentarians has been woven, stating that in exchange for the “PEC of confiscation of property by the practice of slave labor”, the conceptualization given by article 149 of the Penal Code would be revised. The negotiation of a new legal definition has been seen by most sectors of society as an expedient, as well as a procrastination, able to render the PEC of slave labor harmless. So far, the latest progress in the processing of the PEC in comment occurred on December 9, 2013, being in the CCJ, with the Senator Aloysio Nunes Ferreira.

8. Conclusions

With the publication of new regulatory standards presented in detail, one can perceive the risks to which workers are exposed.

Slave labor, both in slavery at the time of the Empire as it is nowadays, maintains the same characteristics: physical, psychological and moral.

Summing up, we can conclude that the ever-growing state of development, improvement and protection of the workers is a constitutional imperative, especially because one of the foundations of the Federative Republic of Brazil is focused on the social valuation of labor. Labor rights are the result of a long and arduous struggle against the dominance of archaic powers. A logical conclusion being that, slave labor stains a working relationship, disqualifying it, denaturing it, wounding with death the simplest principles and individual guarantees laid down in the Federal Constitution, as well as in the Universal Declaration of Human Rights, in addition to addressing all protective networks contained in the national industrialized legislation.

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Evaluation of the Strategy and Implementation of 360° Communications in Indonesia

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Abstract: The development of Information Communication Technology (ICT) has given the opportunity to be able to use 360° Communications in corporate communication and marketing communication activities. Nevertheless, there is still a debate on the effectiveness and efficiency of this model during the implementation on the field. The objective of the study is not merely conducting a general evaluation of the 360° Communications implementation done by companies in Indonesia, but also focusing on the use of social media trinity that are developing, which are blogging, microblog and social network. This research is done through a qualitative approach using Focus Group Discussion and interviews with industrial players, as well as through participative observation. Research results reveal that sources implement 360° Communications differently, either on defining the strategy up until evaluation, whether partially or overall. This depends on the type of business/industry it does and the communication objective it chooses.

Key words: 360 degree communications; computer mediated communications; integrated communication

JEL code: M00

1. Introduction

Increasing business competition with the development of products and services in various sectors has brought positive impact for marketing and corporate communication. One of the positive impacts are the creativity in developing concepts and implementation of strategic marketing and corporate communication, use of budget and the effectiveness of the programs to reach its goals. Conceptual creativity and implementation are very much supported by the development of Information and Communication Technology (ICT). In the communication concept, the model can be found mostly in marketing communication, which is often known as Integrated Marketing Communication. Nevertheless, in its implementation, corporate communication often uses the model because in implementing programs it needs to have understanding of clients/users through integrated programs. In this research, the definitions being used are integrated communication, which in practical terms is called 360° Communication.

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Kithchen, Kim and Schultz (2008) conducted previous studies. In their research on *Integrated Marketing Communications: Practice Leads Theory*, it was discovered that adoption and implementation of IMC should consider not only cultural differences, but also weaknesses in the process and implementation. Recommendations were made that clients need to be given greater attention in the future. Meanwhile, Tosun (2008) stated in his article that there should be a synergistic interaction between corporate PR and point of purchase communications, because this will create maximum efficiency in the system. In their findings, Spence and Essoussi (2010) who conducted a research on SME brand building and management emphasized that an integrated communication strategy is indispensable in enhancing a brand strategy while serving as a creative approach for its growth and sustainability. Another research conducted by Christensen, Firait and Comelissen (2009) asserted that it calls for an adaptation between the ideal of integrated communications and the type of integration that can be applied by the organization, as well as the relevant communication.

Some earlier researches indicate the importance of integrated communications within the organization and as regards the product by observing the accuracy of strategy selection and implementation for maximum efficiency. Similar researches in Indonesia cannot yet be found throughout the exploration. There are some evaluation activities undertaken by the company or its agency for implementation of the program. This supports the importance of this Research in contributing to Indonesia's perspective on implementation of the integrated communications.

During its development, the implementation of this 360° Communications has been a subject of debate, mainly among the company high officials in relation to the effectiveness and efficiency of this model. Some opinions say that in communicating the products/services the company must use the 360° Communications in order to achieve the communications objective to the maximum extent possible. Meanwhile, other opinions say that 360° Communications do not necessarily need to be used at all times, because achievement of the communications objective may only need a few methods. According to Will Harris Nokia, Marketing Director for the UK, 360° Communications is no longer effective, and utilizing a few methods rather than combining all the methods together will suffice. This is similar to the statement made by the CEO of Ripple Hub, Jean-Phillipe that the specific approach is not a problem at all because a single approach in a cross-channel way is not necessarily efficient.

Following the result of earlier researches and the emerging debate about the effectiveness and efficiency of the strategy and implementation of 360° Communications or integrated communications, a scientific study for evaluation would become interesting and important, particularly with regard to the strategy and implementation in Indonesia.

According to the background description, this research has the objective of evaluating the 360° Communications implemented by various companies in Indonesia.

The benefit of this research is to provide a scientific evaluation of the implementation of 360° communications, which in turn will provide a reference for development and implementation of the concept both in academic and practical contexts.

2. Selected Review of Literature

2.1 IMC, MPR, and 360° Communications

In the theories of marketing and corporate Communication, there are well known concepts of Integrated Marketing Communications (IMC) and Marketing Public Relations (MPR). Integrated Marketing

Communications can simply be defined as coordination and integration of various marketing tools to maximize the impact on consumers and other end users at the least cost possible. Whereas Marketing Public Relations can be defined as the strategy and implementation that combine the concepts of marketing and public relations for maximizing the results from the efforts of the organization in the relationship with the consumers and other stakeholders.

Along with the development of technology, currently there are emerging concepts of 360° Communications with limited academic references. The underlying question is whether the business world will find IMC and MPR sufficient or will those concepts need to be developed along with the rapid development of information and Communications technology and the need to absorb it all in an integrated way? Further exploration found that the term 360° Communications is being used more widely in the practical world. Take, for example, the “360” company working in the field of marketing communications. The company originated in the United States and offered a comprehensive marketing communication services. One example is the Ogilvy World Wide, which mentioned 360° Communications with regard to the overall effort of communicating a brand to the public.

This phenomenon then brought up the idea that the 360° Communications can be conceptualized more broadly for marketing Communication and Corporate Communication efforts. Ogilvy World Wide Indonesia defined 360° Communication as a process of ‘how’:

It is how to get all elements in the communications mix working in harmony. Interest in integration has grown recently as a direct result of budgetary pressures. Integration is a process to deliver an “end result”, not an end in itself.

That definition can be seen more clearly in Figure 1 below, which illustrates the integration of communications in an effort to communicate the brand to the consumer. This strategy also brings together a marketing strategy that has long been recognized and implemented, namely the pull strategy and push strategy, as well as the “below the line” and “above the line” forms of communication. The four main concepts of 360° Communications presented in Figure 1, i.e., advertising, digital, public relations and activation were designed bring the brand closer to the consumer.

Advertising refers to the activity of advertising in various forms, either through mass media (above the line), or not (below the line) such as through leaflets, brochures, banners, billboards and so forth. **Digital** is a wide range of communication activities via social networking media, such as facebook, flickr, YouTube, cyber communities, and so forth. **PR** (Public Relations) is public relations activities integrated into marketing communications. **Activation** is various specific activities that are packed to strengthen communication between the brand and the consumer in a face-to-face encounter.

With such integrated means of communication, consumers are expected to gain and feel some particular experiences with the brand, which will be recorded well in their memory, and in turn will give positive feedback to the brand.

Figure 2 provides the details of various communication activities derived from the four main concepts: advertising, digital, public relations and activation in the implementation. Various activities utilizing all available communication media will provide experiences to all message-receiving senses. These experiences (insight) are expected to bring a positive assessment of the products or services being communicated. Thus, the positive experiences can be shared with others and lead to the process of dissemination either directly or through social media. Dentsu-Japan communications company developed this concept and implementation from the marketing communications concept of AIDA, i.e. Awareness, Interest, Desire, Action, and turned it into AISAS, i.e.,

Awareness, Interest, Seeking, Action, Share.

From the description, it can be said that 360° Communications is the result of development of integrated marketing communication and Corporate Communication concepts and supplemented with digital communication concept in line with the rapid advancement of information and communication technology (Information Communication Technology). Furthermore, we will have a more specific discussion about the role of ICT in 360° Communications.

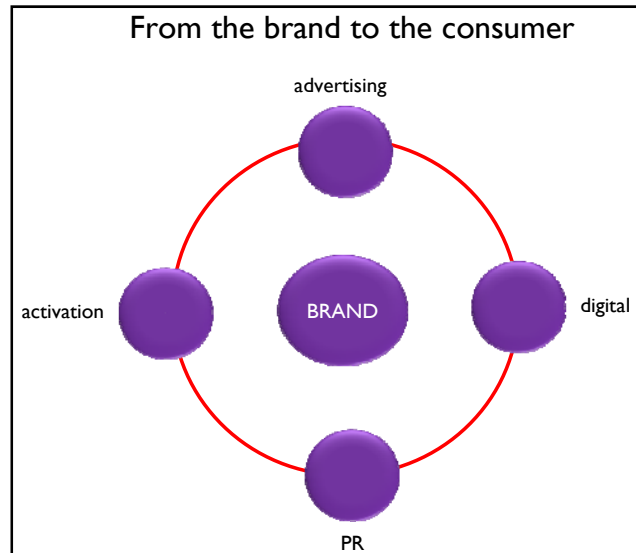


Figure 1 Main Concepts of 360 Communications

Source: adopted from PR. Smith & Ze Zook (2011) and Ogilvy World Wide (2011)



Figure 2 Implementation of 360° Communications

Source: Ogilvy World Wide (2011)

2.2 ICT Role in 360° Communications

Originally, the development of communication and information technology has provided the ease of communication between individuals via electronic mail, also known as e-mail, and introduction of an organization through the website. Currently, the form of communication by means of Information Communication Technology (ICT) can be both inter-personal and mass in nature. Although the debate on this matter will continue, the following exposure puts more emphasis on its usability and role in 360° Communications. With regard to ICT role, Hardjana (2012) in his writing on *Integrated Communication: Marketing Communication in the Interactive Age*, expressed the following:

Globalization has an effect on how we communicate and what media to use in communicating. To be able to manage organizational results, many realize that individual communication held by different units did not make the organization effective or efficient. Communication needed to be realigned and integrated to a centralized corporate communication network. In addition, with pressure from the growth of communication technology, business must also face the complexity and intricacy of business competitiveness and positioning to be in the mind of consumers. Hence, the development of integrated marketing communication (IMC) provided another stage of development of integrated marketing communication (IMC) provided another stage of development in communication industry.

Currently, much more than emails and websites can be utilized to communicate a product or service. Individuals in different parts of the world separated by space and time now find it easier to get connected to one another through sophisticated facilities of the ICT. A network map between individuals indicates the breach of such barriers as distance, space and time, as can be seen on Figure 3. Communication through the computer with various forms of free or paid facilities has enabled individuals to communicate with one another in real time. Thus, the constraints or separators of distance and time become smaller, if none at all. These kinds of situation would likely enable any individual to participate in disseminating information about products and services. The role of these individuals is often referred to as the word of mouth marketing communication that currently applies either through the cyberspace (online) or not (offline).

Computer Mediated Communication, the concept proposed by Whitaker in Littlejohn (2008), currently available and can be used by anyone including companies in communicating their products or services to the consumer, is very diverse in nature. In connection with this, it is important for companies as well as professionals of marketing and corporate communications to know about the social media landscape. Understanding the social media landscape will also mean having an in depth knowledge of the nature and character of the social media, who are using it and what is the impact of its use, as well as what are the financial consequences. According to Lan Safko (2010), five major phases must be followed in order to be successful in using a social media. The five phases are:

(1) Analysis of media that were once and are currently being used.

This includes measures to review the planning for marketing, the marketing and corporate communications strategy as well as the relevant implementation that were once and are currently being carried out. This phase aims to see if costs incurred by the company are worth the results.

(2) Social media trinity

This phase aims to give greater focus on the three most important categories of social media and disregard the lanilla category. The three categories are: blogging, microblogging and social networks

(3) Integrated strategy

Next is the phase where the trinity of social media is integrated within the strategy and planning for

implementation of marketing and corporate communications to achieve maximum results

(4) Sources

The phase where all sources that allow for the implementation of this new strategy are discovered and compiled

(5) Implementation and measurement

The last phase is the implementation of strategy that has been compiled and planned, and the relevant measurement. This measurement of success is the phase most often abandoned or forgotten, and therefore it is imperative to thoroughly follow all these five phases in order to obtain the evaluation through precise measurement.

As mentioned earlier, the trinity of social media is important to observe so that the planning for marketing and corporate communications strategy will be better focused. Figure 3 indicates the social media landscape taken from Fredcavazza.net. In that Figure, we can clearly see the various social media that are included in blogging, microblog and social network.

Blogging, microblog, and social network are terminologies well known in the cyberspace. **Blogging**. Blog is an integral component in social media marketing, i.e. information website published via the World Wide Web (www). Blog can help the company in building trust, putting the company and its products or services in a robust environment, and automatically presenting the company and its products/services to the consumers. **Microblogging**. Is a blog in a smaller format, better known by its brand, Twitter. Twitter is the most recognized form of microblogging. Through Twitter, the company may be followed by followers who will read anything communicated via the tweet that will very likely be retweeted so that the information can be followed and read by more people. The company can also upload photos, do some tagging and so forth through the Twitter as a form of microblogging. **Social network** encompasses individuals or organizations that are dyadically connected through social networking facilities in the cyberspace. Figure 3 indicates the social media landscape that can be used both by individuals and organizations to interact with one another.



Figure 3 Social Media Landscape

Source: Fredcavazza.net. (2011)

In line with the rapid development, communication tools are also developing by providing social media features. With this development, the company's efforts in communicating products and services through 360°

Communications will be easily acceptable and accessible to consumers. The development of communication and information technology has moved the manufacturers of handphones to bring forth smartphones that provide a variety of social media features. Through the smartphones that can be brought anywhere by customers and potential customers, access to social media features has become much easier. This will also facilitate the scope of communication from the company to stakeholders in communicating, persuading and collaborating its products and services. Such ease and immediacy also contribute to the effectiveness and efficiency of 360° Communications. Achievements that are above the expectation or target can be obtained with reduced cost.

3. Methodology

The Research Method employed in the research on implementation of 360° Communications was qualitative in nature, using primary and secondary data. Primary data is obtained through interviews, focus group discussions and participatory observations. In-depth interviews were conducted with resource persons of policy makers from five companies with representatives of varied business sectors, namely: consumer goods, financial institutions, communication consultants, cinemas, and radio media. FGDs were conducted twice with participants serving as policy implementers in various companies. Researchers who also work in consulting firms for communications and mining carried out participatory observations. Meanwhile, secondary data includes archives relating to the implementation of 360° Communications.

3.1 Data Analysis

The process of qualitative data analysis aims to give meaning to the situation (Krueger in Rabiee, 2004, p. 657). Krueger explained that data is reported in three levels:

(1) *Raw Data*, i.e., raw data based on resource persons' statement in a conversation and categorized by theme level.

(2) *Descriptive Statements*, i.e., summary of resource persons' words and comments arranged by theme level.

(3) *Interpretation*, i.e., interpretation through a descriptive process by giving meaning to data. When giving meaning in a descriptive way, it must reflect the researcher's own bias.

To analyze data collected through in-depth interviews, which resulted in taped interviews, the data will be collected and analyzed for classification through coding. Here are the coding sequences: the first is open coding, where interviews are marked or coded to classify data into specific categorization in which the outcome will have better focus for analysis. The second is axial coding, where researchers give greater focus on analyzing data that has been categorized which enables the researchers to look at the causes, conditions, processes, and strategies that can eventually be divided into groups. The next sequence is selective coding where researchers identify the main theme of the research by looking at data samples that can represent the theme (Neuman, 2003, pp. 442-445). Interpretation is the final stage of data analysis. Interpretation is carried out based on the objective of the research. Krueger (Rabiee, 2004, p. 658) provided seven criteria for data interpretation: Interpreting the words to learn about terms used by resource persons, context, frequency of resource persons' response, intensity of response, consistency of response, response specifications, and looking for great concepts out of the data obtained.

4. Results

The research results presented in this section systematically discuss the five phases suggested by Savko Lan (2010), i.e., analysis of media that were once and are currently being used, social media trinity, integrated strategy,

sources, implementation and measurement, but with combination of several parts. Thus, the presentation is arranged as follows: **Analysis**, which includes market research and media as well as communication media that are being used; **Social Media Trinity**, which includes blogging, microblogging, and social network; **Strategy, Implementation, Measurement**, which include the determined strategy and its implementation, sources, and measurement that are being used to observe the implementation's achievement.

4.1 Situation Analysis

Both national and international companies perform various analyses prior to preparing a management strategic plan. In this context, the company's communications, both corporate communications and marketing communications are seen as an integrated part of the company's management strategy, not merely as a supporting part.

The following are the interview results on situation analysis performed by resource persons:

(1) A research is conducted before and after conducting a campaign. From the group there is the media monitoring division (that will also function as service brand)...Verbrand is the research agency that conducted the research before and after the campaign

(2) Image analysis was conducted by Nielsen, consultant and media analyst.

(3) We are developing the Net Promoter score. Surveys to find out whether customers are satisfied or not would be meaningless. By means of the score, we will find out how many customers are promoters, how many are detractors, how many are neutral.

(4) As regards the research, actually the company has had a division where all products have gone through various researches prior to the launching. Those researches are related to the products' concept.

Based on the interviews, the research results show that to conduct market analysis/research, multi-national companies use concepts that have been determined by the Research & Development Division at the headquarters and developing as well as processing them in accord with their respective locality. As regards national companies, they use internal research and research consultancy services. Most of the analysis/research investments are made for marketing communication, especially in utilizing the consumer database, while corporate communication focuses more on media monitoring.

The company uses various researches for situation analysis, both formal and informal researches. The types of formal researches being used include:

- Market research/business intelligence
- Media research such as Nielsen, Verbrand, net promotion score
- Revenue (overall, annual review)
- Informal, ad-hoc or post event researches would use:
- Media monitoring
- Revenue (post event)
- Communities
- Market watch

The benefit of multiple resource persons being multinational companies is that the format of situation analysis is already standardized, and would only need to be applied, and the benefit would be even more evident if there is flexibility to adapt to local conditions.

4.1.1 Communication Media

In providing information on products and services while interacting with the general public and stakeholders,

the company uses both above the line and below the line communication media. The use of communication media depends heavily on the type of company and the type of products/services offered. Below are the research results in each communication media:

4.1.1.1 Above the line

Communication through media or above the line (ATL) still occupies the largest portion of the fund allocation, especially for fast moving products and consumer goods. The largest use of the media is for advertising, with television as the principal media. The use of television is primarily based on its advantages over other media, namely the audio-visual capability to deliver messages and the scope that reaches all layers of society, especially the lower middle class, who are not users of social media.

Evidences can be seen from the interviews are as follows:

(1) *Since the initial business is PR, then ABL is more of a complement and conducted by another agency, Mocca (one group)*

(2) *Female Circle activity relies on advertisement/sponsorship/ cooperation. Female cannot rely solely on radio advertising. So BTL activity (event) will cooperate with TV and magazine for ATL.*

(3) *I am developing the advertising method through direct response television concept. Because what I need is not only awareness, but also response for action. To that end, a system will play the role here. So for each TV, each program, I am employing all TVs, SCTV, RCTI, etc. Then I give the phone number to those various different advertisers.*

(4) *We have no special program or other ways of advertising the cinema. So the advertisements will still focus on film. Thus some advertisements will be film owners' burden, and some others the cinema's burden.*

To maximize the effectiveness and efficiency considerations, several brands are working together with banks/credit card providers to advertise, especially at the time of selling. Banks are considered quite aggressive in terms of advertising and making promotion, especially in the outdoor media. Banks' aggressiveness is regarded as an opportunity for certain brands with common target audience to cooperate.

4.1.1.2 Below the line

Below the line is the communication activity from the company to the targeted community who do not use mass media. Smith and Zook (2011) mentioned that these activities include selling, publicity, sponsorship, sales promotions, direct mail, exhibition, merchandising and point of sale, and packaging which can be done either offline or online.

Various marketing communication activities carried out by the company give priority to consumer participation, product demonstration or cause-related marketing, such as breast cancer for women's underwear products, or by special celebrations such as Lebaran, Valentine's, Chinese New Year, Christmas and New Year, as well as national memorial days such as independence, education, and so forth. As regards corporate communication, BTL activities are more related to the media, such as press conference, tour, social marketing, etc.

Below are some interview results that explain the exposition above:

(1) *Since the initial business is PR (BTL), the primary activities are media relations, social marketing, digital activation, and brand strategy.*

(2) *So I have established cooperation with one call center, info media, and this involves 300 people. So all must know for sure where the advertisement came from. Because we are using 5 TV, 5 different phone numbers. The advertisement will be aired every hour for the first 4-5 days. This way we can find out who will give response. According to the target audience.*

(3) In principle, promotion will advertise films, not cinemas. There has never been promotion for cinemas. There is cooperation for promotion with films. There is cooperation for promotion with cinemas.

The research results indicate that the company's communication activities with the concept of below the line (BTL) are very diverse. The implementation involves all kinds of businesses, both in terms of marketing communication and corporate communication.

4.2 Social Media Trinity

Social media trinity includes blogging, microblogging, and social network. Research data indicates that implementation of social media trinity involves different scales and phases as it depends on target market or target audience. For Business to Business (B2B) companies, social media trinity is not employed given the very limited target, except for reaching out to potential employees of upper-level/final year of college students who are preparing for graduation and already looking for a job. As for companies with a large and broad consumer base, the social media trinity is deemed necessary. Nevertheless, implementation in each company will be tailored to and highly dependent on their respective product category. The use of social media is presented below in a systematic sequence for each category:

4.2.1 Blogging

Blogging is a computer-mediated communication activity aimed at communicating various activities of the product or the company. Interaction with blog or website visitors may occur if a feedback facility is given in the form of a space to leave messages or chat room. The research results indicate that not all companies or products have made use of this facility.

Below are the evidences that blogging is limited being used due to the difficulty in maintaining and need to have a specific person dedicated to manage:

(1) Blogging cannot be easily maintained, it requires a person with specific skills to handle the maintenance. Some clients are using this service. But there should be someone to keep driving the clients. Blogging will involve dragging numerous contents and clients do not have the resources for that, and as a result many blogs remain blank

(2) Looking for long lasting members is not an easy thing to do. Many forms of cooperation have been established, e.g., among bloggers. They are our resource persons for digimom. So actually we are more focused on non-radio because the impact may be stronger.

(3) In case of any sudden change, we cannot do anything. That is why we use the website, first because the number of internet users in Indonesia is increasing, second it enables interactive communications, and third it has greater flexibility. For example if the broadcast slot of a film is added, the update can be made directly in the website.

The results above indicate grouping of blogging can be divided into several categories as follows:

- Not using it yet; due to no resources for maintaining the limited availability of content
- Using it but having difficulties in maintaining it, and only limited to cooperation with blogger network (not self-managed)
- Just started using it after seeing the potential for consumer retention.

4.2.2 Microblogging

Microblogging is the miniature of blog. Currently the most widely used microblog is Twitter. Twitter is a social media communication tool that limits users to write messages up to 140 characters only. The advantage is that users can upload photos or pictures and mini videos. Results of previous researches indicate that Twitter users

in Indonesia ranked third in the world. However, most of the users are individuals. For companies or products, the use of Twitter is not too common yet but has started growing. Some users also do not use the company's name, but rather utilize the endorser or use a trigger word.

Below are the evidences on the use of microblogging:

(1) I am like a sniper, who does not give greater importance on how many to use, but instead which one is the most effective. This effectiveness is important as we are talking about efficiency and sales. So if we talk about for example FB and Twitter, currently we are not there yet

(2) We do not have Facebook, but we have Twitter. We have an internal personnel dedicated to handle this. Instead of being useful, this has resulted in so many inputs and complaints which, in my opinion, are not significant

(3) Twitter is a relatively new media, and the implementation is not highly developed yet. So far, we can see some very positive points, and we are also employing our brand ambassador to take part in endorsing our brand. For brand cosmetic, we have just signed up Titi Kamal as our brand ambassador. So, through Titi Kamal's Twitter, up to 3-4 times a day, she can talk about her closeness to "Ultima". And Titi Kamal has 200 or even almost 300 thousand followers, so this is what we are doing.

Based on the above, the research results show that information from resource persons is divided into two, i.e. using and not using this tool.

- Users have internal personnel dedicated to handle the tool or employ an endorser (resource person or brand ambassador) with relatively high number of followers.
- Non-users feel that they do not need such intense dissemination of information or they are still observing the situation to see how they can get involved.

4.2.3 Social Network

Social network is made up of individuals or organizations that are dyadically connected through cyberspace social network facilities. For the social network associated with this research, companies or products will purposely form their own communities, but some others do so at the initiative of the consumer or community.

Interview results on the use of social network can be read below:

(1) Many social marketing activities utilize Twitter and Facebook.

(2) Twitter is much easier and manageable from anywhere and the content does not necessarily have to contain many things, and it can be linked to the company's website.

(3) For FB usually the advertisement will be uploaded and linked to the website, and likewise for complaint handling.

The main difficulty is how to guide the content that will be posted in the social network. Clients also need to be educated as to what can and cannot be posted.

(1) In Indonesia it is not easy to run a program by using social network, unless (maybe) if the target audience is people in Jakarta only. The use of wi-fi may not always be possible at certain offices in rural areas... let alone at houses. Communication infrastructure (internet) has not been considered as an important thing

(2) Thanks to its being free of charge, the audience will be more attracted to accessing the social media, especially when there is activation inside – for example, a contest of some sort for certain groups. ... Members may give inquiries to our resource persons through FB. For example inquiries about privacy in the social media. They can see photos and videos of our activities. It can be fun because there is no time limit. So we establish a program, create a mindmap, and then choose whether to broadcast it through the radio or set off a

promotion. ...Although it cannot be separated from activation, the number of visitors is also limited. At the most 200 people. Meanwhile, if we do this via social media, we can reach a wider range of audience. In order to invite 200 people we may have to initiate an email blast first.

(3) More PR might result in more response. But we cannot do this yet for sales. Because my principle is that each communication should create not awareness but engagement. Engagement can only be created if the person has a community. Well, all these are also communities. But the question is how to capture this specific community.

(4) So within the scope of social media, anything that we have endorsed or done must at least be updated in the FB. And then, each brand must have a twitter account. In addition, each brand, especially major brand, must have a microsite, website. This will serve as a reference in our fanpage or display ads in detik.com, or in FB, where the link on those pages will open the brand's website upon visitors' clicking

Therefore, the research results indicate that for social network the data obtained is then divided into three categories:

- *Using social network actively* to build a community and gain loyalty. Use of social network can also be adjusted to the target audience, e.g., young people, active women, and so forth. Additionally, social network activities can also be linked to offline activities. Thus, another benefit to the product or company is a wider and easier access resulted from the availability of mobile access facilities and infrastructure.
- *Using social network passively*: for data mining, as a source of information and not to interact, as a connector for members in case of missed-out event, or to provide certain responses in regard to PR, not sales.
- *Not using social network*: the company or product is not using community social network because it is not appropriate for the product whose target is the lower medium class. Besides, it is not easy for the target market to get internet access; or it is still in the process of assessment.

In using media trinity, what all resource persons found to be the most important thing is how to reach the target audience, establish an interaction and achieve an engagement. Nevertheless, the research results indicate that no one has used media trinity for online shop.

4.3 Integrated Strategy and Implementation

Do all companies have 360 degree communications strategy and implementation? Based on the discussion during the FGD, B2B or services companies partially use 360 degree communications and those consumer goods and media fully implement the method.

4.3.1 Partial

Research indicates that integration of activities is more partial for service or B2B companies. This occurs because the purpose of communication is to create or maintain the company's image, besides cooperation. This will be slightly different for consulting firms because the communication depends on the clients' needs/wishes. Nevertheless, although not using 360 degree communications, no company is applying one tactic only.

To provide support, comments were provided as follows:

(1) The activities depend on the clients' needs. Thus it can be partial (PR only) or advertising, digitalizing, social marketing leading to 360 degree.

(2) In order to reach women's market, initially Female only relied on radio. This is to build Female Circle community to be loyal. Female Circle is a forum for women's community to move together to the better world for a happy world. Our slogan is Happy is the new style. In Female circle we can build programs appropriate to their needs, some are newly built, and some are collaborated with the existing communities.

(3) So, in insurance we consider this PR on program. Second, through business partner, how to start the

initial call, then verify it after finishing the call. Then after sale service, whether he gives good or bad claim. Perhaps next month buy another thing. It is different from cars, etc.

It is worth noting that companies applying marketing communications/B2C are required to bear the corporate communication costs in the activities relating to the product.

4.3.2 360° Communication

Different from services and B2B companies, based on experiences from most resource persons, consumer goods industry is doing their utmost to involve all components in 360° Communications.

In this case, the competence and capability of human resources play a very significant role. Project manager's ability in the implementation will also affect the implementation capacity, including in making recommendations about further communication activities.

Meanwhile, the number of corporate communication activities integrated into 360° Communication is higher than that of marketing communication activities.

Below are the supporting comments:

(1) Ultimately, our services are not merely PR, but more or less across 360. However because PR is the basis for all, then the strategy is prepared by the PR division (Fortune). Headline is handled by Media Relations, and Mocca is handled by ATL. PR is handling digital, social marketing, community development, CSR

(2) Other than conducting 360 degree for itself, Female is also providing 360 degree services to women's market in particular, and actually we are also serving as agency for women's market.

(3) All of us have shifted from the traditional approach. In the past, preparation of our marketing program was simpler because it only involved ATL, BTL, and promotion. Now we are putting more emphasis on this 360.

4.3.3 Implementation

On implementation, comments from resource persons were as follows:

(1) Program implementation per client is different. As an example, for Citylink because of its transportation field, then Mocca (ATL) leads due to its considerable activation (branding) and advertising. Although Mocca leads, underneath there are still media relations, digital.

(2) Collaboration with competitors is also possible. For example, Femina which does not have a radio, its activation will not work without promotion. Finally, it is cooptation.

(3) For the time being, because revenue comes from advertising, they still also have radio-based activities (70%). The remainder is through activation and social media.

(4) We are only saying that from our perspective, the social media is required, because it creates engagement. But in terms of proportionality and in terms of communication, the largest portion is still in the TV. So far, we are investing in the social media at 5% maximum, because we have to share with a variety of touch points.

From the results, it can be understood that although in principle a company implements the 360° Communication, but the implementation is more custom-made, depending on the core business, and tailored to the interests of each company because the options are pretty many, so it depends on the ultimate goal to be achieved.

From the above we can summarize that implementation includes the following factors to consider: tactical, branding, education, budget-based, and if needed, is cooptation.

4.3.4 Evaluation/M Measurement

As a business activity, it is necessary to measure the results of communication efforts made. Interviews with source persons indicate various forms of evaluation to measure the success rate of its communications activities, as follows:

(1) For media monitoring, it works from Headlines. For brand strategy, it partners with research agency. If media monitoring is quantitative, the qualitative is a little. ... The client wants to use AFE multiplied by the value/price of the ad to make the figures look great. Actually, the international PR world has no longer the AFE. It does still have the standard Barcelona Principle AME, but clients do not like the figures. They are considered to be not performing by their leader, because of the small figures, while in fact there is a philosophy behind it. But they may not be able to convince their boss that this measurement philosophy is important. In addition to viewing the content qualitatively: just what is the news content, has the message hit the target, and is the sentiment positive, negative or neutral? For CSR activities and other social marketing, things measured are the perception (understanding and awareness), behavior, including the behavior changes. From the implementation in the field, there are many lessons to learn, especially when it comes to expanding the program (for Smart BTN), for duplication, the parallel. The challenge is to build human competence.

(2) Using the social media makes things more objective, because who says 'it is good' or 'who likes it' is not the company. If there were those who "like" it, they were not forced, were they? On the FB the "like" content shows quality. But in fanpage, it only shows followers, thus, the number. But we do not know if they are happy.... If there is feedback, the result will have a better quality than just being a follower or fanpage. If 'you like it,' it is more on the engagement, or retweets.... The company must be smart to maintain. So, people may hit anytime on the web, too, but we also have to do mining or validation to find out what they get attracted to. For example, he likes this content, but once it is replaced he does not want to come again. Using a Customer Relationship Management (CRM) is expensive, because the data must be periodically updated. Incidentally, there is a division in the group named MMS, Massima Marketing Solution. The job is to combine the integrated marketing solution and CRM to be given to the consumers outside and inside, as well. So from there, it could ask whether to survey further, until a relationship takes form.

(3) The ad is evaluated, the channel, too. That is what we call post-campaign. About the use of any TV, successful or not, we use a phone number for checking. Or, we separate the phone number and check. Why did not he buy? We know. Others do not know, right? Maybe people are interested, but Nielsen does not have a system to know specifically, does he? That is why the mass system must be checked.

(4) We do this research just to advertise. That was the initial purpose. So we know how many have seen the web, how many people have read the newspaper. So, it is according to the demographics of our audience, because advertisers are always asking about these.

(5) For TV, we already have data on the effectiveness of advertising, through the target parameters for example the rating point. Then ... we usually do the measurement of the awareness through adcast, the quantitative research, and then from there we see the level of awareness, we do the pre and the post. We do the pre research at the time before the ad display, and we do the post after. We usually do quantitative pretest, so we take the FGD group before being executed and we ask the feedback. Assessment of the effectiveness or ROI (return on investment) of the social media, has not had too many application, because it is hard to track down its effectiveness, in the sense that, for example, if we calculate the number of members or the 'likes', these 'likes' are also a debate, in the sense that it is no longer a barometer now. But ... we also have to look at the quality of the conversations that occur. How many people have clicked, and what are their ages, which we could read from our ad displays in FB. But the big question is, how much do we pay per click. From those who have clicked, how many will finally follow up by purchasing or trying a product? We measure the buying of products at the point of sales. So far, it is still a matter of pursuing the quantity, one measurement being the number of members, so that is just

on the surface. But actually, the measurement should be in terms of conversation, with continually rising sales. In a sense, if the KPI occurs, it will grow in line with sales revenue, so, let the brand have more flexibility in the allocation, as well.

(6) Since the measurement is not very quantifiable, so to claim a successful brand with the social media may not be possible. Because if we associate success with sales, it must be the results from a variety of activities, not just the social media. But if it is, for example, measuring in relation to event per event, there may be one or two particular programs that are quite memorable and getting a lot of interest and response, if it exists. And the WOM has been created.

On the use of a blog or microblog, such as page or facebook, the number of the 'like' and 'share' clicks serves as the measure of whether the communication carried out has gained attention, been read and passed on to the environment of their friends or not. For microblog, the most being used in Indonesia today is twitter, with the successful communication being viewed from the number capable of doing retweet or whether the tweet is capable of turning into a trading topic. In addition to the clicks and shares, the evaluation also observes the number of web visitors or check-ins, the number of followers/participants/visitors, and feedback response.

Another evaluation done by sources is based on the following factors:

- News value equated with advertising value when calculated by AFE or qualitatively according to the quality of the news.
- *Return of investment* cannot be measured with certainty (if there is a relationship between seeing ads and purchasing power) — *promoter score*
- *Creating awareness and word of mouth*
- *Sales and Revenue*

In short, the results of research show that the measurement/evaluation of program activities can be done through a variety of ways depending on the form or the means of communication used.

5. Conclusion and Recommendation

5.1 Conclusion

The strategy and implementation of 360° Communications are to set a research-based one, formal or informal, and built on the company's management strategy. In the implementation, the 360° Communications has the design based on the target audience, products offered, Key Performance Indicators of products, the community, as well as distribution channels.

All companies in communicating with the target audience still use conventional media as an implementation strategy below the line and above the line. Meanwhile, as regards the new media, known as media trinity (blogging, microblogging, and social networks), not all companies use it, depending on the type of business whether goods or services. In connection with the media trinity, Corporate Communication tends to choose blogging, while Marketing Communication seeks the use of all means of communication. Nonetheless, both are integrated in the packaging of the message.

Evaluation of the strategy and implementation of communication concludes, however, that the below the line and above the line are easier to evaluate than the media trinity.

Related to the debate whether the company, product, or service should use the strategy and implementation of 360° Communications wholly or partially, this study proves that the use of 360° Communications depends much

on the type of business, and the purpose of communication.

5.2 Recommendation

The practical recommendation that could assist in the design of strategy for and implementation of 360° Communications is to have the objective of the budget-based communication being conducted. This is because the difficulty of evaluating, especially for media trinity. As for the strategy and implementation, it is suggested to have content-based 360° Communications. Meaning that the messages conveyed through various media and means have things in common, so it is not confusing the target audience due to the confused message, but became more focused.

Scientific advice to complete and continue this research is to have a separate study for each strategy and implementation of the media trinity and measure the outcomes quantitatively in order to calculate the impact. Furthermore, given that the measurement and evaluation of the media trinity are still a problem, it will be very useful both scientifically and practically to carry out studies to measure the social media trinity.

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Reflecting IFRS Measurements in Corporate Financial Reporting

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Abstract: Globalization and development in international accounting tend to obscure the quality of corporate reporting based on GAAP and this has given rise to the adoption of International Financial Reporting Standards (IFRS). This study therefore examines how elements of financial statements are measured based on IFRS. A review of extant literature suggests that: property, plant and equipment are measured with the revaluation model; stock valuation is based on FIFO; Goodwill is based on revaluation model; depreciation of asset is reported on straight-line method; equity method is used in the measurement of equity investment; non-equity investments are reported at fair value; long-term liabilities “are valued at current debt equivalent, short-term” liabilities are reported at fair value; revenues are measured on fair value; expenses are reported at actual amount; while agriculture and mineral resources are valued at selling price. It was therefore recommended that there is dare need for proper and intensive training for professional accountants, auditors, and other preparers of financial statements to acquire relevant skills and knowledge to meet IFRS reporting requirements.

Key words: IFRS; measurement; corporate reporting; financial statement elements; GAAP

JEL codes: M

1. Introduction

Measurement is the process of determining the monetary amounts at which the elements of financial statements are to be recognized and carried to provide information about the results of management’s stewardship and financial position of the firm. These measurements have been made over the decades with the Generally Accepted Accounting Principles (GAAP). But globalization in the business world and development in International Accounting of the past years brought increasingly volatility to the financial market and business and, consequently, the information needed to meet international standards and ensures market stability. This requirement is meant to address the quality and quantity of information that must be provided to local and international market participants. This calls for business entities to adjust corporate reporting in line with IFRS. According to Okoye and Akenbor (2012), IFRS is a global GAAP and a set of principles-based and globally accepted standards published by the International Accounting Standards Board to assist those involved in corporate reporting all over the world to report high quality, transparent and comparable financial statements.

Izedonmi (2011) in Awa and Abdullahi (2012) posited that the factors supporting IFRS are: continuous integration of world economy; increased interdependence of the international financial markets, absence of

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barriers of capital flows across national boundaries, increased mobility of capital across national boundaries, multiple listing by companies in capital market within and outside their home jurisdiction, and continuous demand by stakeholders for quality information and greater disclosure. Simmonds and Mackenzie (1992) also claimed that standardization of corporate reporting brings about minimization of accounting cost since the documentations and recording procedures are invariably the same across nations of the world, and this in the long-run leads to higher corporate profit. They added that income manipulation by foreign counterparts is equally prevented because of the strategic consistency of the standardization policy, and such prevention will bring about stability of earnings to all stakeholders of the business.

In view of the above, this paper is therefore aimed at examining the requirements of IFRS in the measurement of financial statements elements so as to provide guidance to preparers of financial statements in the conversion process to IFRS.

2. IFRS Measurement of Financial Statements Elements

(1) Property, Plant and Equipment (PPE) — These are tangible assets that have been acquired or constructed and held for use in the production or supply of goods and services. They are not intended for sale in the ordinary course of business (Alexander & Britton, 2004). IAS 16 requires that PPE should be measured and reported using the revaluation model, which may be greater or lower than cost. But GAAP recommends that PPE should be reported at cost. “For example, a firm acquired an equipment on 10th January 2010 for ₦1,500,000. On 31st December 2010 the net realizable value is ₦1,730,000”. IAS 16 requires that the equipment be reported at ₦1,730,000 while GAAP demands that the equipment should be reported at ₦1,500,000 less depreciation.

(2) Stocks — According to Derek (2010), stocks are items of value held by the firm either for use or sale. They exist in the form of raw materials, work-in-progress, or finished goods. The primary basis of accounting for stocks is cost. Cost can be determined under cost flow assumptions such as first in first out (FIFO), last in first out (LIFO) and averaged.

IAS 2 recommends the valuation of stocks based on FIFO while GAAP recommends LIFO. Consider the following transactions that relate to the purchases and issues of a stock item –

Feb. 10–purchases 200 units@ ₦10 per unit

March 2–purchases 300 units @ ₦10.50 per unit

March 11–Issues 350 units.

Stock Item I

Date	Receipts	Issues	FIFO	LIFO
Feb. 10	200 @ ₦10			
March 2	300 @ ₦10			
March 11		350	200 @ ₦10	300 @ ₦10.5
			150 @ ₦10.5	50 @ ₦10

Feb. 10–purchases 200 units@ ₦10 per unit

March 2–purchases 300 units @ ₦10.50 per unit

March 11–Issues 350 units.

Stock Item A

Date	Receipts	Issues	FIFO	LIFO
Feb. 10	200 @ ₦10			

March 2	300 @ ₦10			
March 11		350	200 @ ₦10	300 @ ₦10.5
			150 @ ₦10.5	50 @ ₦10
			150 @ ₦10.5 = 1575	50 @ ₦10 = 500
		Total stock issues	= 3575	= 3200

FIFO valuation of closing stock = 150 units @ ₦10.5 = 1575

LIFO valuation of closing stock = 150 UNITS @ ₦10 = 1500

The above illustration shows that stocks value is higher with FIFO and less with LIFO. IAS2 recommends that this stock item be reported at ₦1575 while GAAP demands that it should be reported at ₦1500.

(3) Goodwill–This is the positive different between the book value of a business or a share thereof and the amount a purchaser is willing to pay for the business or a share therein (Palmon, 2005).

Goodwill is an intangible asset and IAS 38 recommends that it should be reported using the revaluation model. For example, the balance sheet of a firm shows the value of goodwill as ₦780,000 as at 1st March, 2010. On the 31st of December 2010, the value of goodwill at revaluation was ₦650,000. Therefore, IAS 38 requires that the firm's Goodwill be reported at ₦650,000 and it should be amortized over its estimated legal life.

(4) Depreciation of assets–This is the allocation of cost of an asset over its useful life so as to match the cost against the full period during which it earns profit for the business (Couch and Baber, 2001).

IAS 36 recommends that depreciation of assets should be reported using the straight-line method. For example, a firm acquired a property at a cost of ₦180,000, with an estimated useful life of 10 years. If the residual value of the asset is ₦80,000, the annual depreciation cost of the asset will be–

$$\text{Depreciation} = \frac{180,000 - 80,000}{10} = ₦10,000 \text{ per annum}$$

(5) Equity Investment–This is investment in common stock for the purposes of control. It is the residual amount of a firm obtained by subtracting total liabilities from total costs (Adedeji, 2004), IAS as requires that such investment should be reported by the equity method. This means that the investment is first recorded at cost and later adjusted each year for changes in stockholder equity of the invested. This method causes the carrying value of the investment to rise and fall with changed in the book value of the shares. For example, a firm has an equity investment of 1,000,000 shares at ₦3 per share. During the year, it earns net income of ₦540,000 and pays dividend of ₦40,000. IAS 28 requires that the equity investment should be reported at ₦3,500 (i.e., ₦3 x 1,000,000 + ₦540,000 – ₦40,000).

(6) Non-Equity Investments–These are investments in which the investor could not exercise control or influence over the financial and operating decisions of the investee company. They are assets acquired for purposes of income generation or capital appreciation without any activities in the form of production, trade or provisions of services (Palmon, 2005),

Non-equity investment could be in the form of short-term investment, long-term investment or investment properties. IFRS 5, IAS 32, and IAS 40 recommend that non-equity investment such as marketable securities and investment properties should be reported at fair value. Fair value is the amount for which an asset could be exchanged between a knowledgeable willing buyer and a knowledgeable willing seller in an arm's length transaction. For example, assume that company A bought 200,000 shares of common stock which are non-equity investment from company B on January 1, 2006 at a price of ₦2,000,000. If the selling price of the securities on 31st December 2006 is ₦15 per share, IFRS requires that the investment should be reported at ₦3,000,000, i.e.,

the fair value (200,000 x ₦15).

(7) Liabilities—These are probable future sacrifices of economic benefits arising from present obligations of particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events. Liabilities could be in the form of trade payables, accrued expenses, provisions and contingent liabilities (Wiecek & Young, 2010).

IAS 37 requires that liabilities should be valued at their current debt equivalent. For long-term liabilities, this implies the discounting to their present value of the future sum required to satisfy the liability. Due to materiality considerations, short-term liabilities are to be reported at face value. For example, a firm obtained a loan of ₦50,000,000 from a bank at the rate of 20-% payable in 10 years. The future sum is ₦309,586,821.10. The standard recommends that the loan be reported at ₦50,751,937.89, i.e. the present value of the future sum.

(8) Revenues—Ukpai (2000) posited that revenues are inflows or other increases in the value of assets or reduction in liabilities (or a combination of both) during a period from delivering or producing goods, rendering services, or carrying out other activities that constitutes the entity's ongoing major or central operations. The amount of revenue arising in a transaction is usually determined by agreement between the firm and the buyer of the asset (Alexander & Britton, 2004).

IAS 18 requires that revenue should be reported at the fair value of the consideration received or receivable. In most cases, the consideration is in the form of cash or cash equivalents and the amount of revenue is the amount of cash equivalents received or receivable. Derek (2010) maintained that when the inflow of cash or cash equivalent is deferred, the fair value of the consideration may be less than the nominal amount of cash received or receivable. For example, sales of ₦500,000 is reported at ₦500,000. But if the sale proceed is deferred to a future date, the sale is reported at its present value.

(9) Expenses—These are inflows or other using up of assets or incurrence of liabilities (or a combination of both) during a period from delivering or producing goods, rendering services or carrying out other activities that constitute the firm's major operations. IFRS does not differentiate between expenses and losses. Any losses that are due to a firm's main business are included in its operating expenses (Ukpai, 2000). IFRS 39 recommends that expenses should be reported at the actual amount paid or the present value of the payable. For example rent of ₦1,600,000 should be reported at ₦1,600,000.

(10) Agriculture and Mineral resources—These are inventories where disposal is assured and the price is known. These inventories may be stated above cost in cases where there is no basis for cost allocation (Wiecek & Young, 2010).

IFRS 6 and IAS 41 recommend that agriculture and mineral resources should be reported at selling price. For example, agricultural produce of 50,000 units at ₦700 per unit should be reported as ₦35,000,000.

The criteria for revenue and revenue recognition under GAAP and IFRS are slightly different. The main philosophies are similar but GAAP provides more industry specific guidance than IFRS. A few of the differences lie within how cost of goods sold is determined, the operating expenses of the firm, and construction contracts (Palmon, 2005). Revenue differences in regards to construction contracts depending on the accounting method adopted, the revenue and profit for construction projects can be affected. Under U.S. GAAP, if the outcome of a project cannot be estimated, then the completed contract method is required. However, under IFRS, if the outcome of a project cannot be estimated, revenue is recognized only to the extent of contract costs, and profit is only recognized at project completion.

Since LIFO is not allowed under IFRS, LIFO firms have to convert their inventory into FIFO terms in the

footnotes of the financials. This difference is known as the LIFO reserve, and is calculated between the cost of goods sold (COGS) under LIFO and FIFO. The benefit in doing this is an increase in the comparability of LIFO and FIFO firms. However, since everything is moving towards IFRS, FIFO will be the appropriate standard if IFRS is adopted in Nigeria and this has an effect on the financial statements of the firm. In particular, during periods of high inflation, a firm that uses LIFO will report higher COGS and lower inventory as compared to a firm that uses FIFO. Higher cost of goods sold results in lower profitability and lower profits results in lower income taxes. Lower profits will also result in lower equity for the firm, which affects retained earnings in a negative way. In contrast, in a low inflationary period, the effects mentioned are reversed. Something to keep in mind for analysts converting LIFO firms to FIFO (Ross & Hicks, 2010).

IFRS does not differentiate between expenses and losses, but GAAP does. With IFRS, any losses that are due to a firm's main business are included in its operating expenses.

3. Conclusion and Recommendations

Different Generally Accepted Accounting Principles (GAAP) has been developed in various countries of the world over the past decades. The failure of this accounting framework to meet the yearnings and aspirations of financial statement users, particularly participants in the international capital markets has given rise to International Financial Reporting Standards (IFRS) in corporate reporting.

In the measurement of financial statements elements, IFRS recommends the following–

- (1) Property, plant and equipment are measured with the revaluation model.
- (2) Stock valuation should be based on First In, First Out approach.
- (3) Goodwill should be reported based on revaluation model.
- (4) Depreciation of asset should be reported on the straight-line method.
- (5) Equity method should be used in the measurement of equity investment.
- (6) Non-equity investments are to be reported at fair value.
- (7) While long-term liabilities are valued at their current debt equivalent, short-term liabilities are to be reported at fair value.
- (8) Revenues should be reported at fair value of the consideration received or receivable.
- (9) Expenses are reported at the actual amount paid or the present value of the payable.
- (10) Agriculture and mineral resources are valued at selling price.

Considering the above requirements, and the increasing acceptance of IFRS around the globe, we suggest that professional accountants, auditors and other preparers of financial statements should become knowledgeable of IFRS requirements through proper and intensive training so as to report transparent and high quality financial statements for better investment and economic decisions by users.

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The Human Capital Vicious Cycle Created by the Child Labor Issue in Turkey

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Abstract: Child labor is one of the socio-economic problems of developing countries. The child labor phenomenon in Turkey is investigated in family structure with regard to human capital approach in this study. The existence of child labor results in either human development or poverty is aimed to show. In this study, starting with a production function the output per capita is reduced to representation of human capital and factor endowment and it is aimed to measure the human capital accumulation of individuals who have a relationship with child labor. According to the findings child labor causes a reduction of human capital accumulation both in the rural and urban areas of Turkey. It can be concluded that instead of falling in vicious cycle of poverty, the human development can be achieved through the increase in the human capital through developing the education and income levels of household decision makers.

Key words: child labor; human capital; poverty; education; development

JEL codes: A20, D10, H31

1. Introduction

The issue of child labor is a fundamental problem observed in developing countries. The existence of such an issue can lead to losses in human capital in the country. In this study, the aim is to present the effects of child labor on human capital. As in developing countries, the main factor behind the existence of child labor in Turkey is the poverty in the country, and more fundamentally, the poverty of the households. The viewing of the problem of child labor, which starts with poverty and continues by causing losses to human capital, as a problem, analyzing it in terms of the impact it creates in Turkey, and where necessary the ability to take measures to eliminate the problem are matters which are extremely important.

In this study it is accepted that child labor is determined by the underlying factors of poverty within and outside of the family, which cause child labor to occur, and which are referred to in the literature as the supply of child labor¹. These factors can be referred to as inherent factors. Thought to come about as a result of internal

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¹ The matters which determine child labor are defined using factors such as the following, which are shown as the supply of child

factors in theory, child labor comes up in consequence of implementation of the decisions of household in practice. From this point of view, having assumed the decisions of household heads as a reference, this study has been built by an economic frame having empirical testability.

It can be seen that there is a problem of a choice between the accumulation of human capital and an inclination to child labor. In order for politicians to be able to take effective measures to address these types of problems, it is necessary for them to be informed through analyses which possess concrete findings. The fact that this study views child labor and the accumulation of human capital as an issue of choice raises the requirement of obtaining the relevant data on the education and income of those making the decisions on child labor, which will facilitate the measuring of human capital from child labor. The data related with the study has been obtained by questioning the Survey of Working Children executed by Turkstat (Turkish Statistical Institute) in 2006. In light of this information, the statement of “If there weren’t any child labor in Turkey which is caused by poverty and come up as a result of the decisions of household, the accumulation of current human capital would be much more than it is now,” has been questioned within the assumption that simplifies the theoretical model in the separation of rural and urban.

The accumulation of human capital of household heads is calculated through a production function based approach from two main columns in the study. In the first column are the household heads whose child has been employed in the labor force; as to the second are the household heads that send their child only to school. Should the vicious circle of poverty mentioned in the model of the study be proven working after separately comparing these two columns in rural and urban Turkey, the hypothesis built above is going to be verified and it will be revealed that the orientation of child labor is not a step towards a humane development through concrete findings.

The reason for such a comparison is the opinion that the heads of the households are the people who make the decision to determine whether their children will work or not. The question frequently emphasized in the economic literature (see ... Basu, 1999) as to who makes the decision for children to work, is also one of the reference points of this study. In this study, it is deemed that child labor, to which the members of the households are subjected, which is referred to with its macro and micro effects, and which occurs within the family and with the influence of the state, is decided by the heads of households. In the economic model of the study, a method recommended by Krueger (1968) and used by Bhatta and Lobo (2000) is used, which, from a starting point of a Cobb-Douglas type production function, regresses per capita output to being a representation of human capital and factor endowment. It is also possible to speculate on the relationship of heads of households with child labor using methods which are different from this thought process. A decision by heads of households based on whether they were a part of the child labor force as children can be shown as an example of this. However, as the data we have is not sufficient to test such a method, we are directed towards questioning the first method referred to above.

The reason behind this study is the aim to resolve — to a certain extent — the lack of empirical studies, which are not present at sufficient levels due to a lack of data on the phenomenon of child labor, which is frequently emphasized in the literature. At the same time, with this study, the cost of the phenomenon of child labor in Turkey is substantially measured in terms of human capital. The phenomenon of child labor possesses the nature of being a problem which developing countries need to overcome, and which is directly related to the

labor in Lopez-Calva (2001): (1) the poverty of the household; (2) the salaries of children and their parents; (3) the adult unemployment rate; (4) the level of education of the head of the household; (5) social norms and relationships; (6) the legal restrictions and regulations related to child labor; (7) the faults within the credit market; and (8) birth rates and the size of the household.

accumulation of human capital. As presented by the findings of this study, child labor is more prominent in the rural regions of our country. It is considered that, based on these findings, it is important for the state to know where it needs to start in order to solve the issue of child labor in Turkey.

The theoretical framework, which has been established with the information filtered from the literature, and which has been limited to the relationship between child labor and human capital, is referred to in the following chapters. Following the theoretical framework, the model of the study, the definition of the production function used in the model, the representation of the production function in the form of human capital, the research model and the data of the model, explanations and a method of research comprised of assumptions are presented. The research method is followed by the implementation of the model, which includes the findings of the study, and the conclusion headings.

2. The Relationship between Child Labor and Human Capital: Literature and Theoretical Framework

When establishing the theoretical framework, the starting point will be the factors which determine child labor, and the relationship between human capital and child labor — based on education — will be considered under the guidance of the literature. It can be seen that variables such as the poverty status of the household and the level of education of the head of the household have been selected as the factors determining child labor, in the empirical literature. The salaries earned by children do not influence the decision for them to work (Lopez-Calva, 2001, p. 66). This situation is something that is also paid attention to in the theoretical framework of this study. According to this study, the individuals who are the subject of the measurement of output levels are the heads of households, due to their position as the individuals with the final decision on the creation of child labor. Together with this, when considering that human capital is deemed to have a direct relationship with education throughout the study, the final educational levels of children is a matter which is both dependent on a dynamic analysis and which possesses importance.

As an example of these types of analyses, Edmonds et al. (2007) have asked a question of child labor in terms of human capital investments. What was wondered here was whether the adjustment of short and long-term costs, which result from the deregulation of trade, had any effect on the decisions for children to go to school and enter the workforce. This question was examined within the scope of the customs reforms carried out in 1991, and while dramatic increases were seen in the number of children going to school in the rural areas of India, decreases were also determined in the child workforce. The reason for this is that the expense of going to school plays a big role in the relationship between poverty, going to school and the child workforce. According to the findings of the study, from which it was understood that the increase in the national income, which resulted from the customs reforms, had led to a reduction in poverty, there was roughly an increase among half of Indians in terms of going to school, and a decrease among a third of Indians in terms of participation in the child workforce, at this time. What lies behind this change are the reduction of poverty and the creation of the conditions which make it possible to go to school. Another example of these types of analyses is Ranjan (1999), who models child labor and the accumulation of human capital, and exhibits how poverty works together with the defective credit market to increase the levels of child labor in developing countries. In his study, Ray (2000), claims that child labor, particularly among children of a young age, has a destructive impact on the child's intellectual and physical development. He emphasizes that, together with this, it also brings the inevitability of permanent poverty and

working for low wages in their future life.

As an example of the analyses which reflect the negative relationship between child labor and human capital, Bonnal (2009), has found that investments in human capital have the impact of reducing levels of child labor, in his instrumental variable panel data model. According to a survey carried out in 1993, in the Tanga region of Tanzania, Akabayashi and Psacharopoulos (1999) have determined that the increase in working hours has a negative effect on the reading and mathematical skills of the child, while finding a balanced relationship — up to a certain extent — between the child working and the development of human capital.

Among the studies which look at the relationship between child labor and human capital from the aspect of education, Hussain and Maskus (2003), attempt to analyze the interaction between child labor and the accumulation of human capital, from the aspect of schooling. They have concluded that the level of child labor has a negative relationship with the human capital currently possessed by their parents. Together with this, they have shown that the participation in the child workforce has a reducing effect on the accumulation of human capital. In the study by Emerson and Souza (2002), they performed three surveys on national households in 1982, 1988 and 1996, and reached a clear opinion that “child labor hinders education and the accumulation of human capital”. The study of Edmonds and Sharma (2006) on the extent of the negative influence on the children of families who are open to exploitation and abuse, by private lending organizations, in terms of human capital investments. Edmonds and Sharma have observed that private organizations which have been established with the aim of lending money, have a negative effect on the human capital investments in education, and cause increases in the child workforce, and reductions in schooling and attendance rates.

In contrast with the customary view, there are also researchers who refer to the positive aspects of the relationship between child labor and human capital. Fan (2004) has shown that an increase in the productivity of child labor can cause both an increase in child labor and the accumulation of human capital belonging to children². Fan’s model states that any small increase which may occur in the levels of child labor may not have a negative effect on the creation of the human capital belonging to children, and that this can be explained as the positive effect of the financial resources set aside for education being dominant over the negative effect which occurs with the reduced time set aside for studying.

It is also accepted in the literature that the most effective vehicle for eliminating child labor has historically been education and compulsory basic schooling. The relationship between education and child labor is an area of empirical research (Basu, 1999, p. 1092). Jensen and Nielsen (1997), Psacharopoulos (1997) and Grootaert (1998) can be given as examples of these research studies. In this study education is reflected on the economic model via the human capital. When looking at it from this perspective, something else that can be said on the aims of the study, is the lack of studies which look at child labor from the aspect of human capital in Turkey. Together with this, the studies which examine the relationship between child labor and school level education are also quite limited in number. The leading studies amongst these can be said to be as follows: Tunalı (1996), who exhibits that the education levels of parents are among the determining factors of child labor; Tansel (2002), who examines the success of children in school, but does not refer to child labor in his study; and Dayıoğlu and Assaad (2003), who refer to the factors determining child labor, but not to the relationship between child labor and school level education³.

² On the other hand, while not directly related to human capital, it is claimed in the studies by Patrinos and Psacharopoulos (1997), Myers (1989) and Admassie (2003), that education and employment can be carried out simultaneously, and that the child will not be affected too much from this.

³ In world literature the studies which refer to the negative relationship between child labor and school level education are Skoufias

Based on the literature, the following determinations can be made in the direction of establishing the theoretical framework of this study: (1) There is a need for studies at sectoral level in connection with child labor⁴; (2) Social norms, culture and geography take their places as important factor in the analysis of child labor. The phenomenon of child labor should be analyzed by paying regard to the differences between rural and urban regions (Lopez-Calva, 2001, p. 68); (3) Numerous studies show that where parents have obtained a higher level of education their children also have a lower tendency to work (Grootaert, 1998; Salmon, 2005). Higher income levels among parents can also result in similar effects. When considering that these individuals are the ones who decide whether their children work, it is necessary for them to be acknowledged as a point of reference in economic analyses on the matter.

3. The Method of Research

The method of research reflects the theoretical setup coming from the literature. The following subheadings are in this part, respectively: The Model of the Study, The Production Function Used in the Model, The Representation of the Production Function in terms of Factor Endowment and Human Capital and The Explanation of the Data, Assumptions and Limitations. The design that is capable of performing a measurement through making a comparison of a human capital model based on the production function is introduced here.

3.1 The Model of the Study

The main approach which the study is based on is measuring the human capital in terms of output per capita. This measurement is based on momentary timing and in a way aims to measure human capital. The thing to be measured is the amount of output per capita that will be acquired through the accumulation of human capital of household heads whose child between 6 and 17 years of age is employed in child labor or goes on only his/her education. That is because child labor is a dynamic phenomenon, which is influenced by the economic and social status of parents (Hussain & Maskus, 2003, p. 994). In this way, as a result of the comparison of the targeted and measured output amounts, it is possible to observe which group of heads of household has a higher per capita output.

One of the matters that numerous economists, including Lucas (1993), are in agreement on in respect of developing countries, is that the engine of growth is the accumulation of human capital. Where there is a question on the economic efficiency of countries, differences in human capital appear in those countries (Bhatta & Lobo, 2000, p. 394). One of the factors which creates these differences is the factor endowments, which represent the surface area, workforce, capital and entrepreneurship levels in these countries (Chacholiades, 1978). Factor endowments are associated with the participation levels in the workforce, in this study.

The reaching of per capita output from the production function, and the representation of per capita output in terms of marginal product and factor endowments is set out in steps, below.

Let us accept that the functional representation of the production function is represented as the below Equation (1).

$$Y = f(X_0, X_1, \dots, X_n) \quad (1)$$

Here, Y represents the per capita output of considered during the study. The output for each individual is

(1994); Grootaert and Patrinos (1999); Chernichovsky (1985); Ray (2000); Psacharopoulos (1997); Ravallion and Wodon (2000); Assaad et al. (2001); and Levison et al. (2001).

⁴ French (2002) examines the behavior demonstrated by the children employed in the export based shoe industry in Brazil. He contributes to the literature in a specific field related to child labor, by pointing out what types of workplaces young workers are more productive at.

defined as a function of the production factors. It is assumed that the function is homogeneous and possesses a degree of k , and that the first partial derivative of the function for each production factor is higher than zero ($f' > 0$), while the second partial derivative is lower than zero ($f'' < 0$).

When the simple state of the production function shown in equation (1) is adapted to the variables which have been accepted by the theoretical assumptions in this study, what is displayed is the total output amounts of the heads of the households in accordance with the conditions in the “ i ”th position. P^i represents the total population in the “ i ”th position, while X_j^i represents the J factor in the same position. As the production function is assumed to be homogeneous at degree k , Equation (2) is shown with the assistance of the Euler Theorem, and in a way where the partial derivatives on both sides of the equation have been removed.

$$\begin{aligned} kY^i &= kf'(X_0^i, X_1^i, \dots, X_n^i), \\ &= \frac{d}{dX_0^i} f(X_0^i, X_1^i, \dots, X_n^i) * X_0^i + \frac{d}{dX_1^i} f(X_0^i, X_1^i, \dots, X_n^i) * X_1^i + \dots + \\ &\quad \frac{d}{dX_n^i} f(X_0^i, X_1^i, \dots, X_n^i) * X_n^i, \\ &= MP_0^i * X_0^i + MP_1^i * X_1^i + \dots MP_n^i * X_n^i \end{aligned} \quad (2)$$

The MP_j^i referred to in Equation (2) is the marginal product of the factor J in position i . When the per capita output in position i is defined as $y_i = (Y_i / P_i)$, and the J factor endowment in position i is defined as $x_j^i = X_j^i / P^i$, it is possible to obtain Equation (3).

$$ky^i = MP_0^i * x_0^i + MP_1^i * x_1^i + \dots + MP_n^i * x_n^i \quad (3)$$

According to Equation (3) the per capita output of the heads of the households can be obtained through the marginal product and the factor endowments. In the following chapters marginal product and factor endowments are transformed into a manner where it is possible to apply theoretical speculation, by reducing them together with the production function to be selected, to human capital and physical capital, subject to various assumptions.

3.2 The Production Function Used in the Model

A Cobb-Douglas type production function has been preferred in order to measure the per capita output in the economic model of this study. In the same way that it has also been stated in Mankiw, Romer and Weil (1992), the function obtained by including the human capital variable to the production function is also taken as a reference in the economic model used in the study, and shown as Equation (4).

$$Y(t) = K(t)^\alpha H(t)^\beta (A(t) L(t))^{1-\alpha-\beta} \quad (4)$$

In the above equation, Y defines the amount of output, K , the capital, L , the work carried out, A , the level of technology, and α , the share of capital in the income. According to Equation (5), H defines the accumulation of human capital.

It is claimed that the estimation power of the economic model has increased following the inclusion of human capital in the production function (Mankiw et al., 1992, pp. 416, 421). The adaptation of the economic model to this study is possible together with certain assumptions. The assumptions required in order to be able to represent the production function in terms of human capital and factor endowment are discussed under the following heading.

3.3 The Representation of the Production Function in terms of Factor Endowment and Human Capital

The assumption of an amount of output below $\alpha + \beta = 1$ in the production function referred to under the previous heading, and shown in Equation (4) can be regressed to the amount of capital and the amount of human capital. This equation is displayed in Equation (5).

$$Y(t) = K(t)^\alpha H(t)^\beta \quad (5)$$

The restriction of the production function to capital and human capital is possible together with fixed returns of scale. This assumption facilitates the representation of the output amount which is being attempted to be measured in the economic model of the study, by the factor endowment and human capital variables. The enabling of such a transition between the factor endowment and the capital creates a simplifying step which is incidental to the assumptions of the study. There are existing studies which have associated human capital with the production function, and which have attempted to measure them by including the factor endowments in the fixed returns of scale assumption (Hussain & Maskus, 2003, p. 996).

An important point which needs not to be overlooked is the consideration of the production function as per capita output, and as a result of this acknowledgement, the fact that Equation (5) will transform into Equation (6), in the same way as also stated in Equation (3). $k(t)$ and $h(t)$ are the per capita factor endowment and per capita human capital, respectively.

$$y(t) = k(t)^\alpha h(t)^\beta \quad (6)$$

3.4 The Research Model

Referring to the elements which create child labor prepares the grounding for the research model. The micro effects, macro effects, and the factors that is described as poverty and determine the child labor could be called as internal factors in this study. There are three important components of internal factors. The micro effect shown in Figure 1 is determined by the level of consciousness formed by the education level of household head, the mechanisms of decision-making, and the standard of judgment of households. Some obligations of social service organizations of the state and the fulfillment of these obligations are based on the mentality of social policy and state. This factor that forms child labor is called macro effect in Figure 1. One of the main components of the cycle of child labor human capital is shown as poverty in Figure 1.

According to the definition used in this study, poverty is a social status which defines families who are a significant level below the average income level. While, with its inherent components, poverty is a type of micro effect, as also stated in the literature, due to the fact that it is an economic factor which goes further than the level of consciousness of the members of the household, is one of the most significant determining factors of child labor. Therefore, in this study it is discussed under a different heading, which is independent of its micro effects, in this study.

It is accepted that the child labor has been affected by internal factors and it has been related with human capital according to the model on which this study is based. This relationship is established over production function and the output per capita has been reduced to the sum of factor endowment per capita and human capital accumulation.

Another assumption particular to the study is that the effects of per capita factor endowments which will create a difference have been considered. The relationship between the factor endowment and the amount of output is based on modern foreign trade theory. In situations where there is to be a comparison between countries, even if every country possesses a different factor endowment, in accordance with modern foreign trade theory, a single production function can represent the countries (Krueger, 1968, p. 641). This approach, which has been put

forward at the macroeconomic level, is based on the acceptance that the differences in factor endowments belonging to individuals can be at a level where they can be ignored, in this study which is considered at the microeconomic level, and which discusses the issue of child labor, which is dependent fully on inherent factors. As a result of this acceptance, the per capita output amounts are regressed to the notion which is obtained by measuring human capital, and which is described as the output amount resulting from human capital in Figure 2.

It is well-known that child labor can also pull adult salaries lower under certain circumstances, and thus cause a vicious cycle of poverty (Lopez-Calva, 2001, p. 60). The fundamental point which this cycle, which is defined as the cycle of child labor and human capital, and which makes it possible to see the cycle between poverty and the human development process from the perspective of child labor, is dependent on the fact that the output amounts resulting from the human capital of individuals belonging to different groups can be compared. Situations which result in human development or the continuation of the vicious cycle of poverty surface as a result of this comparison.

According to the model of the study, the amount of output created by human capital is obtained from two main groups. The first group consists of the household heads whose children are not in the child labor and as to the second group; it consists of the household heads whose children are within the child labor. The household heads that constitute the second group are separated into two groups, as well. The first of these is the household heads whose children are within the child labor while going on their education. The other one is the household heads whose children are only within the child labor and has ceased their education.

In research model of the study, a comparison is made between the output amounts resulting from the heads of the households whose children are among the child workforce, and the heads of the households, whose children only go to school, and do not participate in the child workforce.

It is examined whether these situations may cause a humane development or vicious cycle of poverty by calculating the human capital accumulation of these groups. The reliability of these examined results have been controlled by a statistical method, “the probit analysis”.

3.5 The Explanation of the Data, Assumptions and Limitations

The data used in this study has been obtained from the Turkstat (2006) Working Children data set. The scope of this survey is approximately 20.000 households whose children between the ages of 6-17 work. Due to the assumptions of the study, those households which do not conform to the characteristics of a nuclear family have been left outside the scope of this study. A nuclear family is defined as a family where one of the parents is not missing. With this definition, it is considered that such families are exempt from the sociological factors which might influence child labor. According to this assumption, the number of nuclear families surveyed is 13.428. With the children of these families being surveyed, the number of observations is determined as “24.766”.

Certain variables, which were thought to have been necessary in the economic model, but which are not directly included in the data set have been derived within the framework of certain assumptions. The data on the levels of education of the heads of the households, which is used in the study, can be shown as an example of this. The data set also includes a classification of the schools which the individuals have graduated from. According to one assumption, this classification is in itself divided into two, with the values “0” (meaning uneducated) and “1” (meaning educated) assigned to the first and second sections respectively. Thus the levels of education of the individuals are hypothetically created.

It is only possible to measure the accumulation of human capital numerically, which is one of the aims of the

study, with a number of assumptions. In this study, the set off point is the fundamental assumption that education levels can be accepted as being an underlying indicator of human capital (Kruger, 1968). The level of education has been selected as the indicator of human capital and this level of education has been classified within itself. As well as their levels of education, individuals have also been classified and assessed according to age categories.

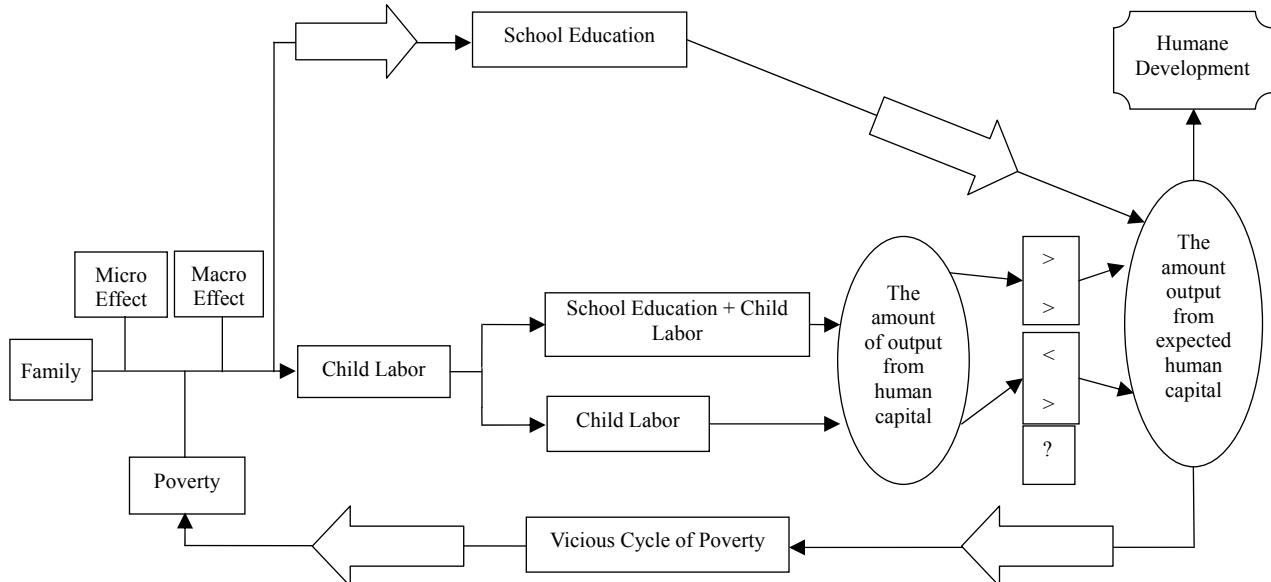


Figure 1 The Cycle of Poverty, Child Labor and Human Capital

Source: Designed by basing on the theoretical frame of the literature

It would be beneficial to state — with regard to the scope of the study — that while increasing the number of variables will help to obtain clearer results in the measurements of human capital, the dimensions of this extend as far as socio-cultural and difficult to calculate values on one side. The fact that variables such as education and income represent human capital seems to be a consistent and correct approach in view of the fact that individuals from the same country who possess similar socio-economic characteristics will be compared with each other, and sets forth the boundaries of this study.

4. The Implementation of the Research

In this part of the study, first of all, data on human capital is obtained as a result of surveys. At the next stage, the output amount resulting from human capital according to the envisioned model and method is measured. The conclusion is reached by evaluating the findings of the measurement.

4.1 The Collection of Data, Method of Measurement and Measurement Results

According to the economic model of the study, in this section, which covers the tables from Tables 1-4, the population and income data used in the measurement of the human capital of the heads of households whose children do not go to school but are part of the child workforce, in the urban regions of Turkey, are discussed. The measurement results obtained by using this data to measure the human capital of the heads of households, who are considered to be the ones making the decision on child labor, are shown in this table. The processing of population and income data after they are obtained is discussed in the sub-headings, below.

4.1.1 The Collection of Population and Income Data

The population and income data used in the measurement of the human capital of heads of households with children in the 6-17 age group, in both the urban and rural areas of Turkey, are shown in Tables 1-4. When preparing the tables, three different circumstances were considered within the scope of the theoretical framework. The following criteria was classified separately for rural and urban areas, in respect of the male and female children of the heads of the households which were selected to be used in the measurements: “being a part of the child workforce and not continuing school”; “being both a part of the child workforce and continuing school”; and “continuing school and not being a part of the child workforce”.

Table 1 shows the population and income data used in the measurement of the human capital of the heads of the households in urban regions, whose male and female children are part of the child workforce and do not go to school. The age groups in the first column of Table 1 are the classification belonging to the heads of the households. In order to simplify the table only heads of households in the 45-49 age group have been used in the calculations. The last column contains the representations of the total population and income for the age categories. According to the total population data, the number of heads of households in urban areas, whose male and female children are a part of the child workforce and do not go to school, is 484. The first row of Table 1 contains coded numbers from 0 to 6, which represent higher levels of education as the numbers increase.

Table 1 The Population Used in the Measurement of the Human Capital of the Heads of Households in Urban Regions, Whose Male and Female Children Are a Part of the Child Workforce and Who Do Not Go to School

Urban	Child Labor	0	1	2	3	4	5	6	
Age									Total
45-49	Population	5	14	63	8	4	2	2	98
	Income	1350	2390	23914	6270	4240	2800	1980	42944
	Total Population	38	51	330	36	16	6	7	484

Note: 0. Others, 1. Literate without any diploma, 2. Primary school (5years), 3. Primary school (8 yıl), Junior high school or Vocational junior high school, 4. High school, 5. Vocational high school, 6. Universities and other higher educational institutions

Source: Obtained from the enquiries made into the Turkstat (2006) data.

4.1.2 The Method of Measuring Human Capital and Measurement Results

The measurement stages of the human capital of the heads of the households in the urban and rural areas of Turkey, with children in the 6-17 age group are shown in Tables 2-4. The summary tables which respectively cover “the obtaining of average income”, “the obtaining of human capital coefficients” and “the measurement of human capital” of the heads of the households in the urban areas, whose children are a part of the child workforce, and who do not go to school. Table 2 is a table which has been obtained from Table 1. However, the difference between Table 1 and Table 2 is that the latter contains mean income data obtained by dividing income into population, rather than the income data contained in Table 1, and the “0 (other than those specified)” option in the third column of Table-1 has not been included in Table 2, as it does not carry any meaning.

The measurement of the human capital of the heads of the households whose children are a part of the child workforce, and who are literate but have not graduated from any type of school, or those who have completed primary school, or those who have completed primary and secondary school or vocational secondary school, or those who have graduated from high school or vocational high school, or those who have completed higher education, has been carried out for each age group, using the method set out below. If we consider, as an example,

the total human capital of the individuals who belong to the 45-49 age group of heads of households who are literate but have not completed any type of school, the human capital of the heads of households in a specific age group (45-49) will be the total of the human capital contributions from all levels of education. That is because being literate is actually the previous step to all other levels of education. The total human capital resulting from education levels is, mathematically speaking, equal to the multiplication of the marginal productivities and the factor endowments. The marginal productivities are obtained by dividing the total income of the individuals within the examined category by the total population of the individuals within this same category. The marginal productivities are represented as mean income in Table 2.

Table 2 The Calculation of the Mean Income of the Heads of the Households in Urban Areas, Whose Children Are a Part of the Child Workforce and Do Not Go to School

Urban	Child Labor	1	2	3	4	5	6	
Age								Total
45-49	Population	14	63	8	4	2	2	93
	Average Income	170.71	379.58	783.75	1060	1400	990	
	Total Population	51	330	36	16	6	7	446
	Total Population of Survey							446

Note: 1. Literate without any diploma, 2. Primary school (5years), 3. Primary school (8 yıl), Junior high school or Vocational junior high school, 4. High school, 5. Vocational high school, 6. Universities and other higher educational institutions

Source: Obtained from the enquiries made into the Turkstat (2006) data.

Factor endowments are calculated by dividing the heads of the households who are literate but have not completed any type of school into the total population of individuals who possess any level of education. When the human capital amount from the heads of the households who are literate but have not completed any type of school is calculated, it is automatically considered that an individual who has completed higher education has also completed the lower levels of education. Accordingly, in the row related to the 45-49 age group in Table-3, the total of the human capital of the heads of the households who have not completed any type of school has been calculated using the below formula. The results have been represented in Table-4 under the definition of human capital.

(45-49) age group

(literate but have not completed any type of school) $MP_i = (2390)/(14) = 170.71$

Unit Value

(45-49) age group

(literate but have not completed any type of school) $x_i = (14) / (446) + (63) / (446)$

$+ (8) / (446) + (4) / (446)$

$+ (2) / (446) + (2) / (446)$

$= 0.2085$

The calculated total human capital

$= MP_i * x_i$

$= (170.71) * (0.2085)$

$= 35.59$ Unit Value

Table 3 The Calculation of the Human Capital Coefficients of the Heads of the Households in the City, Whose Children Are a Part of the Child Workforce And Do Not Go to School

Urban	Child Labor	1	2	3	4	5	6	
Age								Toplam
45-49	Human Capital	0.20	0.17	0.03	0.01	0.008	0.004	93
	Average Income	170.71	379.58	783.75	1060	1400	990	
	Total Population	51	330	36	16	6	7	446
	Total Population of Survey							446

Note: 1. Literate without any diploma, 2. Primary school (5years), 3. Primary school (8 yıl), Junior high school or Vocational junior high school, 4. High school, 5. Vocational high school, 6. Universities and other higher educational institutions

Source: Obtained from the enquiries made into the Turkstat (2006) data.

Table 4 The Human Capital of the Heads of the Households in the City, Whose Children Are a Part of the Child Workforce and Do Not Go to School

Urban	Child Labor	1	2	3	4	5	6	
Age								Total
45-49	Total Human Capital	35.59	67.23	28.11	19.01	12.55	4.43	166.95
	Total Human Capital	294.43	370.40	100.57	59.37	19.09	11.72	855.61
	Total Population							446
	Total Population of Survey							446

Note: 1. Literate without any diploma, 2. Primary school (5years), 3. Primary school (8 yıl), Junior high school or Vocational junior high school, 4. High school, 5. Vocational high school, 6. Universities and other higher educational institutions

Source: Obtained from the enquiries made into the Turkstat (2006) data.

4.2 Findings: The Evaluation of the Measurement Results

The Figure 2 below shows being tested of the following hypothesis “*If there had been no child labor as a result of poverty, and with the decisions made by the household in Turkey, then the accumulation of human capital would be higher than what it is today.*” of the economic model used in the study.

The Figure 2 reflects the status carried into practice through the theoretical model of cyclical conditions related with the child labor that has been tried to be explained by the Figure 1. While the figures represented by “*” within the boxes of Figure 2 reflects the measurements of urban regions, the figures represented by “#” stands for the measurements of rural regions. Through these measurements, the amount of output created by the human capital of child labor has been compared with the amount of expected human capital within the child labor is not included. According to the results of this comparison, it has been concluded that “the amount of output created by the expected human capital” is much more than “the amount of output created by human capital” in both conditions of rural and urban regions. This case verifies the hypothesis of this study mentioned above for the rural and urban regions and suggests that the way resulting in “the vicious cycle of poverty” and highlighted with a bold line is followed. The statistical reliability of the results has been proven through probit analyses and more detailed information could be found in the main text.

A point which needs attention, with regard to the numbers within the boxes in Figure 2 is the manner in which the numbers which are the result of the mathematical approach which has been observed when calculating the output amount resulting from the human capital of child labor, are regressed. The outputs resulting from the human capital of 1193 Unit Value and 855 Unit Value, which have been calculated per person in the urban regions, has been regressed to the equivalent of 498 Unit Value, as a result of the approach which was used. Another

approach here is to take the mean of the per capital values of 1193 and 855, but from the very beginning of the design of the economic model the general diagram has been considered as being similar to an electrical circuit, and the calculations made according to the logic of this assumption. The situations which are affected by the phenomenon of child labor have been considered as resistors are connected to each other in a parallel manner, as also represented in Figure 2. That is because there needs to be a preference made here between the circumstances. In electrical circuits, when the numbers of the resistors which are connected to each other in a parallel manner increase, this results in a decrease in resistance. Equivalent resistance is calculated using the formula “ $1/R = 1/R_1 + 1/R_2$ ”. That is to say, the 498 Unit Value, which is the per capita output created by human capital in urban regions is calculated with the solution to the equation $1/R = 1/1193 + 1/855$.

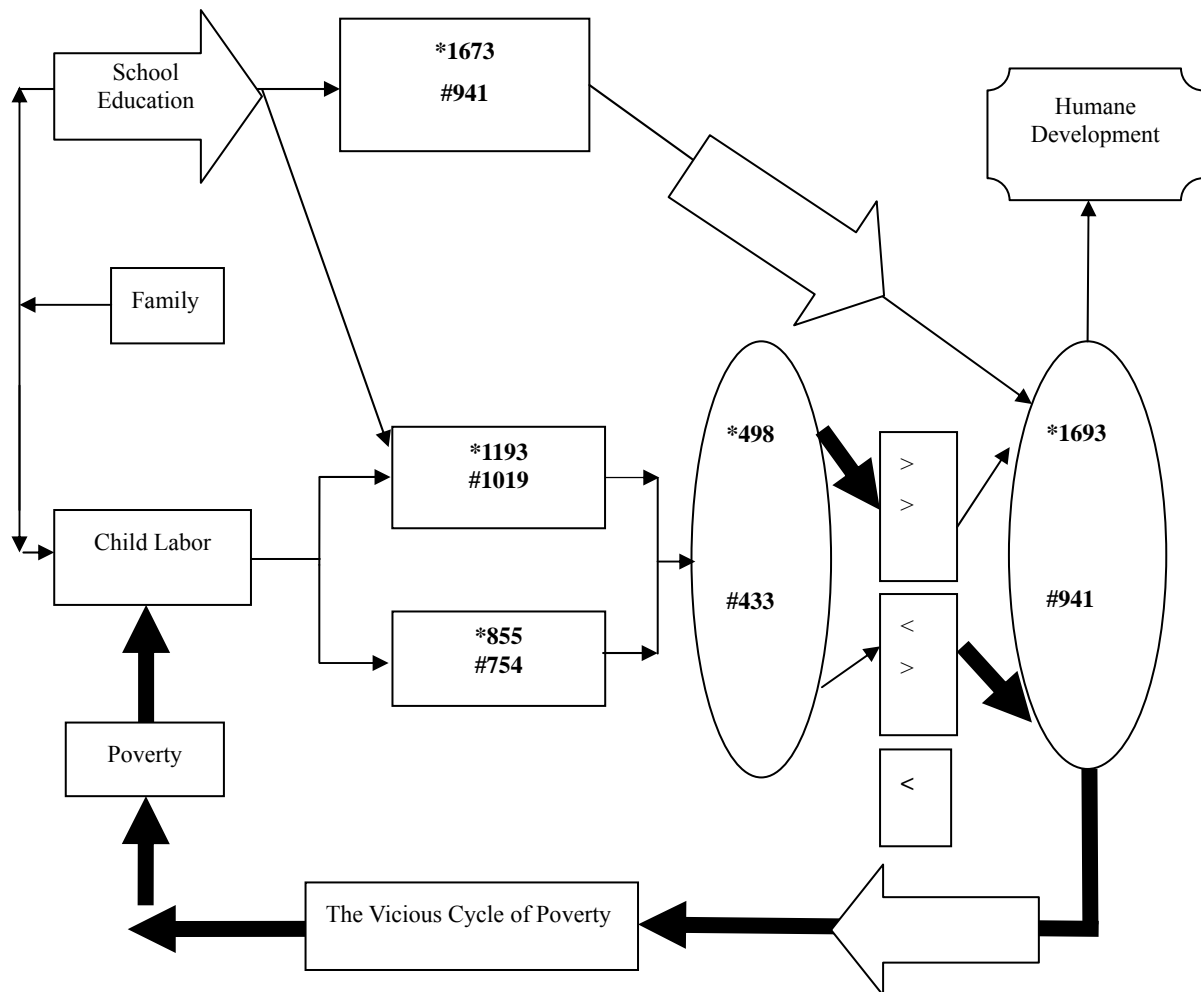


Figure 2 The Vicious Cycle of Poverty Caused by Child Labor

Source: Designed to reflect the theoretical model by taking the Figure 1 as a reference

4.3 The Testing of the Data: The Results of the Probit Analysis

Probit analysis is performed to test the accuracy of the data. Dependent variable child labor is regressed by literate situation, education level and total income of household head. In this paper, it is assumed that the household head gives the decision if a child work or not. So testing the statistical relationship between household head and these variables, which the theory of this article based on, will give a reasonable explanation of the data is confident.

According to the results of the probit analysis as indicated in Table 5, it has been found that the employment of child labor has a significant and negatively correlated relationship with the literacy situation of household head at the first stage, the level of education at the second stage, and the level of total income at the third stage, and this has been represented in Table 5. At the stage four, all the variables are included in the regression at the same time. The signs and significances of variables are protected. But although the literate situation variable protects its value in terms of its significance, the significance levels of the education and income level of household head variables are reduced from 0.01 to 0.05.

Table 5 The Probit Test: The Education and Income Characteristics of the Head of the Household who Influences the Employment of Child Labor

Variables	First Stage, Observation=24766, pseudo R-squareds = 0.0020		Second Stage, Observation =24766, pseudo R-squareds = 0.0243		Third Stage, Observation =24766, pseudo R-squareds = 0.0055		Fourth Stage, Observation =24766, pseudo R-squareds = 0.0255	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Child labor (dependent variable)								
Literate situation of household head	-0.23***	-0.049					-0.121***	0.050
Education level of household head			-0.62***	0.043			-0.586**	0.045
Total income of household head					-0.00018***	0.00002	-0.00005**	0.00002
constant	-1.38***	0.047	-1.50***	0.013	-1.506***	-0.01790	-1.37***	0.048

Note: ***, **, * indicates 1%, 5% and 10% significance level.

5. Conclusion

This study questions whether the phenomenon of child labor resulted from the decisions household that are affected from the poverty, micro, and macro factors exposed by the nuclear families in rural and urban regions of Turkey will result in the vicious cycle of poverty or humane development via the human capital model based on production function. The people subject to this questioning are either those whose children are within the labor force or the decision makers of child labor.

According to the results obtained from the model, it has been concluded that the existence of the phenomenon of child labor in either rural or urban regions of Turkey causes the loss of the accumulation of human capital. The measurement has been performed from two main routes. On the first route are the heads of the households whose children are employed. The per capita output of the heads of the households, whose children only go to work, and that of the households whose children both go to work and school, is measured in this group, and the per capita output in the urban areas has been calculated as higher than the per capita output in the rural areas. The second route contains only the heads of the households whose children only go to school. It has been calculated here that the per capita output resulting from the human capital of the heads of the households in this group is higher than the per capita output resulting from the human capital of the heads of the households who send their children only to work — both in the urban and the rural regions. In the model where there is an assessment made between the urban and rural regions, it has been suggested that according to the rationale set forth by the disequilibrium equation of the phenomenon of child labor created by the decisions of household end up with the vicious cycle of poverty.

This study is being carried out with the aim of resolving the deficiency of empirical studies—up to a certain point — which are insufficient in number due to a lack of data on the phenomenon of child labor, and which is also frequently emphasized in the literature. The phenomenon of child labor is something which has a direct relationship with the accumulation of human capital and which is an issue that developing countries need to overcome. As displayed by the findings of this study, child labor is encountered much more in the rural areas of our country. One of the other problems in these areas where the opportunities for education and income are insufficient is the extensive presence of a grey economy. Children who work in the fields are also deprived of their own human capital in this way. This is an issue which can be overcome by those who make the decision as to whether children will work, becoming more informed. There is a need for more empirical studies on this issue, which is a problem able to cause poverty to become an intergenerational cycle by being transferred from one generation to the next.

The phenomenon of child labor is created by micro effects, which are contained in the poverty influencing the family decision making mechanism, and macro effects, which are contained in the policies of the state on the issue of child labor. While sending their children to work as part of the child workforce is seen as a way of increasing the income of families which are suffering from poverty, it is also a very important sociological and economic problem which can result in the losses of human capital accumulation for a country. The state can provide support to families by the amounts of income they would obtain by sending their children to work, in order to prevent these losses in human capital. Ravallion and Wooden (2000) have shown that a subsidy program reducing schooling expenses, and having the aim of increasing school participation rates in the rural areas of Bangladesh, did increase schooling levels and lower the levels of child labor. Similarly, Edmonds (2006) has determined that social assistance (income) provided to families in South Africa increased schooling level and reduced the total number of hours worked by children.

The calculation of the economic cost of this assistance is an important research question which can be the subject of another study. That will be a matter concerning whether a decision made by politicians following these calculations is sufficient to cover the cost of eliminating the problem of child labor. However, it should not be forgotten that human capital accumulations represent an engine in terms of the growth of the economies of developing countries. In conclusion, while pointing out that the issue of child labor does exist in developing countries like Turkey, it is also shown in this study that losses in human capital are unavoidably being experienced. This situation can lead to the phenomenon of poverty, which is a cause and an input of child labor, being transformed into an output of child labor, and create a vicious cycle of poverty for families whose children are or have been part of the child workforce. The responsibility for breaking this cycle rests with the state and with policy makers. Making the heads of households, who are the decision makers in this respect, more informed and more aware of the disadvantages may be possible through education. Hussain and Maskus (2003) especially emphasize that increasing the levels of education of adults in poor countries has an important impact on decreasing the levels of child labor. On the other hand, this study reveals that the said poverty cycle is experienced more widely in rural areas. One of the reasons for this is the existence of the grey economy, which the state is finding difficult to solve.

The study proves that if the loss of human capital in the country is not desired in the long run, the vicious cycle of poverty caused by the child labor could be overcome by raising the awareness of the household heads. This awareness-raising could be possible by enhancing the factors such as the level of education and income that are components of human capital.

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Social Media and Trust — A Systematic Literature Review

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Abstract: The role of trust has long been acknowledged among economists and political scientists. It is often argued that high levels of trust among people help promote democratization, economic activity, well-performing institutions and low levels of violence. Social media has been identified as a significant vehicle in fostering social connections however the depth and significance of these connections to the creation of trust has not been well developed. According to Robert Putnam trust derives from reciprocity that is learned only in cooperation with others. Putnam is skeptical of a positive relationship between trust and digitalized social media. According to Uslaner trust is a moral issue established by family relationships early in life and therefore use of social media has no impact on creating trust. This paper is a structured literature review. The aim is to investigate if trust can be created by connections on digitalized social media. Eight articles emphasized a positive relationship between social media and trust; two articles claimed no relationship between trust and social media. We did not find any studies claiming there is a negative relation between social media and trust.

Key words: social media; trust; internet; digital communication

JEL codes: A12, A13, Z13

1. Introduction

Is it important to live in a society where people trust each other? Most people would probably answer “yes”. They prefer to live in a society where people trust each other, rather than in a society where people distrust each other. Social trust and the negative impact of the decline of trust has been a rising concern among economists and political scientists. It is well documented that trust is a significant component of many relations, it can lower transaction costs and risk and that high levels of trust promote investment and growth (Knack & Keefer, 1997; Putnam, 2000; Zak & Knack, 2001; Uslaner, 2002). How trust actually is created has been more of an open discussion. According to Robert Putnam trust is derived from reciprocity that is created by participation in associations and other forms of voluntary organizations. According to Uslaner trust is something learned at a young age. However, both these points are well debated and the research on trust is expansive. Increased use of Internet technology raises new questions about the role of social media and if social media can be a vehicle for creating trust? The aim of this paper is to investigate the research on this issue. The focus is on if digitalized social media and the Internet can create generalized social trust. The method we use is a structured literature review.

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Kitchenham (2004) and Kitchenham et al. (2009) guidelines for a systematic literature review was used to identify, evaluate and interpret the available empirical studies on this topic.

2. The Concept of Trust

Trust between people, social trust, and specifically generalized trust, defined as trust between people in general and people who do not know each other that well, have been well debated at least since Robert Putnam published “Making Democracy Work” in 1993. According to Robert Putnam (1993, 2000) trust derives from reciprocity, which can be learned only in cooperation with others. From Putnam’s perspective this means that trust is created in associations and other forms of voluntary organizations. Uslaner (2002), on the other hand, argues that people who join associations, so called “joiners”, appear to be more trusting from the outset. If so, it is not the associational membership *per se* that explains their higher level of trust. Instead Uslaner suggests that trust has a moral dimension, a virtue that is learned in early years from the parents.

Rothstein (2003) takes another position. According to Rothstein trust does not exist independently of politics or government. He proposes that when people are faced with corruption within institutions and/or do not feel adequately protected; they will lose trust in institutions. This leads to people assuming that others are resorting to bribery and other forms of corruption to get ahead and as a result get preferential treatment. This in-turn leads them to question whether they can really trust others and as a result generalized trust will be eroded. This position infers that trust depends on good governance (Rothstein, 2003).

Can trust be created by networking on social media or does it have to be live meetings? Putnam doubted that the Internet and social media could create trust, but he had little evidence when he published “Bowling Alone” in 2000. The reason Putnam doubts the role of the Internet in creating trust is that it is time consuming and thereby prevents “live” face to face meetings and limits the interactions to people one already knows (Putnam, 2000). In support of this negative view on the use of the internet to build relationships are the reports of individuals that create false identifies on-line in order to lure vulnerable individuals into relationships that are not mutually beneficial and/or could be potentially harmful (Rheingold, 1993). Furthermore there is the recent concern of government and corporate Internet surveillance. Due to recent scandals in the United States that have exposed government internet surveillance there is concern that the level of surveillance will increase and that this will negatively impact trust associated with digital social media (Anderson & Rainie, 2014). This could lead to the hypothesis that social media has a negative effect on trust.

In rebuttal, it could be argued that social media has a positive effect on trust. Digitalized social media communicates information much faster and much cheaper than live relationships. Information is a key issue when it comes to building and establishing trust. It is also easier and cheaper to find new relationships and to expand social markets on social media than in “the real world”. Thus, our second hypothesis is that social media has a positive effect on trust.

Our third hypothesis is that social media has no effect on trust. According to Uslaner (2002), trust is a moral virtue that has little to do with if you are active in associations or on the Internet. Instead trust is learned at home, taught by your parents and depends on an optimistic worldview. In this case “the trusting” are active in associations and on the Internet because of an internal, established value. This makes a correlation between trust and use of the Internet, but does not indicate causality in the sense that it is the Internet that creates trust.

3. The Concept of Social Media

Social media has been identified as a significant vehicle in fostering social connections that maintain or expand existing social networks (Ellison et al., 2007; Joinson, 2008). Different tools of social media create varying levels of connection between employees. For example global IT solution provider Dell Inc. found that the blog, the way it is used at Dell, facilitates the growth of cognitive social capital and that the micro-blog offers unique opportunities to increase structural social capital by facilitating the creation of ties among employees to a higher degree than the blog (Alex-Brown, 2011). Kline and Barker (2013) assert that developing communities of practice at places of employment through the vehicle of communication technologies results in a connection between employees that enhances collaboration and knowledge sharing within a company.

Social Media is used in many ways, for example email, checking the stock market, shopping and connecting with people. As the use of, and access to, social media continues to expand Facebook is still the dominant social network platform for adults. Youth ages (18-24) are using social media more heavily than previous generations (Duggan & Smith, 2013). They have grown up with digitized media and have a need to stay constantly connected (Cabral, 2011; Oblinger & Oblinger, 2005). This has created a new kind of peer relationship that is different than previous generations including a tendency to be more inclusive with whom they allow into their groups (Cabral, 2011).

4. Literature Review — Method

We have used a structured literature review model suggested by Kitchenham (2004) and Kitchenham et al. (2009). Malmö Universities comprehensive search tool *Summon* was used to identify relevant literature. The searches were conducted using the key words “social media” “trust” “social trust” “internet” in different combinations, as shown on table 1. We limited the search to journals and to the disciplines political science, social science, psychology and sociology. This process excluded a number of articles, but also narrowed down an expansive search to the relevant content areas. From these articles we selected studies using the “title method” — we excluded studies by reading the title and the first line after the title. In this phase and the coming sections in the review, the research question was in focus: Can social media create trust? The “title method” gave us 36 studies. We read the abstracts from these 36 studies, which resulted in excluding another 20 studies. In total 16 papers relevant to the research question were read. From the reference lists of these 16 studies, we identified 14 additional studies. In total, this gave us 30 papers to read. From these 30 papers we identified ten papers that were able to answer our research question “Can social media create trust?”.

Table 1 Number of Findings in the Structured Literature Search

Key words	“social media”“trust”	“social media”“social trust”	“social trust”“internet”	Total
Total find (just using key words)	22022	376	3717	
Limitations: Journals	6121	105	1037	
Limitations: political science, social science, psychology, sociology	663	27	442	
Title method: First search	26	+2	+8	36
Abstract method: First search-remaining				16
Second search: From ref. lists				14
Remaining after full paper read				10

5. Results

We have sorted our results in three different categories that refer to our three hypotheses: Social media has a negative effect on trust, social media has a positive effect on trust or social media has no effect on trust.

Social media has a negative effect on trust: We have not found any studies that find a negative relationship between social media and trust, even though there may be rational explanations that it might exist. A possible explanation is that distrust is difficult to detect because it is a transient property in network relationships (Bian et al., 2009). There are also no accurate methods for measuring inferred distrust between social media users (DuBois, Golbeck & Srinivasan, 2011). Another potential explanation is that people use social media as a way to control information and relationships and thereby mitigate uncertainty (Tidwell & Walther, 2002) early on screening out any relationship that would have potential to breed distrust.

Social media has a positive effect on trust: Most of the studies we found show that social media has a positive effect on trust. Monforti & Marichal (2014) studied digital skills and generalized trust in different ethnic groups: Latinos, African Americans and Anglo-Americans in the US. They found that digital skills were associated with generalized trust for African Americans but not for Latinos or Anglo-Americans. They used the survey 2010 PEW which asked questions on social media and computer use and skills, and ran the answers against answers on trust in a quantitative model. The statement used on trust is a common statement when it comes to measuring trust: “Most people can be trusted” versus “You can’t be too careful”. To measure digital skills they used two different indices on internet and digital use and skills (index 1) and cell phones and mobile wireless broadband (index 2). According to the authors the explanation for these results might be that internet can free African Americans from a social stigma that persists even for African Americans in high-status positions.

Jodi Liss (2011) describes a situation where a group of landowners were to negotiate a natural gas deal with an energy company. In these deals trust is of essential importance both within a group (collective bargaining) but also between parties. The problem addressed is asymmetric information. The landowners were in an information disadvantage towards the companies, but they also faced a problem of distrust between each other and a risk that someone defected. The Internet and social media gave landowners access to useful information and facilitated their ability to communicate with each other more easily and efficiently. According to Liss, to be able to share information builds trust, but it may also expand the deal beyond purely distributive financial considerations. In the case that Liss describes, the landowners set up a website where the members could privately log in and communicate with each other, and stay informed. The negotiators also sent out regular updates, relevant information and press clippings via e-mail. Later, another more locally specific website was set up.

Valenzuela, Park, and Kee (2009) conducted a random web survey of college students across Texas that examined if Facebook use is related to attitudes and behaviors that enhance individuals’ social capital. They identified a positive relationship between intensity of Facebook use and college students’ life satisfaction, social trust, civic engagement, and political participation. To measure social trust they used a web-based survey, that was a revision of Rosenberg’s (1956) “Faith in people — scale” at two large public universities in the US. They found that intensity of Facebook use is positively associated with social trust. The contribution made by Facebook use to social trust was small but statistically significant. In the model of regressions predicting political participation, there was a positive, significant interaction between intensity of Facebook use and social trust. They suggest a possible explanation for this is that online social networks allow users to learn detailed information about their contacts, including personal background, interests, music tastes, and whereabouts. This information can reduce

uncertainty about other users' intentions and behaviors, which is a necessary condition for developing norms of trust and reciprocity (Berger & Calabrese, 1975). Furthermore, Facebook users typically form their network connections based on existing relationships of trust (Valenzuela, Park, & Kee, 2009). These findings show the opposite of the more popular view that heavy Facebook users are more isolated and less connected than occasional users. This also contradicts the "time displacement hypothesis," that identified TV as the driving force behind the decline in social capital in the United States, this hypothesis started with the effects of television on social capital and was then expanded to the effects of the Internet on social capital. Putnam argued that T.V. viewing had privatized leisure time, thus inhibiting participation in activities outside the home (2000). Later this was refuted and found not to affect civic engagement (Norris, 1996; Uslander, 1998).

Beaudoin (2008) also purports that Internet use influences interpersonal trust. Using data from PEW 2006 Internet and American life survey, structural equation modeling was used to test a multistep model of the influence of Internet use on the development of interpersonal trust. The mediating effect of social resource motivation and perceived information overload were measured for their influence on the development of interpersonal trust and Internet use. Beaudoin found that the greater the Internet use, the greater the interpersonal trust, when it is mediated by social resource motivation for Internet use. Social resource motivation is using media for the purpose of building or maintaining social resources, social contact and social interactions. He also found that the individuals with greater levels of perceived information overload had lower levels of interpersonal trust. Individuals assess the amount of information that they can process and control. If they feel overloaded by the amount of information this can result in termination of the source of information. If the source of information is social media, to eliminate feeling overloaded someone would discontinue the social media relationship thereby reducing the possibility of using social media to build trust. This research begins to identify mechanisms specific to digitized social media that contribute to or detract from the development of online social trust. Identifying precipitating mechanism- social resource motivation and information overload - to internet use and the impact on trust begins to unravel the complexity of this topic and offers a model for how to use existing data to identify underlying connections between the internet and trust. This has potential to open the door to studying trust in the context of existing theories to more specifically identify connections between the type of trust such as generalized, particularized or strategic and the type of relationship being developed through social media.

Best and Krueger (2006) tested the relationship between online users and social capital using a probability sample survey of U.S. residents. They conceptualized social capital as including the following elements, generalized trust, reciprocity and integrity. Contrary to previous empirical investigations they found that time spent with new online relations is a significant positive predictor of generalized trust. Although they could not verify that the Internet fosters deep connections and loyalty they did suggest that Internet interactions foster connections that can produce generalized trust. What is unique to their study is that they measured the degree of online interactions with those not known offline.

A study by Blanchard and Horan (1998) indicates that both geographically dispersed and physically based virtual communities may cause general increase in trust. This article's primary focus is on the role of virtual communities and social capital and the potential effects of virtual communities on networks, norms, trust and privatization of leisure time. They conclude that social capital is stronger when virtual networks overlap face-to-face networks thereby facilitating network density and the flow of information.

Henderson and Gilding (2004) studied the development of trust in the context of online friendships. This study was based on semi-structured interviews with 17 Internet users to explore the foundations of trust in online

friendship. There were four main areas of trust identified: Reputation, performance, pre-commitment and situational factors. The majority of the respondents did not separate their online and offline worlds but used sharing information from the broader context as a way to establish their reputation to build trust. Communication, self-disclosure and risk-taking as components of performance were essential for building online trust and were framed as possibly easier to perform when building trust in online relationships. Pre-commitment facilitated hyper personal communication and online trust. Pre-commitment occurred when respondents purposefully changed the context of their own actions through self-disclosure, promoting reciprocity, therefore making it easier to take the risk of developing an online friendship. Finally they found that broad situational factors in Western societies promote active trust and personal networks: “Respondents had no doubt that the bet on an online friendship was not a frivolous one”.

Shan, Kwak & Holbert (2001) explored Internet use and the production of social capital in a study where interpersonal trust was defined as a criterion variable for social capital. It was identified that Internet use, was weakly related to interpersonal trust. When they controlled for a wide range of demographic and contextual variables, Internet use retained meaningful associations with interpersonal trust. In regards to trusting attitude toward other people, those who were older, female, more affluent, and members of a racial majority were more likely to be trusting of others. When different types of Internet usage patterns were simultaneously considered there was not a significant association with any of the criterion variables thus highlighting the importance of considering contextual factors. When they differentiated based on people’s use of the Internet they found that when the Internet was used for social recreation (chat rooms and game playing) it was consistently and negatively related to trust in other people. However when people used the Internet for information exchange it was found to have a positive impact on trust in other people. This study is unique in that instead of just looking at total time spent on the Internet, this exploratory analysis identified that the amount of time is less important than what they are doing when they connect online and that the production of social capital (interpersonal trust) is dependent on the motives individuals bring to their use of the web.

Social media has no effect on trust: We have found two studies claiming that social media/internet has *no* effect on trust; Uslaner (2004) and Jennings & Zeitner (2003). Uslaner, like many other studies, uses the Pew Center’s survey on Internet and Internet use. According to Uslaner Internet users tend to have a slightly wider social life than non-users, but since their Internet communications are with people they know, Internet users are not more trusting than others. However, Internet users are not less trusting than others either. This result fits Uslaner’s general idea of trust, as discussed earlier.

A problem in most studies (so also in Uslaner, 2004) is that they use cross-sectional data. This means that they do not have any over-time observations, which also makes the question of causality difficult. Cross-sectional data can tell us about correlation, but cannot identify whether Internet use leads to trust, or if it is the trusting that use the Internet. Jennings & Zeitner (2003), however, use a panel study done 1982 and 1997 that builds on a national sample of the high school class of 1965. This means that the respondents were to answer the survey before Internet era (1982) and at a time after Internet was introduced. The measurements on social trust are an index that uses the three standard questions (in short): Most people can be trusted, people try to be helpful, and people try to take advantage of you. Jennings & Zeitner found that gaining access to the Internet between 1982 and 1997 was associated with a positive contribution to several widely used indicators of civic engagement. *However*, social trust was not one of them. Social trust showed no significant change between 1982 and 1997 so social trust is not associated with Internet use. Thus, Internet users and nonusers show no significant difference when it comes to social trust.

6. Conclusions

Considering how much attention Putnam's work on social capital has drawn since "Making Democracy Work" in 1993, we were surprised that there has not been more research on the issue of social media and social trust. All together we found ten articles with original research on the issue. Of these ten articles, eight found some kind of positive relation between social media and trust. These articles begin to explore the relationship between trust and social media however the depth and reciprocity of these relationships has not been well developed. There are also other reflections to make. One interesting result is the one Monforti&Marichal propose, namely that the Internet can work differently for different ethnicities. In their case there was a positive relationship between trust and the Internet for African Americans, but not for other ethnicities. According to the authors the explanation might be that Internet can free African Americans from a social stigma that persists even for African Americans in high-status positions. This raises the question if the Internet can reduce barriers and level the opportunity for marginalized groups to build trust.

Another reflection is that most of the studies use cross-sectional data. When cross-sectional data is used there is a problem with causality — it is difficult to know if it is the trusting that use internet more or if it is the internet use that leads to trust? Only one study uses longitudinal data, and this study finds no relationship between Internet use and trust. Only one study uses a qualitative method and it found a positive relationship between social trust and Internet use and indicated that relationship development on the web was not viewed less seriously than "live" relationship.

A third reflection is that how the Internet is used is of importance. One study found a positive relationship when it was used for information but a negative one when it is used for recreation. Another study found a positive relationship between social media and trust when mediated by the choice to use social media to build or maintain social connections and that perceived information overload was inversely associated with interpersonal trust. A third study found positive results when social media use is combined with face-to-face interaction.

The conclusion is that we need additional research on a more disaggregated level using other methods and data rather than just quantitative analysis on cross-sectional data. We need to know if there is any difference between *who* uses social media, for example between different ethnic groups, and if *how the internet is used* really matters. Furthermore, we need to know more about causality: is it the trusting that use the Internet or is it Internet use that creates trust.

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Communication and Confidence in Financial Networks

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Abstract: We develop an asset pricing model in which agents communicate information in social networks prior to trading. An agent who is more confident in her private information attaches a greater weight on her private signal than on a signal received from communication when transmitting her information. The model generates novel implications: First, proximity between agents in networks affects correlation of asset demands. Second, the impact of agents' private information on asset prices depends on network structures. Third, irrespective of network structures, market liquidity, trading volume, price volatility and informational efficiency of prices are all higher with communication than without. Interestingly, information communication can alternatively explain some intriguing empirical facts which were attributed to overconfidence in the existing studies.

Key words: communication; confidence; overconfidence; circle network; star network

JEL codes: C90, D80, G10

No man is an island, entire of itself; every man is a piece of the continent, a part of the main.

----- Jone Donne, early seventeenth English poet¹

Word-of-mouth transmission of ideas appears to be an important contributor to day-to-day or hour-to-hour stock market fluctuation.

----- Robert Shiller (2000, p. 155)

1. Introduction

Information communication takes various forms in financial networks where traders discuss news, share ideas and learn from each other. The existing literature on asset pricing under asymmetric information mainly focuses on the information aggregation or transmission role played by asset prices and on the resulting trading patterns under different trading schemes or market arrangements (O'Hara, 1995; Foucault, Pagano, & Roell, 2013). The social structures where traders directly interact with one another have been largely unexplored. Heterogeneous traders are assumed to make strategic decisions by monopolistically exploiting their own private information about the fundamental value of assets, and they completely ignore word-of-mouth communication and any other information exchange channels even when they have personal contact with competitors. In a sense, each trader resides alone in a spatially disconnected island.

A growing empirical literature has documented that information communication in financial networks affects individual trading behavior and market trading patterns. The purpose of this paper is to incorporate information

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¹ Quoted from *Meditation XVII in Devotions upon Emergent Occasions*.

communication in different financial networks into the strategic rational expectations framework *à la* Kyle (1985) and to study its asset pricing and welfare implications.² In particular, we propose a framework in which risk-neutral informed traders (henceforth called *agents*) engage in *direct* and *truthful* communication in an exogenously established social structure, represented by circle or star networks.³ Simple as they are, circle and star networks have attracted most attentions by network economists. For instance, Bala and Goyal (2000) provide theoretical foundation of endogenous network formation. They show that under certain conditions, agents strategically form either circle or star network to share the informational benefits. A small number of papers that consider social communication in financial markets also focus on the circle and star networks (see section 2). The novelty of our modeling of communication is twofold. First, the flow of information transmission prior to trading is *one-way directed* and takes a specific form. In the circle network, each agent receives a signal from her closest left side neighbor, and then transmits a linear combination of her own private signal and this network signal to her closest right side neighbor. In the star network, in addition to her private signal, one agent receives another signal and entertains a central position; she similarly transmits a synthetic signal unilaterally to disjointed peripheral agents. The one-way directed information transmission modeling has the advantages that it facilitates equilibrium analysis. In the simplest way, the circle network represents the situation in which information is transmitted symmetrically while the star network captures the asymmetric information communication. As a starting point, analysis of these basic networks will further shed light on our understanding of more complicated ones. Second, when an agent forms the linear aggregation of private and network signals prior to trading, a measure of an agent's confidence degree of her private signal is integrated. More precisely, when aggregating and transmitting her information, the agent who is more confident in private information attaches a greater weight on the private signal than on the network signal received from communication. This modeling is introduced to capture the findings in cognitive psychology that agent tends to believe her private information is better than average (Odean, 1998).

One strand of empirical studies focuses on agents' portfolio choice influenced by their geographic proximity (e.g., Feng & Seasholes, 2004; Hong, Kubik & Stein, 2005; Ivković & Weisbenner, 2007). This phenomenon is explained either by home bias, local informational advantage, or by word-of-mouth information sharing. Our first result connects agents' proximity in financial networks to the correlation of their asset demands. Communication creates information overlapping among agents. When an agent is closer to her neighbors, the correlation of their demands is higher.

Not surprisingly, the impacts of private signal on equilibrium price are distinct in the circle and star networks. Agents in the circle network influences, through their private signals, the equilibrium price in an identical and symmetric manner. The central agent's private signal in the star network has greater influence on equilibrium price because it is exploited by the peripherals too. Trading behavior in the star network therefore provides a plausible explanation for the often observed large price swing in financial markets without prior significant change in fundamentals.

Despite the dissimilarity of agent's information utilization and social influence on price in different networks, we demonstrate that the market trading patterns are similar irrespective of network structures in that market liquidity, expected trading volume, price volatility and the informational efficiency of price, are all higher with communication than without. Communication generates additional more precise information, and agents thus

² We explain in section 3 why we illustrate the idea through this framework.

³ Information manipulation is extensively studied in the literature, we therefore choose to assume it away and highlight the other aspects of communication. Section 2 reviews some studies that consider direct and truthful information disclosure.

trade more aggressively and on average trading volume increases. Equilibrium price becomes more volatile as each private signal has a greater impact on the price. The more intense competition lessens the adverse selection faced by a competitive market-maker thus the market becomes more liquid. At the same time, since more information is revealed to the market-maker who therefore sets price closer to the asset value, as a result price becomes more informative and efficient. These results accord well with the well-known empirical findings of market trading phenomena such as tremendous trading volume and excessive price volatility. Theoretical work has extensively explored the underlying economic mechanisms. Our information communication explanation is new and complements the existing studies.

When an agent attaches a very high confidence degree on her private signal relative to the signal received from communication, we can argue that she is overconfident in her private signal, in other words, she mistakenly believes that her private signal is more precise than others'. We establish that market liquidity, expected trading volume, price volatility and price efficiency in both networks are strictly decreasing in the confidence degree while agents' expected profits are increasing in it. These comparative statics are directly opposite to the existing overconfidence literature which also aims to explain the high market liquidity, expected trading volume, price volatility and price efficiency and investors' low expected profits (Odean, 1998; Wang, 1998; Gervais & Odean, 2001; among others). Very interestingly, some intriguing empirical facts documented by Barber and Odean (2001, 2002) that men or online traders on average trade more frequently but less profitably than women or phone-based traders, previously attributed to the traders' overconfidence tendency, can be alternatively interpreted by the fact that they are more prone to participate in communication regarding asset information relative to their counterparts. Therefore we provide an alternative explanation and these findings have not been previously reported in the literature.

The paper is organized as follows. Section 2 reviews the existing literature. Section 3 extends Kyle's model, defines equilibrium strategies and introduces the modeling of information communication and confidence degrees. Section 4 and 5 derive asset pricing and welfare implications of information communication in the circle and star networks respectively. Section 6 compares the explanations of information communication and overconfidence regarding market trading patterns and individual welfare. Section 7 presents brief concluding remarks. All analytical proofs are relegated to the Appendix.

2. Literature Review

Trading activity is economic as well as sociological. Shiller (2000) provides a broad and in-depth investigation of word-of-mouth communication among financial markets traders. Nonetheless, only until very recently have economists found actual supporting data. Feng and Seasholes (2004) present that isolated groups of investors in one region of a country engage in positive correlated trading behavior at a weekly frequency. Hong, Kubik, and Stein (2004) find that socially active households are more likely to invest in the stock markets. Hong, Kubik, and Stein (2005) show that, even in the absence of local information advantage, a mutual fund manager is more likely to hold or trade a particular stock in any quarter if other managers from different fund families located in the same city are holding or trading that stock. Ivković and Weisbenner (2007) attribute one-quarter to one-half of the correlation between households' stock purchases and stock purchases made by their neighbors to word-of-mouth communication.

The recent popularity of the Internet chat rooms on financial investment as a medium of financial markets

discussion attracts a lot of academic attention. Wysocki (1998) reports that message posting forecast next-day trading volume and next-day abnormal stock returns. The firms with high message postings are characterized by high trading volume. Antweiler and Frank (2004a) find that high message posting on a given day is associated with a small negative return and greater volatility on the next day. Antweiler and Frank (2004b) consider a much larger database and show that stocks that are heavily discussed are particularly heavily traded, unusually volatile, and have surprisingly poor subsequent returns. Our paper contributes to both literatures by formally providing economic mechanism that governs the interaction among information communication, trading behavior and asset pricing.

Disproportionately, only a few authors develop analytical models to study the effects of information communication in financial networks. Ozsoylev (2004) studies the existence and properties of equilibrium price when social interaction is incorporated into Hellwig (1980). Ozsoylev (2005) allows agents to directly and truthfully share information in social network with very general structure. He establishes that proximity between agents in network influence agents' asset demand correlation and that communication in network may account for the observed high volatility ratio of price to fundamentals in financial markets. Colla and Mele (2010) consider information communication in a circle network à la Foster and Viswanathan (1996). Han and Yang (2013) show that in the presence of communication, the properties of market liquidity, expected trading volume, price volatility and price efficiency depend crucially on whether private signals are exogenous available or endogenously acquired. Our model generates a number of novel implications regarding asset pricing and trading behavior, and can be seen as a complement to above analytical work. Moreover, the modeling of confidence is a unique feature in our paper, making it is possible to compare our model with overconfidence literature which also produces similar implications consistent with empirical findings.

One-way directed but strategic information communication in an essential star network à la Kyle (1985) has been studied intensively in the voluntary disclosure literature. Bushman and Indjejikian (1995), and Shin and Singh (1999) show that an insider can benefit from disclosing her information to some extent, which is achieved either by eroding the informational advantages of her competitors through market-maker's adjusted pricing strategy, or by diluting competitors' information and regaining monopoly on her additional private signal. Van Bommel (2003) show that a wealth constrained insider gains by spreading rumor such as buy or sell to an audience of followers when each informed follower continues to pass the rumor to a number of uninformed followers. In our paper information communication is modeled as sociological trait associated with trading behavior rather than strategic and beneficial use of information.

The role of interpersonal and interactive communication through social network in decision making has long been recognized in other fields of economic activities. Ellison and Fudenberg (1995) and Bala and Goyal (1998) show that communication in social networks play a major role in technology adoption. DeMarzo, Vayanos and Zwiebel (2003) explore the role of repetitive information communication in social networks to understand behavioral bias in political and marketing issues. Their model can be used to capture local preference for conformity and habit persistence. Jackson (2010) presents an excellent textbook on network economics.

3. The Basic Framework

We model the information communication in the strategic rational expectations model pioneered by Kyle (1985). Introducing information communication into the competitive rational expectation paradigm à la Hellwig

(1980) will not change the main results of this paper since the driving mechanism is still applicable. However, in the latter framework both price and communication convey information across agents which complicates the analysis of conditional expectation formation regarding risky asset value.⁴ The advantage of modeling information communication in Kyle (1985) is evident since agents cannot observe price when they submit market order, therefore the communication effect can be demonstrated clearly.

3.1 The Economy

In a security market n risk-neutral privately informed agents and uninformed noise traders submit market orders simultaneously to a risk-neutral competitive market-maker, not knowing the market clearing price when they do so. Trading takes place at time 1 and the single risky asset is liquidated at time 2. The terminal value of the asset \tilde{v} is normally distributed $N(\bar{v}, \Sigma)$ (where \bar{v} is assumed, without loss of generality, to be 0. Prior to trading, agent i observes a signal $\tilde{s}_i = \tilde{v} + \tilde{\varepsilon}_i$ where $\tilde{\varepsilon}_i$ is normally and identically distributed $N(0, \Phi)$ for $i \in \{1, \dots, n\} = N$. In the presence of information communication, agent i receives a network signal \tilde{r}_i from another agent, whose exact form depend on network structure and will be made clear in the subsequent sections. Noise traders submit an exogenous random quantity \tilde{u} which is normally distributed $N(0, \Omega)$. The random variables \tilde{v} , $\tilde{\varepsilon}_i$ and \tilde{u} are assumed to be mutually independent for all i . The market-maker absorbs the net trade and sets price expecting to earn a zero profit.

Agent i 's trading strategy is given by a measurable function $X_i: \mathbb{R}^2 \rightarrow \mathbb{R}$, determining her market order as a function of her information set $\tilde{\mathcal{I}}_i = (\tilde{s}_i, \tilde{r}_i)$. For a given strategy, let $\tilde{x}_i = X_i(\tilde{\mathcal{I}}_i)$. A strategy profile $\{X_1, \dots, X_n\}$ determines order flow $\tilde{\omega} = \sum_{i=1}^n \tilde{x}_i + \tilde{u}$. The market-maker's pricing strategy is given by a measurable function $P: \mathbb{R} \rightarrow \mathbb{R}$. Given (X_1, \dots, X_n, P) , define $\tilde{p} = P(\tilde{\omega})$ and let $\tilde{\pi}_i = (\tilde{v} - \tilde{p})\tilde{x}_i$ denote the resulting profit for agent i .

Based on her information set, each agent acts strategically by taking into account the fact that her optimal demand, as well as others' order decisions, will influence the asset price and her profit. The market-maker attempts to infer the private information from the order flow and sets price as efficiently as possible to protect himself from adverse selection. These considerations are formally expressed below.

Definition 1 *The Bayesian Nash equilibrium consists of agents' trading strategy profile $\{X_1, \dots, X_n\}$ and the market-maker's pricing strategy P , such that the following conditions hold:*

(1) *Profit maximization: for agent i 's any alternative trading strategy X'_i ,*

$$\mathbb{E}(\tilde{\pi}_i | \tilde{\mathcal{I}}_i) \geq \mathbb{E}\left[X'_i(\tilde{\mathcal{I}}_i) \left[\tilde{v} - P\left(\sum_{j \neq i} \tilde{x}_j + X'_i(\tilde{\mathcal{I}}_i) + \tilde{u}\right) \right] \middle| \tilde{\mathcal{I}}_i\right]; \quad (1)$$

(2) *Market semi-strong efficiency: the pricing strategy P satisfies*

$$P(\tilde{\omega}) = \mathbb{E}\left[\tilde{v} \middle| \tilde{\omega} = \sum_{i=1}^n \tilde{x}_i + \tilde{u}\right]. \quad (2)$$

We focus on equilibrium with linear strategies and postulate that agent i 's trading strategy and the market-maker's pricing strategy are

⁴ To distinguish the role played by communication from price, Ozsoylev (2005) has to assume an unrealistically large noise trading variance, so that variations in price mainly reflect variations in noise trading rather than variations in information.

$$\begin{aligned} X_i(\tilde{s}_i, \tilde{r}_i) &= \alpha_i \tilde{s}_i + \beta_i \tilde{r}_i, \quad i \in \mathcal{N}, \\ P(\tilde{\omega}) &= \lambda \tilde{\omega}, \end{aligned}$$

respectively. We refer to α_i and β_i as trading intensity parameters associated with private and network signals, and λ as the market liquidity/depth parameter. A low λ means a more liquid (or deeper) market in the sense that the cost of a given trade is low. In the presence of communication, symbol subscripts will be used to indicate network structures.

3.2 Information Communication and Confidence Degree

After observing private signals, agents engage in information communication. Depending on network structures, an agent directly sends and/or receives *truthful* information to/from other agents. The model therefore rules out strategic information transmission and information-based price manipulation.

To fix idea, besides private signal \tilde{s}_i , agent i receives a network signal, denoted by \tilde{r}_i , from information communication in a social network. When a new agent j joins the network and connects to agent i , the former gets information \tilde{r}_j from the latter as information is assumed to be transmitted in a one-way direction. The content of \tilde{r}_j can take many different forms. For example, agent i may choose to send her private signal only, so $\tilde{r}_j = \tilde{s}_i$; or agent i may simply pass her network signal, therefore $\tilde{r}_j = \tilde{r}_i$; or agent i may disclose all of her information, that is, $\tilde{r}_j = \{\tilde{s}_i, \tilde{r}_i\}$. The first case is studied by Ozsoylev (2005), Colla and Mele (2010), and Han and Yang (2013), while the last one is considered by Bala and Goyal (2000).⁵ Above examples have their own merits, nonetheless other possibilities deserve exploring. In this paper we study a specific form of information communication. Agent j is assumed to receive synthetic information from agent i that \tilde{r}_j is a linear combination of \tilde{s}_i and \tilde{r}_i :

$$\tilde{r}_j = \theta \tilde{s}_i + (1 - \theta) \tilde{r}_i, \quad i, j \in \mathcal{N}. \quad (5)$$

Where the parameter $\theta \in [0, 1]$ is the weight attached to agent i 's private signal. When $\theta = 0$ or 1 , this communication rule coincides with the first two examples mentioned above. It is also compatible with the full-disclosure example since the weights can be chosen such that \tilde{r}_j becomes the sufficient statistic of $\{\tilde{s}_i, \tilde{r}_i\}$. A similar information aggregating rule in a repetitive communication model is studied by DeMarzo, Vayanos and Zwiebel (2003). In their model, the weights θ and $1 - \theta$ reflect the relative precision of \tilde{s}_i and \tilde{r}_i respectively, that is, the linearly combined information is the sufficient statistic of individual signals regarding asset value; or they embody agent's beliefs about \tilde{s}_i and \tilde{r}_i so that information is not necessarily aggregated efficiently.

In this paper we interpret the weights θ and $1 - \theta$ as agent's *confidence* degrees of her private and network signals respectively, and we study the impacts of varying θ on the resulting individual trading behavior and market trading patterns. For simplicity we assume that all agents select the same θ so it can be thought of as a measure of public confidence in private signal. Two attractive features of this modeling choice will be evident in the subsequent analysis. First, when agents' confidence degree is very high, its effect on signals' relative precision

⁵ In the model of Bala and Goyal (2000), when agent j is connected to agent i who is linked to agent k , then agent j will derive benefit from both agents i and k , even though agent j is not connected with agent k directly.

looks as if agents favorably perceive the precision of private signals compared to that of network signals, i.e., agents are *overconfident* in their private signals. Second, the information structures in the circle and star networks, together with the restriction that $\theta \in [0, 1]$, guarantees that network signals are no less precise than agents' private signals, so that agents do not ignore the information content of the network signals.

4. Trading in Circle Network

In this section we study individual trading behavior and market trading patterns in the security market when information communication structure is presented by a circle graph. The environment is identical to what is introduced in section 3 except that n informed agents are ordered clockwise, as to say that agent i has agent $i+1$ to her left and agent $i-1$ to her right. The graph in Figure 1 is a symbolic representation of a circle network. It implies an abstraction of the reality so communicating agents can be simplified as a set of linked nodes, and arrows indicate the *one-way* directed information transmission.

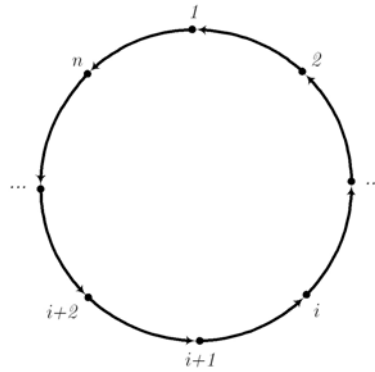


Figure 1 Information Transmission in the Circle Network

Note: The set of linked nodes represents social communication among agents. Arrows indicate the direction of information transmission. For all $i \in \mathcal{N}$, in addition to private signal, agent i receives “synthetic” network signal about the risky asset value from agent $i+1 \pmod{n}$.

Prior to trading, an agent, say $i+1$, obtains information from her closest left side neighbor $i+2$. Agent $i+1$ then determines a linear combination of her private and network signals, then transmits the synthetic information to her closest right side neighbor i , and so on. It is assumed that the lack of geographical or socioeconomic proximity prevents agent $i+2$ from directly communicating with agent i . We therefore have the expression for the network signal:

$$\tilde{r}_i = \theta \tilde{s}_{i+1} + (1 - \theta) \tilde{r}_{i+1} \pmod{n}, \quad i \in \mathcal{N}, \quad \theta \in (0, 1]. \quad (6)$$

The modular arithmetic with modulus n , denoted by \pmod{n} is used if necessary. For example, five agents after $(n-2)^{\text{th}}$ agent is the third agent.

Although the circle network considered is something of a modeling device, it is not too unrealistic. First, Bala and Goyal (2000) show that under certain conditions agents will strategically form a circle network when beneficial information transmission is one-way directed. It is conceivable that, at least in short period, these agents will rely on this established network to exchange information. Second, the modeling captures some important features of communication in financial markets. For example, the successive circulation of investment newsletter and financial press, and the orderly and continuous discussion on Internet stock message boards resemble quite closely the one-way directed communication in the circle network.

Assume away repetitive information transmission, the circle network dictates that

$$\tilde{r}_i = \tilde{r}_{i+n} \pmod{n}, i \in \mathcal{N}. \quad (7)$$

When $\theta \in (0, 1)$, (6) and (7) together yield

$$\tilde{r}_i = \frac{\theta \sum_{k=0}^{n-1} (1-\theta)^k \tilde{s}_{i+k+1}}{1 - (1-\theta)^n} = \tilde{v} + \frac{\theta \sum_{k=0}^{n-1} (1-\theta)^k \tilde{\varepsilon}_{i+k+1}}{1 - (1-\theta)^n} \pmod{n}, i \in \mathcal{N}, \quad (8)$$

thus information received from the closest left side neighbor not only contains her private signal but also aggregates signals of agents linked by the closest left side neighbor, and signals of those who are linked by agents linked by the closest left side neighbor, and so on. It is noteworthy that the weights of \tilde{s}_{i+k+1} , the private signals of agent i 's left side neighbors, for $k = 0, \dots, n-1$, are ranked in a descending order in \tilde{r}_i and the weights sum up to one.

When $\theta = 1$, (8) is replaced with

$$\tilde{r}_i = \tilde{s}_{i+1} \pmod{n}, i \in \mathcal{N}, \quad (9)$$

so agent i 's network signal is just the private signal of her closest left side neighbor.

It is easy to show that the network signal is distributed identically as

$$\tilde{r}_i \sim \mathbf{N} \left(0, \Sigma + \frac{\theta}{2-\theta} \frac{1 + (1-\theta)^n}{1 - (1-\theta)^n} \Phi \right), i \in \mathcal{N} \text{ and } \theta \in (0, 1]. \quad (10)$$

The equilibrium trading and pricing strategies in the circle network are similarly defined as Definition 1 except that network signal \tilde{r}_i in information set $\tilde{\mathcal{I}}_i$ is given by (8) and (9) when $\theta \in (0, 1)$ and $\theta = 1$ respectively. Subscript \circ is used below to indicate the circle network. A unique symmetric linear equilibrium is solved and the results are collected in Theorem 1.

Theorem 1 *In the circle network, there exists a unique symmetric linear equilibrium*

$$X_{\circ i}(\tilde{s}_i, \tilde{r}_i) = \alpha_{\circ} \tilde{s}_i + \beta_{\circ} \tilde{r}_i, i \in \mathcal{N}, \quad (11)$$

$$P_{\circ}(\tilde{\omega}) = \lambda_{\circ} \left(\sum_{i=1}^n \tilde{x}_{\circ i} + \tilde{u} \right). \quad (12)$$

Where the trading intensity parameters α_{\circ} and β_{\circ} , and the liquidity parameter λ_{\circ} are given by

$$\begin{aligned} \alpha_{\circ} &= \frac{\theta}{2-\theta} \beta_{\circ} \\ \beta_{\circ} &= (2-\theta) \sqrt{\frac{[1 - (1-\theta)^n] \Omega}{4n[1 - (1-\theta)^n] \Sigma + 2n\theta[1 + (1-\theta)^{n-1}] \Phi}} \\ \lambda_{\circ} &= \frac{\Sigma}{\sqrt{\Omega}} \sqrt{\frac{2n[1 - (1-\theta)^n] \left(2[1 - (1-\theta)^n] \Sigma + \theta[1 + (1-\theta)^{n-1}] \Phi \right)}{2(n+1)[1 - (1-\theta)^n] \Sigma + [(3\theta - 2)(1-\theta)^{n-1} + 2 + \theta] \Phi}} \end{aligned}$$

The second order condition $\lambda_0 > 0$ is satisfied.

The impacts of exogenous parameters (n, Σ, Φ, Ω) on equilibrium properties have been intensively explored in the extensions to Kyle (1985) without information communication. Their roles in the communication economy are similar. For instance, the market liquidity parameter is decreasing in the number of informed agents n because more competition leads to a decrease in the adverse selection faced by the market-maker. In the circle network an increase in n also increases the precision of network signal, which further reinforces the competition between agents, enabling market to be even more liquid. Similarly, the variance of noise trading Ω does not affect price volatility and price efficiency because agents scale up their trading intensities in response to an increase in the amount of noise trading, no matter whether there is information communication or not. Since the confidence degree θ is a new parameter in the model, we only focus on its effects on individual trading behavior and market trading patterns to preserve space in the following equilibrium analysis.

4.1 Demand Correlation and Proximity

The empirical studies by Feng and Seasholes (2004), Hong, Kubik, and Stein (2004, 2005), and Ivković and Weisbenner (2007) suggest that the closer is the geographic proximity between agents, the more correlated is their trading behavior. Other than the possible local information advantage, one way to formalize this observation is to show the relationship between correlation of agents' demands and their proximity is decreasing. Proposition 1 shows that this is indeed the case.

Proposition 1 *In the circle network, when $n \geq 4$, we have:⁶*

(1) *The correlation of agent demands is non-increasing in agents' proximity for $\theta = 1$. In particular, the correlation of an agent and her closest neighbors' demands is the largest.*

$$\text{corr}(\tilde{x}_{oi}, \tilde{x}_{oi \pm 1}) > \text{corr}(\tilde{x}_{oi}, \tilde{x}_{oi + \ell}) = \text{corr}(\tilde{x}_{oi}, \tilde{x}_{oi + j}) \pmod{n}, 2 \leq |\ell| < |j| \leq n/2.$$

(2) *The correlation of agent demands is strictly decreasing in agents' proximity for $\theta \in (0, 1)$.*

$$\text{corr}(\tilde{x}_{oi}, \tilde{x}_{oi + \ell}) > \text{corr}(\tilde{x}_{oi}, \tilde{x}_{oi + j}), \pmod{n}, 1 \leq |\ell| < |j| \leq n/2.$$

When $\theta = 1$, we have $\alpha_o = \beta_o$ and for $i \in \mathcal{N}$,

$$\begin{aligned} \text{corr}(\tilde{x}_{oi}, \tilde{x}_{oi \pm 1}) &= \frac{4\Sigma + \Phi}{4\Sigma + 2\Phi} \pmod{n}, \\ \text{corr}(\tilde{x}_{oi}, \tilde{x}_{oi + j}) &= \frac{2\Sigma}{2\Sigma + \Phi}, 2 \leq |j| \leq \frac{n}{2}, \pmod{n}. \end{aligned}$$

It's clear that the correlation of an agent and her closest left/right neighbor's demands is the largest as the overlapping of private signals is the greatest. A stronger monotone relationship is established when $\theta \in (0, 1)$.

The reason is straightforward: when agent $i + \ell$ is closer to i than $i + j$, her private signal has more influence on i 's demand. At the same time, although agent i 's private signal has more influence on $i + j$'s demand, the latter's influence is dominated by the former's. As a result, the correlation of demands between agents i and $i + \ell$ is larger than that between agents i and $i + j$.

In our model proximity could be broadly determined by ethnical, cultural and socioeconomic factors, and the same idea is applicable in other financial decisions. For instance, Kelly and Ó Gráda (2000) examine the behavior of Irish depositors in a New York bank during two panics in 1850s. The social network of these recent immigrants, which was largely determined by place of origin in Ireland and neighborhood in New York, turns out to be the

⁶ When $n = 2$ or 3 the proposition is trivial.

prime determinant of behavior. Duflo and Saez (2002) discover that individual's decision to enroll in particular employer-sponsored retirement plans and the choice of the mutual fund vendor are affected by the choices of his co-workers. Cohen, Frazzini, and Malloy (2008, 2010) respectively find that mutual fund managers and sell-side analysts gain a comparative information advantage through their social networks; specifically, through educational ties with senior officers and board members of the firms.

4.2 Market Patterns and Expected Profit

In this subsection, we demonstrate the remarkable effects of communication and confidence degree on market trading patterns and agent's expected profit. Proposition 2 is crucial for its intuitive appealing in understanding the main results.

Proposition 2 *In the circle network, precision of the network signal \tilde{r}_i is strictly higher than that of the private signal \tilde{s}_i when confidence degree $\theta \in (0,1)$, and it is strictly decreasing in $\theta \in (0,1]$ for each agent $i \in \mathcal{N}$.*

Recall the expression of network signal (8) when $\theta \in (0,1)$, the i.i.d. nature of noise terms in private signals, after weighted by confidence degree and linearly aggregated together, naturally make the network signal to be more precise than any private signal regarding the asset value. The monotonicity result comes from two facts. First, in an agent's network signal, the θ -dependent weights of signals of her left side neighbors are ranked in a descending order; Second, the θ -dependent weights sum up to one. Therefore when confidence degree increases, these weights vary over a broader range which cause the network signal to be more volatile, or equivalently, less precise.

We are interested in the implications of information communication and confidence degree on market patterns such as market liquidity, expected trading volume, price volatility and price efficiency. The market liquidity is captured by λ . Total trading volume \tilde{V} aggregates trades that are crossed between traders, informed or uninformed, and net demand presented to the market-maker, thus it is defined by

$$\tilde{V} = \frac{1}{2} \left(\sum_{i=1}^n |\tilde{x}_i| + |\tilde{u}| + |\tilde{\omega}| \right) \quad (16)$$

Where the coefficient 1/2 corrects the double counting when summing trades over all traders. Price volatility is the variance of equilibrium price \tilde{p} . Price efficiency, or informational efficiency (informativeness) of price is either measured by the posterior precision of \tilde{v} or the residual variance of \tilde{v} , conditional on equilibrium price \tilde{p} (or order flow $\tilde{\omega}$). They are informationally equivalent so we adopt the first. Additionally, we also study the impact of communication and confidence degree on an agent's unconditional expected profit.

Proposition 3 *When $n > 1$, market liquidity, expected trading volume, price volatility and price efficiency in the circle network are strictly higher with communication than without. Moreover, when $n > 2$, they are strictly decreasing in confidence degree $\theta \in (0,1]$ in the presence of communication.*

The intuition for the first part is as follows. Agents trade more aggressively simply because they can exploit more available information which is also more precise regarding asset value. Information communication causes prices to be more sensitive to changes in agents' private signals and less sensitive to changes in noise traders' demand. The market-maker realizes that agents trade more intensely and accordingly moves price less in response to changes in order flow than he would if agents abstain from communication. In other words, he flattens the

supply curve, therefore increasing market liquidity. Because communicating agents trades more in response to private signals, their expected trading increases relative to that of noise traders. Consequently the signal-to-noise ratio in total order flow increases and the market-maker is able to make better inference about agents' signals. The price he sets then varies more in response to changes in private signals which increases the price volatility. From a different perspective, although the market-maker has flattened the supply curve, thus dampening volatility for any given level of expected order flow, the increased order flow generated by communicating agents more than offsets this dampening, and results in increased volatility. At the same time, the better inference enables the market-maker to form a more accurate posterior expectation of asset value and to set price that is, on average, closer to asset value. The informativeness or efficiency of prices is thus improved.

This analysis reveals that communicating agents trade more aggressively relative to isolated agents, whatever the confidence degree of the former, is the key to understand the comparative statics of market trading patterns. The monotonicity result of the second part comes from the mechanism given in Proposition 2. A higher confidence degree of communicating agents leads to relatively less accurate network signals, which impair agents' assessment of asset value. As a consequence they trade cautiously, thereby market liquidity, price volatility and price efficiency become smaller. The monotonicity result does not hold when $n = 2$, since when information is transmitted between two agents, each agent can infer other's private signal directly. Consequently, θ plays no role in affecting agent's trading behavior and market patterns.

The tremendous trading volume in financial markets is a challenge to the no-trade theorem developed by Milgrom and Stokly (1982) in that differences in information alone cannot explain the observed levels of trading volume. Several motives have been extensively explored in the literature. The competitive and strategic noisy rational expectations models, pioneered by Grossman and Stiglitz (1980) and Kyle (1985) respectively, demonstrate that private information and noise (liquidity) trading are the major motive for trade. Although noise trading is not necessarily irrational, ascribing the enormous trading volume to noise trading is unappealing theoretically and empirically. Our model suggests that once information communication is considered, the burden for the required level of noise trading can be lessened. More recently, heterogeneous prior beliefs has been proposed as another significant motive for trade. The high levels of trading volume in Harris and Raviv (1993) and Kandel and Pearson (1995) arise from differences of opinion about an asset value, while in Odean (1998) and Wang (1998) they are attributed to agents' overconfidence in private signal's precision. Our information communication explanation can accommodate these motives, thus help us to better understand the trading phenomena. The recent burgeoning of stock message boards also provides supportive evidence reviewed earlier. Our model's predications are consistent with these findings.

Communication is a sociological need for human being. In many cooperative contexts communication brings welfare improvement. Nonetheless, do agents gain from information communication when they are strategically competing against one another? The answer is not crystal clear. Communication is beneficial as well as costly. Agents are able to better assess the asset's risk due to more precise network signals, but they lose monopoly on private signals simultaneously. Proposition 4 reveals that the latter outweighs the former in the circle network.

Proposition 4 *When $n > 1$, an agent's unconditional expected profit in the circle network is lower with communication than without. Moreover, when $n > 2$, it is strictly increasing in confidence degree $\theta \in (0, 1]$.*

A key element underlying this welfare impairment result is that agents are risk neutral. To such agents the advance in risk assessment is not very attractive. Additional more accurate information generated from

communication, accompanied by less monopoly on private signals, leads to more intense competition among agents which helps the market-maker to better infer the asset value, thus equilibrium price is on average set closer to the asset value. Consequently, each agent suffers from the communication. This intuition is echoed by the second part of this proposition. Agents are relatively better off even though higher confidence degree of private signal makes the network signal to be less precise.

This result raises the concern that information communication in financial markets is undesirable and the circle network cannot be established in the very beginning. Such pessimistic conclusion is nonetheless too hasty. As pointed out by Hong, Kubik and Stein (2004), agents get pleasure from conversation about financial markets with friends who are also fellow participants. Moreover, if agents are risk averse, the benefit of communication may exceed its cost. On the one hand, the advantage of more precise network signal, favored by risk-averse agents, may dominate the monopoly loss in private signals. On the other hand, risk-averse agents generally trade cautiously so market-maker gains less informational advantage, resulting in a wider profit margin. This effect is strengthened when the number of agents is small, or equivalently, the competition is less intense. Indeed, Eren and Ozsoylev (2006) use numerical solution to formalize these observations in a two risk-averse agents Kyle model. We choose to study the risk-neutral case because of its analytical clarity.

5. Trading in Star Network

We next consider a new financial network in which information communication structure is represented by a star graph. The information structure is similar to what is introduced in section 3, except that one agent, conveniently labeled as agent 1, receives additional information and is surrounded by other $n-1$ disconnected agents who do not participate in information communication. To fix notations, agent 1 has a private signal \tilde{s}_1 and receives signal $\tilde{r}_1 = \tilde{v} + \tilde{\varepsilon}_0$. For simplicity we assume that $\tilde{\varepsilon}_0 \sim N(0, \Phi)$ and $\tilde{\varepsilon}_0, \tilde{\varepsilon}_1, \tilde{\varepsilon}_i$ for $i \in N \setminus \{1\}$ are identically and independently distributed. Moreover, $\tilde{v}, \tilde{\varepsilon}_0$ and \tilde{u} are mutually independent.

The central agent 1 truthfully transmits a linear combination of \tilde{s}_1 and \tilde{r}_1 to all other peripheral agents prior to trading in a similar manner specified before:

$$\tilde{r}_i = \theta \tilde{s}_1 + (1 - \theta) \tilde{r}_1, \quad i \in N \setminus \{1\}, \quad \theta \in [0, 1]. \quad (17)$$

The weight θ reflects the central's confidence degree of her private signal and is assumed to be known to the peripherals. Clearly $\theta = 1/2$ causes \tilde{r}_i to be the sufficient statistic of \tilde{s}_1 and \tilde{r}_1 , but the central agent may choose $\theta > 1/2$ because of a personal attachment of her private signal. Figure 2 depicts the flow of information transmission in the star network.

This modeling device captures in a stylized way a number of real-life situations. First, the central agent may choose to share information simply because of legal requirements. For instance, the SEC requires public traded company to fully disclose corporate events information that will affect stock's subsequent performance. Still, in practice company has discretion to display distinct information with different emphases. Second, financial analysts or some information gurus who are willing to communicate their information from multiple sources have a large audience not only in traditional financial press and media but also in virtual worlds such as Internet stock message boards.

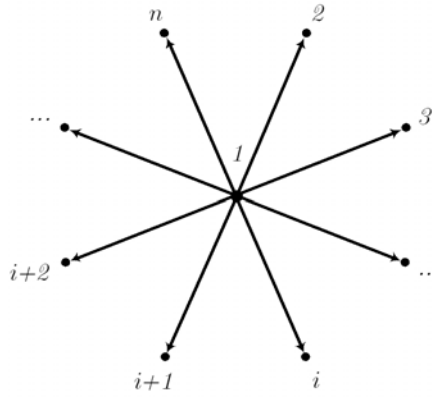


Figure 2 Information Transmission in the Star Network

Note: The set of linked nodes represents social communication among agents. Arrows indicate the direction of information transmission. For all $i \in \mathcal{N} \setminus \{1\}$, in addition to private signal \tilde{s}_i , peripheral agent i receives “synthetic” signal \tilde{r}_i about the risky asset’s value from central agent 1.

Using subscript \star to denote the star network, the equilibrium is similarly defined as Definition 1 except that $\tilde{\mathcal{I}}_1 = (\tilde{s}_1, \tilde{r}_1)$ and $\tilde{\mathcal{I}}_i = (\tilde{s}_i, \tilde{r}_i)$ for $i \in \mathcal{N} \setminus \{1\}$ where \tilde{r}_i is defined in (17). Assuming symmetric linear trading strategies among peripheral agents, we have:

Theorem *In the star network, there exists a unique linear equilibrium*

$$\begin{aligned} X_{\star 1}(\tilde{s}_1, \tilde{r}_1) &= \alpha_{\star} \tilde{s}_1 + \beta_{\star} \tilde{r}_1, \\ X_{\star i}(\tilde{s}_i, \tilde{r}_i) &= \gamma_{\star} \tilde{s}_i + \delta_{\star} \tilde{r}_i, \quad i \in \mathcal{N} \setminus \{1\}, \\ P_{\star}(\tilde{\omega}) &= \lambda_{\star} \left(\tilde{x}_{\star 1} + \sum_{i=2}^n \tilde{x}_{\star i} + \tilde{u} \right). \end{aligned}$$

Where the trading intensity parameters $\alpha_{\star}, \beta_{\star}, \gamma_{\star}$ and δ_{\star} , and the liquidity parameter λ_{\star} are given by

$$\begin{aligned} \alpha_{\star} &= \frac{\sqrt{\Omega}([2n(1-\theta)^2 + 2\theta + 1]\Sigma + 2[n(1-\theta)(1-2\theta) + \theta]\Phi)}{\sqrt{2(a\Sigma^3 + b\Sigma^2\Phi + c\Sigma\Phi^2 + d\Phi^3)}}, \\ \beta_{\star} &= \frac{\sqrt{\Omega}([2n\theta^2 - 2\theta + 3]\Sigma + 2[n\theta(2\theta - 1) - \theta + 1]\Phi)}{\sqrt{2(a\Sigma^3 + b\Sigma^2\Phi + c\Sigma\Phi^2 + d\Phi^3)}}, \\ \gamma_{\star} &= \frac{\sqrt{2\Omega n(1-2\Theta)}(\Sigma + \Phi)}{\sqrt{a\Sigma^3 + b\Sigma^2\Phi + c\Sigma\Phi^2 + d\Phi^3}}, \\ \delta_{\star} &= \frac{2\gamma_{\star}}{n(1-2\Theta)}, \\ \lambda_{\star} &= \frac{\Sigma}{\sqrt{2\Omega}} \frac{\sqrt{a\Sigma^3 + b\Sigma^2\Phi + c\Sigma\Phi^2 + d\Phi^3}}{e\Sigma^2 + f\Sigma\Phi + g\Phi^2}, \end{aligned}$$

Where $\Theta = \theta(1-\theta)$, and the full expression for a, b, c, d, e, f and g are given explicitly in the Appendix. The second order condition $\lambda_{\star} > 0$ is satisfied.

A prominent feature of the central agent’s equilibrium trading strategy stands out. After transmitting a

positive and linear combination of her private and received signals, she may optimally select a trading strategy in which one trading intensity coefficient is possibly negative. For instance, fix variance parameters, when the central agent integrates a high confidence degree of her private signal in information transmission, the peripherals can better assess and exploit the central's private signal. At the same time if the number of the peripherals is large so that competition is very intense, the central may gain by choosing a negative trading intensity on her private signal.

We can address the relation between agents' proximity and correlation of their demands again if information communication structure can be broadly represented by multiple identical but disjoint star networks. It is easily shown that the correlation of demands of agents in the same star is larger than the correlation of demands of agents located across different stars. In other words, the correlation of agent demands is decreasing in their proximity.

5.1 Private Signal's Social Influence

We are concerned about the influence of one agent's private signal on other agents' trading behavior and equilibrium asset price. Apparently, in the circle network each agent's signal's influence is symmetric and identical. When information is asymmetrically transmitted in the star network, this property is altered significantly. For example, Ozsoylev (2004) shows that, when a star network is introduced into Hellwig (1980), the influence of a central agent's signal on equilibrium price is infinitely large when the number of peripheral agents approaches infinity. However, this is not the case in our model.

Proposition 5 *In the star network, the central agent's private signal has a greater influence on equilibrium price than any other peripheral agent's signal. However, the influence ratio is finite for all $n > 1$. That is, for all realized private signals and equilibrium price, we have*

$$1 < \frac{\partial p_{\star} / \partial s_1}{\partial p_{\star} / \partial s_i} < 3, i \in \mathcal{N} \setminus \{1\}.$$

Intuitively, each peripheral agent in our model, who cannot observe the equilibrium price, takes into account the fact that the central agent's synthetic information is also utilized by others, she thereby optimally underreacts to this received signal, especially when the number of the peripherals is large. The influence of the central's private and received signals is controlled deliberately by the peripherals' trading intensities choice. While all the peripherals in Ozsoylev (2004) trade competitively without the same strategic consideration so that each exploits the received signal up to her risk aversion and signal precision. As the number of the peripherals goes to infinity, the central's private signal is absorbed into the equilibrium price without bound.⁷

Ozsoylev (2004) nicely remarks that competitive trading in the star network provides a possible explanation for the large price swing, like bubble or crash, in financial markets without prior significant change in fundamentals. However, our finite influence ratio result seems to be more plausible, as any single agent's influence on financial markets is reasonably limited.

5.2 Market Patterns and Expected Profit

The intuitive Proposition 2 in section 4.2 helps us to understand individual trading behavior and market trading patterns in the circle network. Analogously, in the star network we have a similar result.

Proposition 6 *In the star network, precision of the network signal \tilde{r}_i is strictly higher than that of \tilde{s}_i when*

⁷ Ozsoylev (2004) also assumes that the variance of liquidity trading goes to infinity in order to separate the role of social interaction from the role played by price. In our model the level of noise trading does not matter for this result.

confidence degree $\theta \in (0, 1)$ for each agent $i \in N \setminus \{1\}$, and it is strictly decreasing (increasing) in $\theta \in [1/2, 1]$ ($\theta \in [0, 1/2]$).

For our purpose we will focus on the case $\theta \in [1/2, 1]$ in the following analysis.

We have seen that a private signal's influence on price changes drastically when communication takes place in different networks. Is this the same case for market trading patterns as summarized by market liquidity, trading volume, price volatility and price efficiency? The answer is no.

Proposition 7 *When $n > 1$, market liquidity, expected trading volume, price volatility and price efficiency in the star network are higher with communication than without. Moreover, they are strictly decreasing in confidence degree $\theta \in [1/2, 1]$.*

When a peripheral receives a more accurate network signal from the central, on average agents as a whole trade more intensely. The market-maker infers information and sets price in similar way as described in section 4.2. We conclude that regardless of network structures, information communication generates market trading patterns more similar to what are observed in practice than implied by no communication economy. The monotonicity result is a direct consequence of Proposition 6.

As above, we turn to examine agents' unconditional expected profits.

Proposition 8 *Unconditional expected profit of the central agent in the star network is lower with communication than without, and it is strictly increasing in confidence degree $\theta \in [1/2, 1]$. The opposite is true for that of peripheral agents. The total expected profits are lower relative to those in the no communication economy.*

Intuitively, by spreading the synthetic information, the central agent loses monopoly on her private information. If she chooses not to do so, her expected profit is apparently higher than that of a single peripheral agent since she has an additional and exclusive information. The peripherals compete against one another and against the central agent not only on the common received signal but also on their own monopolistic private signals. Roughly, the received signal helps them earn higher expected profit than what is delivered in the no communication economy, and their exclusive private signals ensure them to gain more relative to the central agent. Unfortunately, the peripheral's total gain is dominated by the central's loss, and it is not possible to construct a compensation scheme between the central and the peripheral agents to have everyone better off. However, as we argued above, when agents are risk aversion or when they have other considerations, the information communication can make everyone happier. Interestingly, Ozsoylev, Walden, Yavuz, and Bildik (2014) find empirical evidence that central investors earn higher returns and trade earlier than peripheral investors with respect to information events, which can be rationalized by a two-period trading model.

6. Communication and Overconfidence

In the circle network, Proposition 2 demonstrates that when an agent is more confident in private signal prior to trading, the resulting more volatile network signal makes private signal, whose variance is actually unchanged, to be relatively more precise. The same is true in the star network when the central agent's confidence degree is in the range $[1/2, 1]$. These properties make our modeling of confidence to be comparable with that of overconfidence because the latter is usually captured by an agent's tendency to overestimate the precision of private signal and underestimate that of others or public information. In other words, when an agent exhibits high confidence degree or when she displays overconfidence in private signal, the effects on signals' relative precision are alike. Odean (1998), Wang (1998), Daniel, Hirshleifer, and Subrahmanyam (1998), and Gervais and Odean

(2001) show that, in different extensions of Kyle (1985) without communication, market liquidity, expected trading volume, price volatility and price efficiency are all higher while an insider's expected profit is lower when she is overconfident in her private signal. More significantly, in their models these market patterns are strictly increasing in the insider's overconfidence degree, and the reverse is true for the expected profit. The intuition is straightforward, when an insider is more overconfident in private signal, she trade more intensely. The reasons of higher market liquidity, price volatility and price efficiency are similar as outlined in section 4.2. The insider's expected profit decreases simply because her demand is suboptimal.⁸ These comparative statics are directly opposite to Propositions 3 and 4 in the circle network when $\theta \in (0, 1]$, and are again distinct from Propositions 6 and 7 in the star network when $\theta \in [1/2, 1]$.

The impacts of overconfidence on investors' trading behavior and welfare have been examined extensively. By studying position statement and trading activity for a large sample of households, Barber and Odean (2000) discover that those that trade most earn the lowest annual return. After considering other possible motivations for trading such as liquidity, risk-based rebalancing, and taxes, they attribute high trading levels and the resulting poor performance to individual investors' overconfidence. In subsequent studies, Barber and Odean (2001) document that men trade more than women but trading reduces men's net annual returns by more percentage points as opposed to that for women. Barber and Odean (2002) report that when investors switch from phone-based to online trading, they trade more actively and less profitably than before. These patterns are consistent with the findings by Antweiler and Frank (2004a, 2004b). For the former, they cite psychological research that men are more overconfident than women in areas such as finance. For the latter, they explain that online investors perform well prior to switch, therefore are more overconfident in their abilities in the new trading platform. As online investors have access to vast quantities of investment data, their illusions of knowledge and control further foster their overconfidence.

Interestingly, these empirical findings can be alternatively account for by the implications of information communication. Casual observation and anecdotal evidence suggest that relative to women, men are more prone to exchange news regarding asset performance and wealth accumulation. Similarly, it is routine for online traders to participate in information sharing and discussion on Internet stock message boards. Our model predicts that information sharing leads to excessive trading and return performance impairment.

Apparently, information communication and overconfidence explanations are largely complementary in explaining market trading patterns and individual profits. But in some aspects they are also competing against each other. In particular, earlier psychological experiments, requiring participants to respond to questions in isolated environment, seldom consider the communication and peer effects in affecting their confidence degrees, while recent redesigned experiments have documented that the agent's underconfidence is also prevalent in decision making (Klayman, Soll, González, & Barlas, 1999). Prompted by these findings, Xia (2014) provides reasonable conditions that excessive price volatility, high trading volume and price informativeness can be associated with underconfidence in a competitive economy à la Hellwig (1985). García, Sangiorgi and Urošević (2007) show that, when overconfident and rational agents coexist and information is endogenously acquired, agent's overconfidence is irrelevant to price volatility under certain conditions. Glaser and Weber (2007) also question the connection between overconfidence and trading volume by examining experimental data and field data together. In light of these, future research can be directed to test the validity and robustness of information

⁸ Their conclusions can be extended to the case in which the single overconfident insider is replaced by multiple ones.

communication and overconfidence theories. Interestingly, Xia (2012) shows that, when facing trade disclosure requirements, overconfident insiders trade less than underconfident ones in order to prevent information from revealing to market-makers. This result again questions the conventional wisdom that overconfident insiders always trade more aggressively.

7. Concluding Remarks

Recently a remarkable amount of empirical research has concentrated on testing the implications of information communication in financial markets, surprising though this body of work has elicited little in terms of theoretical work. We extend Kyle (1985) by introducing one-way direct and truthful information transmission in the circle and star networks. Despite the restrictive modeling choice, this endeavor is encouraging as the model generates implications that are consistent with empirical findings from individual trading behavior to market trading patterns. In our paper, the comparative statics of investors' confidence degree on market trading patterns and individual welfare are contrary to those of overconfidence literature, therefore further scrutiny of communication and overconfidence explanations using empirical data is needed to enhance our understanding.

Several directions of further research await exploring. On the empirical side, it is interesting to examine the time series and cross sectional implications of information communication in asset prices. For instance, a rise in volatility among publicly traded companies has been documented. Is this an outcome that during last few decades the attention of news media and financial press were more in favor of publicly traded companies?

On the theoretical side, some key questions are in order. First and foremost, as pointed out earlier, incorporating information communication into Kyle (1985) has the advantage that the effect of communication on trading can be distinguished from the information aggregation role played by equilibrium price. A limitation of the analysis is that agents' non-strategic information communication prior to trading appears to be at odds with their strategic use of information afterwards. The analysis would be more illuminating if the incentive compatibility of information communication can be characterized in the strategic rational expectation framework. The aforementioned voluntary disclosure literature may help fill the gap and we plan to delve into it in the next project.⁹ Second, the synergy of network economics and finance is a new and promising area. Information communication, or other sociological traits of trading behavior in social network, may raise a lot of unexplored questions. For instance, what are the asset pricing implications if investors are more inclined to share good news and withhold bad news, or vice versa? The investigation shall shed light on our understanding of other puzzling phenomena in economics and finance.

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⁹ One conjecture is that traders are willing to communicate information truthfully before strategic trading when there are multiple assets and information acquisition is costly. It could be beneficial for each agent to obtain information of individual asset and share the information.

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Appendix Proofs of Main Results

Proof of Theorem 1 When proving the theorem we do not have to treat cases $\theta \in (0, 1)$ and $\theta = 1$ separately. Only the distribution of \tilde{r}_i is relevant in maximization and the distribution of \tilde{r}_i when $\theta = 1$ is the limit of that when $\theta \in (0, 1)$. The proof has three steps.

Step one: Agent i , taking (thm1a) with subscript $j \neq i$, and (thm1b) as given, chooses x_{oi} to solve:

$$\max_{x_{oi}} \mathbb{E} \left(x_{oi} \left[\tilde{v} - \lambda_o \left(\sum_{j \neq i} (\alpha_o \tilde{s}_j + \beta_o \tilde{r}_j) \right) + x_{oi} + \tilde{u} \right] \middle| \tilde{s}_i = s_i, \tilde{r}_i = r_i \right),$$

which is equivalent to (def1a) with $\mathcal{I}_i = (s_i, r_i)$ and can be rewritten as

$$\max_{x_{oi}} x_{oi} \left(\left[1 - \lambda_o \alpha_o (n-1) \right] \mathbb{E}(\tilde{v} | s_i, r_i) - \lambda_o x_{oi} - \lambda_o \alpha_o \sum_{j \neq i} \mathbb{E}(\tilde{s}_j | s_i, r_i) - \lambda_o \beta_o \sum_{j \neq i} \mathbb{E}(\tilde{r}_j | s_i, r_i) \right).$$

The solution is given by

$$x_{oi}^* = \frac{1}{2\lambda_o} \left[1 - \lambda_o \alpha_o (n-1) \right] \mathbb{E}(\tilde{v} | s_i, r_i) - \frac{1}{2} \left[\alpha_o \sum_{j \neq i} \mathbb{E}(\tilde{s}_j | s_i, r_i) + \beta_o \sum_{j \neq i} \mathbb{E}(\tilde{r}_j | s_i, r_i) \right].$$

The second order condition is $\lambda_o > 0$.

Because all random variables are normally distributed with zero means, by the Projection Theorem, there exist constants a_1 , a_2 , b_1 , b_2 , c_1 and c_2 such that:

$$\mathbb{E}(\tilde{v} \mid s_i, r_i) = a_1 s_i + a_2 r_i, \quad (\text{A1a})$$

$$\sum_{j \neq i} \mathbb{E}(\tilde{\varepsilon}_j \mid s_i, r_i) = b_1 s_i + b_2 r_i, \quad (\text{A1b})$$

$$\sum_{j \neq i} \mathbb{E}(\tilde{r}_j \mid s_i, r_i) = c_1 s_i + c_2 r_i. \quad (\text{A1c})$$

The equilibrium dictates

$$\alpha_o = \frac{[1 - \lambda_o \alpha_o (n-1)] a_1}{2\lambda_o} - \frac{(\alpha_o b_1 + \beta_o c_1)}{2} \quad \text{and} \quad \beta_o = \frac{[1 - \lambda_o \alpha_o (n-1)] a_2}{2\lambda_o} - \frac{(\alpha_o b_2 + \beta_o c_2)}{2},$$

therefore we have

$$\alpha_o = \frac{A}{\lambda_o} \quad \text{and} \quad \beta_o = \frac{B}{\lambda_o}, \quad (\text{A2})$$

Where

$$A = \frac{a_1(2 + c_2) - a_2 c_1}{[2 + b_1 + a_1(n-1)](2 + c_2) - [b_2 + a_2(n-1)]c_1}, \quad (\text{A3a})$$

$$B = \frac{a_2(2 + b_1) - a_1 b_2}{[2 + b_1 + a_1(n-1)](2 + c_2) - [b_2 + a_2(n-1)]c_1}. \quad (\text{A3b})$$

Note that A and B are independent of λ_o .

The pricing rule set by the market-maker must satisfy (2). Taking (11) as given, (12) satisfies (2) if

$$\lambda_o = \frac{\text{cov}(\tilde{v}, \tilde{\omega}_o)}{\text{var}(\tilde{\omega}_o)} = \frac{n(\alpha_o + \beta_o)\Sigma}{n^2(\alpha_o + \beta_o)^2 \Sigma + n(\alpha_o + \beta_o)^2 \Phi + \Omega}.$$

Substituting in for α_o and β_o given by (A2) yields

$$\lambda_o = \sqrt{\frac{[n(A + B) - n^2(A + B)^2]\Sigma - n(A + B)^2 \Phi}{\Omega}}. \quad (\text{A4})$$

Step two: The expression of network signal is

$$\begin{aligned} \tilde{r}_i &= \tilde{v} + \frac{\theta \sum_{k=0}^{n-1} (1-\theta)^k \tilde{\varepsilon}_{i+k+1}}{1 - (1-\theta)^n}, \quad \text{when } \theta \in (0, 1), \\ \tilde{r}_i &= \tilde{s}_{i+1}, \quad \text{when } \theta = 1. \end{aligned}$$

Define V to be the variance-covariance matrix of vector $\begin{bmatrix} \tilde{s}_i & \tilde{r}_i \end{bmatrix}^T$, for $\theta \in (0, 1]$,

$$V = \begin{bmatrix} \Sigma + \Phi & \Sigma + \frac{\theta(1-\theta)^{n-1}}{1-(1-\theta)^n} \Phi \\ \Sigma + \frac{\theta(1-\theta)^{n-1}}{1-(1-\theta)^n} \Phi & \Sigma + \frac{\theta}{2-\theta} \frac{1+(1-\theta)^n}{1-(1-\theta)^n} \Phi \end{bmatrix}.$$

For ease of notation, define

$$C = \frac{1 - (1 - \theta)^{n-1}}{1 - (1 - \theta)^n} \Phi \text{ and } D = |V|, \quad (\text{A5a})$$

i.e., D is the determinant of V .

Next we show that the unknowns in (A3a) and (A3b) are as follows.

$$a_1 = \frac{C}{D} \frac{\theta}{2 - \theta} \Sigma, \quad a_2 = \frac{C}{D} \Sigma, \quad (\text{A6a})$$

$$b_1 = -\frac{C}{D} \left[\Sigma + \frac{\theta(1 - \theta)^{n-1}}{1 - (1 - \theta)^n} \Phi \right], \quad b_2 = \frac{C}{D} (\Sigma + \Phi), \quad (\text{A6b})$$

$$c_1 = \frac{C}{D} \frac{\theta}{2 - \theta} (n\Sigma + \Phi), \quad c_2 = \frac{C}{D} \left[\left(n - \frac{2}{2 - \theta} \right) \Sigma + \left(\frac{2(1 - \theta)}{2 - \theta} - \frac{\theta(1 - \theta)^{n-1}}{1 - (1 - \theta)^n} \right) \Phi \right]. \quad (\text{A6c})$$

Note that the unknowns in (A3a) and (A3b) are coefficients in (A1a)-(A1c). Applying the Projection Theorem to (A1a), we have

$$\mathbb{E}(\tilde{v} \mid s_i, r_i) = \frac{C}{D} \left(\frac{\theta}{2 - \theta} s_i + r_i \right) \Sigma,$$

therefore we obtain (A6a).

Second, we can show that

$$\text{cov}(\tilde{\varepsilon}_j, \tilde{s}_i) = \begin{cases} 0 & \text{if } j \neq i \\ \Phi & \text{if } j = i \end{cases} \text{ and } \text{cov}(\tilde{\varepsilon}_j, \tilde{r}_i) = \begin{cases} \frac{\theta(1 - \theta)^{n+j-i-1}}{1 - (1 - \theta)^n} \Phi & \text{if } 1 \leq j \leq i \\ \frac{\theta(1 - \theta)^{j-i-1}}{1 - (1 - \theta)^n} \Phi & \text{if } i < j \leq n \end{cases}. \quad (\text{A7})$$

Applying the Projection Theorem to (A1b),

$$\sum_{j \neq i} \mathbb{E}(\tilde{\varepsilon}_j \mid s_i, r_i) = \frac{C}{D} \left[-\left(\Sigma + \frac{\theta(1 - \theta)^{n-1}}{1 - (1 - \theta)^n} \Phi \right) s_i + (\Sigma + \Phi) r_i \right],$$

we thus obtain (A6b).

Finally, we can show that

$$\text{cov}(\tilde{r}_j, \tilde{s}_i) = \begin{cases} \Sigma + \frac{\theta(1 - \theta)^{i-j-1}}{1 - (1 - \theta)^n} \Phi & \text{if } 1 \leq j < i \\ \Sigma + \frac{\theta(1 - \theta)^{n+i-j-1}}{1 - (1 - \theta)^n} \Phi & \text{if } i \leq j \leq n \end{cases}, \quad (\text{A8})$$

$$\text{cov}(\tilde{r}_j, \tilde{r}_i) = \begin{cases} \Sigma + \frac{\theta}{2 - \theta} \frac{(1 - \theta)^{i-j} + (1 - \theta)^{n+j-i}}{1 - (1 - \theta)^n} \Phi & \text{if } 1 \leq j \leq i \\ \Sigma + \frac{\theta}{2 - \theta} \frac{(1 - \theta)^{j-i} + (1 - \theta)^{n+i-j}}{1 - (1 - \theta)^n} \Phi & \text{if } i \leq j \leq n \end{cases}. \quad (\text{A9})$$

Applying the Projection Theorem to (A1c),

$$\sum_{j \neq i} \mathbb{E}(\tilde{r}_j | s_i, r_i) = \frac{C}{D} \frac{\theta}{2 - \theta} (n\Sigma + \Phi) s_i + \frac{C}{D} \left[\left(n - \frac{2}{2 - \theta} \right) \Sigma + \left(\frac{2(1 - \theta)}{2 - \theta} - \frac{\theta(1 - \theta)^{n-1}}{1 - (1 - \theta)^n} \right) \Phi \right] r_i,$$

we thus obtain (A6c).

Step three: Now it is ready to capture the algorithm for calculating trading intensity parameters α_o, β_o and liquidity parameter λ_o . We first calculate A and B, defined in (A3a) and (A3b), by substituting (A5a)-(A6c), then λ_o follows from (A4). Second we get α_o and β_o from (A2). Very lengthy algebra yields the final results given by (13)-(15) in the main text. Next we examine the second order condition. Observe that

$$\lambda_o = \frac{\Sigma}{\sqrt{\Omega}} \frac{\sqrt{2n[1 - (1 - \theta)^n] \left(2[1 - (1 - \theta)^n] \Sigma + \theta[1 + (1 - \theta)^{n-1}] \Phi \right)}}{2(n+1)[1 - (1 - \theta)^n] \Sigma + [(3\theta - 2)(1 - \theta)^{n-1} + 2 + \theta] \Phi},$$

because $n > 1$, $\theta \in (0, 1]$ and $(3\theta - 2)(1 - \theta)^{n-1} + 2 + \theta = 2[1 - (1 - \theta)^n] + \theta[1 + (1 - \theta)^{n-1}]$, thus $\lambda_o > 0$ is satisfied.

Proof for Proposition 1. The proof for the first part is provided in the main text. For the second part, since $var(\tilde{x}_{oi+\ell}) = var(\tilde{x}_{oi+j})$ for any ℓ and j , by definition of $corr(\tilde{x}_{oi}, \tilde{x}_{oi+\ell})$ we only need to examine the covariance term, that is,

$$cov(\tilde{x}_{oi}, \tilde{x}_{oi+\ell}) = \alpha_o^2 cov(\tilde{s}_i, \tilde{s}_{i+\ell}) + \alpha_o \beta_o [cov(\tilde{s}_i, \tilde{r}_{i+\ell}) + cov(\tilde{s}_{i+\ell}, \tilde{r}_i)] + \beta_o^2 cov(\tilde{r}_i, \tilde{r}_{i+\ell}) \quad (A10)$$

Note the results (A7)-(A9) in the proof of Theorem 1. We have

$$\begin{aligned} cov(\tilde{s}_i, \tilde{r}_{i+\ell}) &= \Sigma + \frac{\theta(1 - \theta)^{n-\ell-1}}{1 - (1 - \theta)^n} \Phi, \\ cov(\tilde{s}_{i+\ell}, \tilde{r}_i) &= \Sigma + \frac{\theta(1 - \theta)^{\ell-1}}{1 - (1 - \theta)^n} \Phi, \\ cov(\tilde{r}_i, \tilde{r}_{i+\ell}) &= \Sigma + \frac{\theta}{2 - \theta} \frac{(1 - \theta)^\ell + (1 - \theta)^{n-\ell}}{1 - (1 - \theta)^n} \Phi. \end{aligned}$$

Substituting these covariance terms and $\alpha_o = (\theta\beta_o) / (2 - \theta)$ into (proximity) and examining the terms involving ℓ , we only need to show

$$(1 - \theta)^\ell + (1 - \theta)^{n-\ell}$$

is strictly decreasing in integer $\ell \in (0, n/2]$. Apparently, this is the case. For $i \in \mathcal{N}$, $n \geq 4$ and $1 \leq \ell < j \leq n/2$, we have $corr(\tilde{x}_{oi}, \tilde{x}_{oi+\ell}) > corr(\tilde{x}_{oi}, \tilde{x}_{oi+j})$. The symmetry leads to $corr(\tilde{x}_{oi}, \tilde{x}_{oi-\ell}) = corr(\tilde{x}_{oi}, \tilde{x}_{oi+\ell})$, hence for $1 \leq |\ell| < |j| \leq n/2$, we have

$$corr(\tilde{x}_{oi}, \tilde{x}_{oi+\ell}) > corr(\tilde{x}_{oi}, \tilde{x}_{oi+j}).$$

This completes the proof.

Proof for Proposition 2. To see that the precision of \tilde{r}_i is strictly higher than that of \tilde{s}_i for $i \in \mathcal{N}$, it suffices to show

$$\begin{aligned}
 & \text{var}(\tilde{r}_i) < \text{var}(\tilde{s}_i) \\
 \Leftrightarrow & \Sigma + \frac{\theta}{2-\theta} \frac{1+(1-\theta)^n}{1-(1-\theta)^n} \Phi < \Sigma + \Phi \\
 \Leftrightarrow & \frac{1-(1-\theta)}{1-(1-\theta)^n} \frac{1+(1-\theta)^n}{1+(1-\theta)} < 1.
 \end{aligned} \tag{A11}$$

(All) holds naturally since given $\theta \in (0, 1)$ and $n > 1$, we have $(1-\theta)^n < 1-\theta$.

To prove the precision of \tilde{r}_i is strictly decreasing in $\theta \in (0, 1]$, notice that we have shown that the precision of \tilde{r}_i when $\theta \in (0,$

1) is higher than that when $\theta = 1$. We only need to show $\frac{\theta}{2-\theta} \frac{1+(1-\theta)^n}{1-(1-\theta)^n}$ is strictly increasing in $\theta \in (0, 1)$. Equivalently, we can

verify $\log \left[\frac{\theta}{2-\theta} \frac{1+(1-\theta)^n}{1-(1-\theta)^n} \right]$ is strictly increasing in $\theta \in (0, 1)$. This requires

$$\frac{1}{\theta} + \frac{1}{2-\theta} - \frac{n(1-\theta)^{n-1}}{1+(1-\theta)^n} - \frac{n(1-\theta)^{n-1}}{1-(1-\theta)^n} > 0.$$

Simplifying it leads to

$$(1-\theta)^{2n} + n\theta(2-\theta)(1-\theta)^{n-1} < 1.$$

Let $\eta = 1 - \theta$, manipulation yields

$$\frac{\eta^{-n} - \eta^n}{n} > \eta^{-1} - \eta. \tag{A12}$$

Given $\eta \in (0, 1)$, it is ready to see that the left hand side of (A12) as a function of n is strictly increasing in $n > 0$, so the last inequality holds when $n > 1$.

Proof of Theorem 2. The proof consists of two steps.

Step one: Central agent 1, taking (19) for $i \neq 1$, and (20) as given, chooses $x_{\star 1}$ to maximize

$$\mathbb{E} \left(x_{\star 1} \left[\tilde{v} - \lambda_{\star} \left(x_{\star 1} + \sum_{i=2}^n (\gamma_{\star} \tilde{s}_i + \delta_{\star} \tilde{r}_i) + \tilde{u} \right) \right] \middle| s_1, r_1 \right) = \frac{\Sigma(s_1 + r_1)}{2\Sigma + \Phi} ([1 - \lambda_{\star} \gamma_{\star} (n-1)] x_{\star 1} - \lambda_{\star} \delta_{\star} (n-1)) [\theta s_1 + (1-\theta) r_1] x_{\star 1} - \lambda_{\star}^2 x_{\star 1}^2 \tag{A13}$$

because

$$\mathbb{E}(\tilde{v} \mid s_1, r_1) = \mathbb{E}(\tilde{s}_i \mid s_1, r_1) = \frac{\Sigma(s_1 + r_1)}{2\Sigma + \Phi}. \tag{A14}$$

The second order condition is $\lambda_{\star} > 0$.

Peripheral agent $i \neq 1$, taking (18), (19) with subscript $j > 1$ and $j \neq i$, and (20) as given, chooses x_i to maximize

$$\begin{aligned}
 & \mathbb{E} \left(x_{\star i} \left[\tilde{v} - \lambda_{\star} \left(\alpha_{\star} \tilde{s}_1 + \beta_{\star} \tilde{r}_1 + x_{\star i} + \sum_{j>1, j \neq i} (\gamma_{\star} \tilde{s}_j + \delta_{\star} \tilde{r}_j) \right) + \tilde{u} \right] \middle| s_i, r_i = r_j \right) \\
 = & x_{\star i} \mathbb{E}(\tilde{v} | s_i, s_1) - \lambda_{\star} x_{\star i}^2 - \lambda_{\star} x_{\star i} \left[\alpha_{\star} \mathbb{E}(\tilde{s}_1 | s_i, r_i) + \beta_{\star} \mathbb{E}(\tilde{r}_1 | s_i, r_i) \right] \\
 & - \lambda_{\star} x_{\star i} \left[\gamma_{\star} \sum_{j>1, j \neq i} \mathbb{E}(\tilde{s}_j | s_i, r_i) + \delta_{\star} \sum_{j>1, j \neq i} \mathbb{E}(\tilde{r}_j | s_i, r_i) \right]
 \end{aligned} \tag{A15}$$

The second order condition is $\lambda_{\star} > 0$.

Define

$$\Theta = \theta(1 - \theta),$$

because of (17),

$$\tilde{r}_i = \theta \tilde{s}_1 + (1 - \theta) \tilde{r}_1,$$

applying the Projection Theorem, we have

$$\begin{aligned}
 \mathbb{E}(\tilde{v} | s_i, r_i) &= \mathbb{E}(\tilde{r}_1 | s_i, r_i) = \mathbb{E}(\tilde{s}_j | s_i, r_i) = \frac{\Sigma[(1 - 2\Theta)s_i + r_i]}{2(1 - \Theta)\Sigma + (1 - 2\Theta)\Phi}, \\
 \mathbb{E}(\tilde{r}_j | s_i, r_i) &= r_i.
 \end{aligned}$$

Solving (A13) and (A15) and imposing equilibrium requirement yields

$$\begin{aligned}
 \alpha_{\star} &= \frac{1}{2\lambda_{\star}} \frac{\Sigma[1 - \lambda_{\star}\gamma_{\star}(n - 1)]}{2\Sigma + \Phi} - \frac{\delta_{\star}(n - 1)\theta}{2}, \\
 \beta_{\star} &= \frac{1}{2\lambda_{\star}} \frac{\Sigma[1 - \lambda_{\star}\gamma_{\star}(n - 1)]}{2\Sigma + \Phi} - \frac{\delta_{\star}(n - 1)(1 - \theta)}{2}, \\
 \gamma_{\star} &= \frac{1}{2\lambda_{\star}} \frac{(1 - 2\Theta)\Sigma[1 - \lambda_{\star}(\alpha_{\star} + \beta_{\star} + (n - 2)\gamma_{\star})]}{2(1 - \Theta)\Sigma + (1 - 2\Theta)\Phi}, \\
 \delta_{\star} &= \frac{1}{2\lambda_{\star}} \frac{\Sigma[1 - \lambda_{\star}(\alpha_{\star} + \beta_{\star} + (n - 2)\gamma_{\star})]}{2(1 - \Theta)\Sigma + (1 - 2\Theta)\Phi} - \frac{(n - 2)\delta_{\star}}{2}.
 \end{aligned}$$

Manipulation leads to (24), i.e., $\delta_{\star} = \frac{2\gamma_{\star}}{n(1 - 2\Theta)}$ and

$$\begin{aligned}
 \alpha_{\star} &= \frac{1}{\lambda_{\star}} \frac{[2n(\theta - 1)^2 + 2\theta + 1]\Sigma + 2[n(1 - \theta)(1 - 2\theta) + \theta]\Phi}{2(e\Sigma^2 + f\Sigma\Phi + g\Phi^2)}, \\
 \beta_{\star} &= \frac{1}{\lambda_{\star}} \frac{(2n\theta^2 - 2\theta + 3)\Sigma + 2[n\theta(2\theta - 1) - \theta + 1]\Phi}{2(e\Sigma^2 + f\Sigma\Phi + g\Phi^2)}, \\
 \gamma_{\star} &= \frac{1}{\lambda_{\star}} \frac{n(1 - 2\Theta)\Sigma(\Sigma + \Phi)}{(e\Sigma^2 + f\Sigma\Phi + g\Phi^2)},
 \end{aligned} \tag{A17}$$

where

$$e = (n + 1)[n(1 - 2\Theta) + 2], \quad f = n(n + 4)(1 - 2\Theta) + n + 1, \quad \text{and} \quad g = 2n(1 - 2\Theta).$$

Taking (18) and (19) as given, the market-maker knows that $\tilde{\omega}_{\star} = \alpha_{\star} \tilde{s}_1 + \beta_{\star} \tilde{r}_1 + \sum_{i=2}^n (\gamma_{\star} \tilde{s}_i + \delta_{\star} \tilde{r}_i) + \tilde{u}$ and sets

λ_{\star} in the familiar manner. Substituting in for $\alpha_{\star}, \beta_{\star}, \gamma_{\star}$ and δ_{\star} as given in (A17) and (24) yields (25) in the main text:

$$\lambda_{\star} = \frac{\text{cov}(\tilde{v}, \tilde{\omega}_{\star})}{\text{var}(\tilde{\omega}_{\star})} = \frac{\Sigma \sqrt{a\Sigma^3 + b\Sigma^2\Phi + c\Sigma\Phi^2 + d\Phi^3}}{\sqrt{2\Omega}(e\Sigma^2 + f\Sigma\Phi + g\Phi^2)},$$

where

$$\begin{aligned} a &= 2n[n(1-2\Theta) + 2]^2, \\ b &= 6n^3(1-2\Theta)^2 + 4n^2(3\Theta^2 - 11\Theta + 4) + 4n(4-3\Theta) + 4\Theta - 5, \\ c &= 6n^3(1-2\Theta)^2 + 8n^2(3\Theta^2 - 4\Theta + 1) + (4n-2)(3-4\Theta), \\ d &= 2(1-2\Theta)(n^2[n-2(n+1)\Theta] + 2n-1). \end{aligned}$$

Step two: We obtain (21)-(23) in the main text from (A17) and (25). Finally we show that $\lambda_{\star} > 0$ is satisfied. First note that $n > 1$ and $0 \leq \Theta = \theta(1-\theta) \leq 1/4$, so $1-2\Theta \geq 1/2$ and the constants e, f , and g are strictly positive. Secondly, it is easy to show the constants a, b, c and d given in are strictly positive. In particular, $b > 0$ follows from $3\Theta^2 - 11\Theta + 4 \geq 23/16$, $4-3\Theta \geq 13/4$ and $4n(4-3\Theta) + 4\Theta - 5 > 4(4-3\Theta) + 4\Theta - 5 = 11 - 8\Theta \geq 9$. $c > 0$ follows from $3\Theta^2 - 4\Theta + 1 \geq 3/16$, and $3-4\Theta \geq 2$, and $d > 0$ follows from $n-2(n+1)\Theta \geq n-(n+1)/2 = (n-1)/2 > 0$.

Proof of Propositions 3-8. We need to first compute market liquidity, expected trading volume, price volatility, price efficiency and an agent's unconditional expected profit with and without communication, then we make a direct comparison. The details can be found from the author's personal website.

The Signaling Effects and Predictive Powers of Dividend Announcements: Evidence from Kingdom of Saudi Arabia

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Abstract: The objective of this study is to see how the signaling hypothesis manifests itself in a small market, such as KSA, characterized by concentrated family-ownerships, non-taxability of dividends, and high degree of information asymmetry. In this context, we hypothesize that there is a positive relationship between dividend announcement and stock prices in the Saudi market. This study tests this hypothesis using all publically traded firms listed on the Saudi Exchange Market (Tadawul). We use event study to test stock market responses to dividend announcements. To test the signaling hypothesis we used our cross section data to calculate accumulated average abnormal returns using 100 days as estimation period and 21 days as window period. We used parametric CAAR (t test) and nonparametric (G sign) significance tests to verify that our results are significant and not due to pure chance. Our results show no significant reaction of prices to the dividend announcements, which means that signaling hypothesis cannot be generalized to all types of markets and that each market own characteristics have significant effect on the applicability of the signaling hypothesis. Further research is suggested to include earnings in the analysis.

Key words: signaling hypothesis; dividend policy; event study; Saudi stock market

JEL codes: G2, G3

1. Introduction

This study examines the implications of dividend announcements in the market of Kingdom of Saudi Arabia (KSA). The research analyzes dividends within the context of signaling hypothesis. It examines the abilities of dividends to predict stock prices of Saudi firms. Financial economists have explored various aspects of changes in dividends and earnings for well developed markets such as North America and Europe. The objective of this study is to see how the signaling hypothesis manifests itself in a small market, such as KSA, characterized by concentrated family- ownerships, non-taxability of dividends, and high degree of information asymmetry.

Signaling hypothesis, initially formulated by Miller and Modigliani (1961), suggests that dividend changes convey material information and that share prices react positively to the announcements of dividend changes. Signaling hypothesis was further generalized to include other factors such as the information content of earnings announcements. Further development of the signaling hypothesis includes the association between dividend and

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earnings changes and future cash flows of the firms. In this context, it is suggested that there is a positive relationship between dividend and earnings changes and future performance of a firm. This study will test these propositions for all publically traded firms listed on the Saudi Exchange Market (Tadawul) that announced dividends in the third quarter of year 2013.

2. Literature Review

2.1 Dividend and Earnings Changes Announcements and Market Reaction

A significant number of studies test the relationship between dividend announcements and share prices. The signaling hypothesis is tested for both developed as well as emerging markets and the results are mixed. Studies by Pettit (1972, 1976), Aharony and Swary (1980), Benesh, Keown, and Pinkerton (1984), Dhillon and Johnson (1994), Nixon and Pilotte (2000), Nissim and Ziv (2001), Travlos, Trigeorgis and Vafeas (2001), Madjosz and Mestel (2003), and Cheng, Fung, and Leung (2007) provide support of information content of dividend announcement hypothesis. These studies provide evidence of significant positive stock prices reaction to the dividend changes surrounding the announcement date. These findings are further supported by Asquith and Mullins (1983) who studied dividend initiations and Lee and Ryan (2000, 2002) who studied dividend initiations and omissions.

In contrast, studies by Lang and Litzenberger (1989), Benartzi et al. (1997), Conroy, Eades and Harris (2000), Chen, Firth and Gao (2002), Abeyratna and Power (2002), and Vieira and Raposo (2007) find weak or no evidence of a relationship between dividend announcements and share price reaction surrounding the announcement date.

In addition to the effects of dividend changes, the literature investigates the wealth effects of earnings change announcements. The results are not all conclusive. Early studies by Beaver (1968) and Ball and Brown (1968) document the information content of earnings announcements and find that stock prices react positively to the unexpected earnings announcements. Later studies mainly suggest that the relationship between unexpected earnings announcements and security prices is basically intertemporal. For example, a study by Rendleman et al. (1982) and a follow-up by Jones et al. (1985) indicate that in a window of 20 days before and 90 days after the announcement day, only 18 percent of the total stock returns of 100 percent came on the announcement day. This phenomena of post-earnings announcement price drift is observed by other researchers including Rendleman et al. (1987), Bernard and Thomas (1989, 1990), Freeman Tse (1989), Brown and Pope (1995), Battalio and Mendenhall (2005), and Ball and Shivakumar (2008), among others. This study explores this issue as well.

Some studies such as Penman (1983), Chang and Chen (1991), Leftwich and Zmijewski (1994), Berartzi et al. (1997), Conroy et al. (2000), investigate the security price effects of simultaneous announcements of earnings and dividends. Almost all of these studies indicate that both dividends and earnings announcements have significant information content. However, they suggest that earnings announcements have stronger price effects than dividends. In contrast, Cheng, Fung, and Leung (2006) in their study of Hong Kong market provide some striking evidence that dividends appear to play a dominant role over earnings in pricing.

2.2 Earnings and Dividend Changes and Future Cash Flows

The association between dividend changes and subsequent earnings has been investigated in many studies. Again the results are mixed. Studies by Aharony and Dotan (1994), Nissim and Ziv (2001), Baker, Mukherjee and Paskelian (2006), and Stacescu (2006) provide evidence of a strong relationship between dividend changes and future earnings.

On the other hand, studies by DeAngelo, DeAngelo and Skinner (1992, 1996), Benartzi, Michaely and Thaler (1997), Grullon, Michaely and Swaminathan (2002), Benartzi et al. (2005), and Vieira and Raposo (2007) suggest that there is no clear relationship between dividend changes and future earnings.

The studies of the association between earnings (cash flows) and subsequent earnings (cash flows) mainly use the current level of these measures rather than unexpected changes of these values. See, for example, Collins and Kothari (1989), Finger (1994), Dechow (1994), Collins et al. (1997), Lamont (1998), Kim and Kross (2005), Kim (2005), Livnat and Santicchia (2006), Bandyopadhyay et al. (2008), among others. In general, these studies confirm the predictive powers of current earnings and cash flows regarding a firm's future performance.

Further tests are also conducted to answer the question of whether current earnings or current cash flows are better predictors of future earnings and cash flows. Collins et al. (1997), Kim and Kross (2005), Bandyopadhyay et al. (2008), among others, find that the ability of current earnings to predict future cash flows has increased over time while the predictive power of current earnings to predict future earnings has declined. They attribute this phenomenon to an increasing level of accounting conservatism.

The predictive power of dividends is tested in this study. In Saudi market dividend announcements were used as signals about firm's future prospects.

3. Methodology

3.1 Hypotheses

The primary motivation of this research is to see how the signaling hypothesis manifests itself in a relatively imperfect market such as Saudi Arabia. Saudi Exchange (Tadawul) is a young and thin but growing market. As of June 2014, 164 firms are listed on the Exchange. On average 2 to 3 firms join Tadawul each year. Dividends in Saudi market are not taxable and there are no income taxes. Taxes are usually levied on properties called Zakat which is about 2.5 percent of the total values of current assets held by an entity. Further, Saudi firms do not follow a consistent dividend payment strategy. Dividends are usually paid once or twice a year. But it happens that a company in one year pays only one time and then pays twice a year next period. This may limit the test of signaling hypothesis. As opposed to developed markets, corporate ownership structure in Saudi is highly concentrated. The same families may hold majority interests of several publicly traded firms. This fact plus loose disclosure requirements causes the Saudi market to suffer from severe information asymmetry.

Given the above market environment with different tax regime relative to developed markets, the following hypothesis is formulated:

Ho: Stock prices of Saudi firms do not react to dividends surrounding the announcement dates ($\mu = 0$).

H1: Stock prices of Saudi firms react to dividends surrounding the announcement dates ($\mu \neq 0$)

Where μ is the cumulated abnormal returns during the event period

3.2 Data, Sample, and Methodology

The data for this study are obtained from Tadawul's web page and Saudi firms' web pages. The analysis covers the daily stock prices surrounding dividend announcements of the third quarter of 2013 for all firms in the stock market that announced dividends in this period. During the study period, 47 firms initiated paying dividends during this period. Therefore, this study uses 47 Saudi firms to test hypothesis Ho.

To test the announcement effects, this study uses standard event study methodology using the single market model. The event window begins on day $t = -10$ to $t = +10$ (relative to the announcement day, $t = 0$). This allows

testing for the post-dividends announcement drift.

The estimation period used for market model is 100 days before the event window, upon which α and β are calculated. CAAR are calculated as the average cumulative abnormal returns, where abnormal returns using the market model are calculated as:

$$AR_i = R_{iT} - (\alpha + \beta_i (R_{mT}))$$

Where T represents the days of estimation as well as event window period (i.e., t-100 to t+10, given that t is the announcement date, and so

$$CAR_i = \sum_{t-10}^{t+10} AR_i \text{ and}$$

$$CAAR = \text{average}(CAR_i)$$

The average cumulative abnormal returns (ACAR) will be tested using standard t test as a parametric test, where

$$t \text{ statistic value} = ACAR/\sigma \text{ and } \sigma = \sqrt{\frac{1}{N(N-d)} * \sum (CAR_i - ACAR)^2}$$

In addition, the parametric test is complemented with a nonparametric test to verify that the research findings are not due to outliers (Schipper & Smith, 1983). Nonparametric test abandons the assumption that firm's abnormal returns are normally distributed.

Since our study focuses on an event which happened for multiple firms at the same period (3rd quarter of 2013), this is expected to cause a downward bias in the standard deviation and thus overstate the t-statistic, leading to possible over-rejection of the null hypothesis.

To deal with this problem, we use the GSIGN (generalizes sign) test. In general, sign tests developed by Cowan (1992) compare the share of positive abnormal returns (ARs) close to an event to the proportion from a normal period. Using the GSIGN test, when the number of positive cumulative abnormal returns is significantly higher than the number expected from the estimated fraction, it is suggested to reject H0. The test statistic is calculated as

$$Z_G = (w - np^*)/[n(p(1 - p^*))^{0.5}]$$

Where w is the number of positive CAR stocks, n is the number of firms, p is the number of positive ARs during estimation period for a firm, and p hat is the average p.

The following table shows the abnormal returns, cumulative up normal returns and signs for the firms in the study:

Table 1 Cumulative Abnormal Returns, Share of Positive ARs to the Total, and CAR Signs

Firm	CAR	Positive share to all ARS	CAR sign
Advanced Petrochemical Company	-0.0766	0.435643564	-
Arab National Bank	0.032165	0.504950495	+
Al Rajhi Bank	0.06143	0.425742574	+
Al-Tayyar Travel	0.20704	0.415841584	+
ALABDULLATIF INDUSTRIAL	-0.02776	0.396039604	-
Arabian Cement Co	-0.02195	0.425742574	-
Aseer Trading, Tourism &	-0.06634	0.405940594	-
Banque Saudi Fransi	0.036165	0.435643564	+
City Cement Co	-0.03566	0.514851485	-
Etihad Etisalat Co	0.034391	0.485148515	+
Fawaz Abdulaziz AlHo	-0.01693	0.475247525	-
Halwani Bros	-0.03627	0.495049505	-
Herfy Food Services Co	-0.14362	0.415841584	-

(Table 1 to be continued)

(Table 1 continued)

Jarir Marketing Co	0.025105	0.396039604	+
Mouwasat Medical Services	-0.08571	0.465346535	-
Samba Financial Group	0.017643	0.392156863	+
Northern Region Cement Comp	0.032506	0.441176471	+
Sahara Petrochemical Co.	0.010414	0.421568627	+
Saudi Airlines Catering Company	-0.03082	0.470588235	-
United Electronics Company	0.118988	0.490196078	+
National Gas & Industrializ	0.034773	0.441176471	+
The Qassim Cement Co	0.005834	0.421568627	+
Riyad Bank	-0.00801	0.480392157	-
The Saudi British Bank	0.055097	0.509803922	+
Saudi Arabia Fertilizers Co.	-0.00253	0.382352941	-
Saudi Chemical Company	0.035565	0.445544554	+
Saudi Hotels & Resort	-0.022	0.450980392	-
Saudi Hollandi Bank	0.077476	0.421568627	+
Saudi Industrial Investment Gro	0.053174	0.509803922	+
Saudi Real Estate Co.	-0.00759	0.450980392	-
Saudi Steel Pipe Company	-0.01781	0.421568627	-
Saudi Telecom	0.027943	0.607843137	+
Saudi vitrified clay pipes	0.008707	0.490196078	+
Savola Group	0.032408	0.431372549	+
Saudi International Petrochem	0.023477	0.470588235	+
Tabuk Cement Co.	-0.16449	0.343137255	-
Taiba Holding Co	0.016711	0.352941176	+
Yanbu National Petr	-0.05908	0.450980392	-
Yanbu Cementl Co.	0.029598	0.441176471	+
Yamama Cement Company	-0.0039	0.441176471	-
Zamil Industrial Inves	0.039967	0.441176471	+
The National Co. for GI	-0.05864	0.401960784	-
The Saudi Investment Bank	0.042642	0.470588235	+
Southern Province Ceme	-0.02872	0.450980392	-
United Wire Factories Company	-0.03634	0.535353535	-
The National Shipping Co	0.031958	0.37254902	+
Najran Cement Company	-0.04788	0.460784314	-

Note: Created by authors using Tadawul data

The following graph shows that most of the cumulated abnormal returns are not positive which indicates that signaling theory is not significantly represented in the Saudi market

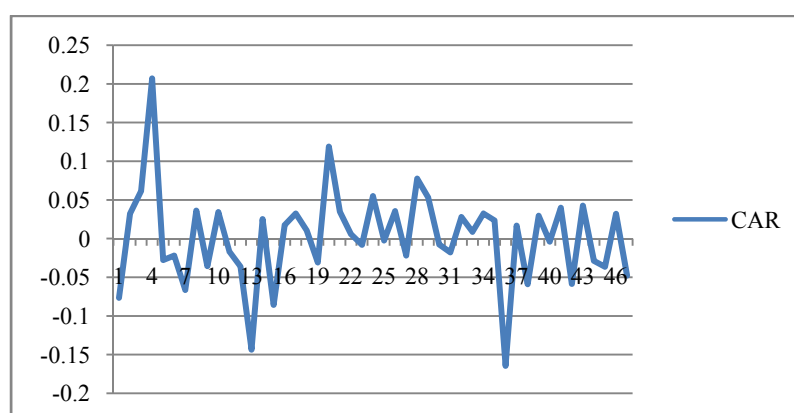


Figure 1 Cumulated Abnormal Returns from Dividend Announcements (3rd Quarter of 2013) for the Saudi Stocks

4. Results and Discussion

First: the parametric t test shows that the absolute value of t-statistic is 0.21, which indicates that at 95% significance level we fail to reject the null hypothesis that abnormal returns are not significantly different from zero. Second, the nonparametric generalized sign test confirmed our results with t statistic value of 1.17.

The above results give evidence that the dividend announcements in the Saudi market do not send significant signals to the investors and consequently are not well presented in the stock prices.

To understand the reasons for these results we will shed some lights on the Saudi stock market structure to see how it is functioning.

The Saudi stock market is characterized with the following:

- Absence of taxes (there is no corporate tax, dividend tax, or capital gains tax), which means that taxes are not a factor in setting investor preferences for dividends.
- Vague and general bankruptcy law, which means that bankruptcy concerns are not well presented in investor's decisions.
- Undersized and illiquid bond market and hence the only sources for corporate loans are banks. This results in limited alternative investments.
- In KSA dividend policy is affected by other than financial reasons. Since many of the board of directors members are of the royal family, it is difficult to exclude the political dimension in their decisions.
- Also, family firms are very common in Saudi firm's ownership structure. In such cases, there is always non separation between management and ownership. This structure makes dividend policy more oriented toward the interests of the family members.
- Many of the firms in the stock market are almost owned by the government, which means that dividend policy is affecting only small portion of the firm owners
- Restrictions on foreign ownership in the Saudi stock market limit the effect of dividend policy.

5. Conclusions and Recommendations

According to the signaling theory, the managers should convey the positive information they have to the outside investors. So if the firm does not have good future prospects, managers do not decide to increase dividends since this will be a false signal. However, if future earnings are forecasted, this information can be conveyed through dividend announcements or increase in dividends.

However, to test this hypothesis in the Saudi stock market we conducted event study on the third quarter dividend announcements of the listed Saudi firms, and used parametric as well as nonparametric tests of significance. We found that dividend announcements are not significantly reflected in the stock prices.

Given the characteristics of the Saudi market, these results show that the market understands that the dividend announcements are not sending significant positive signals but rather they send mixed signals that are interpreted on individual basis. Accordingly, it is not reflected over the stock prices.

In conclusion, we think that the signaling theory cannot be applied on markets that have many limitations on dividend policy.

To confirm this result we recommend further research on the signaling effect of other events such as earning announcements, changes in dividend policy, and capital structure.

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Expansion of the Cost Index on the Factors by Means of the Parameter “Index Attitude”

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Abstract: Given clause is devoted to a problem of factorial decomposition of a value index. In it is shown as by means of a new parameter — “the index attitude” the problem of decomposition of a total cost in absolute sizes is solved. The basic difference of the given method from earlier known methods that authors suggest to approach to a problem from the point of view of an alternative way developed and offered to discussion by authors. The offered way of decomposition of a parameter of a total cost of sales, in opinion of authors, represents model of rational “smoothing” of influence of kinds of averages and receptions of weighing on change of an end result to means of new statistics — individual (*ir*) and cumulative (*IR*) the index attitude to which in an offered way rather essential role is allocated.

Key words: an index method; the index attitude; factorial decomposition of a value index; model of rational “smoothing”

JEL codes: C4, C43, C430

1. Introduction

The index method, being the major analytical means of revealing of communications between the phenomena, is based on relative parameters of dynamics, spatial comparisons, performance of the plan, expressing the attitude of an actual level of an analyzed parameter in the accounting period to its level in the basic period.

By means of this method relative change of cost of realization of production (*V*) from change of quantity of sales (*q*) and the prices (*p*) is represented in the form of the following formula of the interconnected indexes:

$$I_V = \frac{\sum q_1 p_1}{\sum q_0 p_0} = I_q I_p \quad (1)$$

Where I_V — the general index of realization of a commodity output;

I_q — a factorial index of change of volume (quantity) of realization of production;

I_p — a factorial index of change of a market price for the goods sold by the enterprise.

The formula (1) is a subject of the long-term scientific discussion connected with the main problem of an index method of the analysis — a problem of a uniform way of calculation of indexes of quantity (I_q) and the prices (I_p).

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2. A Selected Review of Literature

The methodology of the analytical concept treats indexes as the parameters necessary for an estimation of influence of change of factors of the complex phenomenon on the general change of a level of this phenomenon. In this case the index methodology provides definition of influence of each of factors by elimination of influences of other factors on a level of the studied phenomenon. Such approach has allowed passing to practical construction of systems of the interconnected indexes and the factorial index analysis that was significant achievement of a domestic science.

The greatest contribution to development of the factorial index analysis such Russian scientists as Adamov has brought, Cormorants, Yezhov, Teroganyan, Mereste and others. Now this method continues to develop successfully in Suslov's works, Ploshko and other scientists.

During different years such western scientists developed and continue to develop now the index theory as Fisher, Frish, Allen, Divisia, Kervish, Ihorn, Divert, Milton, Balk, Fiksler and others.

3. Methodology

In modern indexology there are two basic ways of representation of the formula (1). A methodological basis of these ways is the criterion of convertibility of the factors, demanding that product given I_q and initial I_p was equal to change of cost of the considered unit I_V (Kuritsyn A. V., Sologubov S. V., 2010 b).

According to way of construction of factorial indexes officially accepted in the Russian statistical practice, “if the generalizing economic parameter represents product of quantitative (volumetric) and qualitative parameters — factors at definition of influence of the quantitative factor the quality indicator is fixed at a basic level, and at definition of influence of the qualitative factor the quantity indicator is fixed at a level of the accounting period” (Bakanov M. I., Sheremet A. D., 2011).

Proceeding from the above-stated, in the formula (1) should be $I_q = \frac{\sum q_1 p_0}{\sum q_0 p_0}$ and $I_p = \frac{\sum q_1 p_1}{\sum q_1 p_0}$. But the alternative variant is possible also, at which $I'_q = \frac{\sum q_1 p_1}{\sum q_0 p_1}$ and $I'_p = \frac{\sum q_0 p_1}{\sum q_0 p_0}$. In both cases it is had

$$I_V = I_q I_p = I'_q I'_p$$

From the scientific point of view application both the first (official), and the second (alternative) ways absolutely equally accepted also is equal in rights.

The index method allows leading also decomposition under factors and absolute deviations of a generalizing parameter. For our case it looks as follows

$$\Delta V = V_1 - V_0 = \sum q_1 p_1 - \sum q_0 p_0 \quad (2)$$

Where ΔV — absolute change of cost of realization of production in the analyzed period (c.u.);

V_0 and V_1 — cost of sales in the basic and accounting periods, according to (c.u.).

The deviation (ΔV) was formed under influence of changes of quantity of realized production (ΔV_q) and a market price of its realization (ΔV_p). Change ΔV_q and ΔV_p on the first way of representation of a total cost yields to us following results

$$\Delta V_q = \sum q_1 p_0 - \sum q_0 p_0 = \sum ((q_1 - q_0) p_0)$$

$$\Delta V_p = \sum q_1 p_1 - \sum q_1 p_0 = \sum ((p_1 - p_0) q_1) \quad (3)$$

In case of application of the second way of representation ΔV it is received

$$\Delta V'_q = \sum q_1 p_1 - \sum q_0 p_1 = \sum ((q_1 - q_0) p_1) \quad (4)$$

$$\Delta V'_p = \sum q_0 p_1 - \sum q_0 p_0 = \sum ((p_1 - p_0) q_0)$$

As well as at relative calculation, absolute change of cost of the sales, calculated by both in the ways, gives the same value:

$$\Delta V = V_1 - V_0 = \Delta V_q + \Delta V_p = \Delta V'_q + \Delta V'_p \quad (5)$$

Many administrative decisions yielding sometimes opposite results also depend on a choice of this or that way of representation I_V and ΔV .

For example, the enterprise lets out five different kinds of products which are characterized by the following quantitative and quality indicators (Table 1).

Table 1 Calculation of the Basic Parameters

The goods	q_0	p_0	$q_0 p_0$	q_1	p_1	$q_1 p_1$	$i_q = \frac{q_1}{q_0}$	$i_p = \frac{p_1}{p_0}$	$i_v = \frac{q_1 p_1}{q_0 p_0}$	$q_1 p_0$	$q_0 p_1$
A	2787	31.9	88905.3	2348	332.8	77014.4	0.8425	1.0282	0.8663	74901.2	91413.6
B	575	35.3	20297.5	401	35.9	14395.9	0.6974	1.0170	1.4831	14155.3	20642.5
C	21652	1.8	38973.6	97016	1.5	145524.0	4.4807	0.8333	3.7339	174628.8	32478.0
D	383	24.8	9498.4	241	19.7	4747.7	0.6292	0.7944	0.4998	5976.8	7545.1
E	21629	3.2	69212.8	37752	3.7	139682.4	1.7454	1.1563	2.0182	120806.4	80027.3
Total	-	-	226887.6	-	-	381364.4	-	-	1.68085	390468.5	232106.5

According to Table 1 it is calculated:

$$I_q = \frac{\sum q_1 p_0}{\sum q_0 p_0} = \frac{390468.5}{226887.6} = 1.72098 \quad I_p = \frac{\sum q_1 p_1}{\sum q_1 p_0} = \frac{381364.4}{390468.5} = 0.97668$$

$$I'_q = \frac{\sum q_1 p_1}{\sum q_0 p_1} = \frac{381364.4}{232106.5} = 1.64306 \quad I'_p = \frac{\sum q_0 p_1}{\sum q_0 p_0} = \frac{232106.5}{226887.6} = 1.02300$$

As one would expect,

$$I_V = 1.70298 \otimes 0.97668 = 1.64306 \otimes 1.023 = 1.68085$$

However, if in an estimation of the tendency of change of the quantitative factor there are no differences in principle (in both cases an index of quantity of more unit) with an estimation of the tendency of change of the price not all so is unequivocal.

If in a basis of research to put the first way of representation of a value index we should recognize, that the average price in the accounting period has decreased to 97.7% in comparison with the period basic.

If to take for a basis the second way we are compelled to ascertain, that the average price has increased up to 102.3%.

So inconsistent results are difficult for interpreting unequivocally if, certainly, to not put as the purpose of research the proof of the fact of indispensable reduction of price or, on the contrary, the proof of its indispensable growth.

Passing to absolute calculation, we receive (Table 2):

Table 2 Two Ways of Representation of a Value Index

The goods	$\Delta V = V_1 - V_0$	Including			
		The First way of representation		The Second way of representation	
		$\Delta Vq = \sum q_1 p_0 - \sum q_0 p_0$	$\Delta Vp = \sum q_1 p_1 - \sum q_1 p_0$	$\Delta Vq' = \sum q_1 p_1 - \sum q_0 p_1$	$\Delta Vp' = \sum q_0 p_1 - \sum q_0 p_0$
A	-11890.9	-14004.1	2113.2	-14399.2	2508.3
B	-5901.6	-6142.2	240.6	-6246.6	345.0
C	106550.4	135655.2	-29104.8	113046.0	-6495.6
D	-4750.7	-3521.6	-1229.1	-2797.4	-1953.3
E	70469.6	51593.6	18876.0	59655.1	10814.5
Total	154476.8	163580.9	-9104.1	149257.9	5218.9

The data resulted in Table 2, do not give the unequivocal answer: whether the price policy of the enterprise has resulted, concentrated which expression is change of the price, for growth of cost of sales on 5218.9 c.u. or to its decrease on 9104.1 c.u.?

The reason of so ambiguous interpretation of the received results is covered that indexes

$$I_q = \frac{\sum q_1 p_0}{\sum q_0 p_0} = \frac{\sum i_q q_0 p_0}{\sum q_0 p_0} \text{ and } I_p' = \frac{\sum q_0 p_1}{\sum q_0 p_0} = \frac{\sum i_p q_0 p_0}{\sum q_0 p_0} \text{ is an essence average arithmetic indexes from individual}$$

$$\text{indexes } i_q = \frac{q_1}{q_0} \text{ и } i_p = \frac{p_1}{p_0} \text{ and while indexes } I_q' = \frac{\sum q_1 p_1}{\sum q_0 p_1} = \frac{\sum q_1 p_1}{\sum \frac{q_1 p_1}{i_q}} \text{ and } I_p = \frac{\sum q_1 p_1}{\sum q_1 p_0} = \frac{\sum q_1 p_1}{\sum \frac{q_1 p_1}{i_p}} \text{ —}$$

averages harmonious from the same individual indexes. The various kinds of averages used at calculation of indexes, give different values of indexes of the price and quantity. Simultaneously at change of a kind of average in modular indexes there is a replacement of weights. For example, in calculation of the unit of the price replacement of weights

« q_1 » ($\frac{\sum q_1 p_1}{\sum q_1 p_0}$) on weights « q_0 » ($\frac{\sum q_0 p_1}{\sum q_0 p_0}$) leads diametrically opposed to result: instead of the loss our enterprise receives the income.

In this connection there is a question: whether such way of decomposition of the general value index in which there would be no problem of a choice of weights at calculation of indexes of the price and quantity, on the one hand, and a problem of a choice of a kind of average is possible at calculation of indexes I_q and I_p , with another?

To answer a brought attention to the question, we shall consider in the beginning process of formation of an individual value index (i_v) as criterion of product of individual indexes of quantity (i_q) and the prices (i_p)

$$i_v = i_q i_p = \frac{q_1 p_1}{q_0 p_0}$$

Let's enter a new parameter $ir = \frac{i_p}{i_q} = \frac{q_0 p_1}{q_1 p_0}$, which we shall name the individual index attitude describing

relative change of the price (i_p) in comparison with relative change of quantity (i_q).

From the formula follows $ir = \frac{i_p}{i_q}$, what $i_p = ir i_q$ and $i_q = \frac{i_p}{ir}$. Substituting the received values i_p and i_q in

the formula of an individual value index, we define

$$i_v = i_q i_p = ir (i_q)^2 = \frac{(i_p)^2}{ir} \quad (6)$$

From here we find

$$i_q = \sqrt{\frac{i_v}{ir}} \quad \text{and} \quad i_p = \sqrt{i_v ir} \quad (7)$$

Absolute change of the individual index attitude gives us the result equal

$$\Delta ir = q_0 p_1 - q_1 p_0 = q_0 \Delta p - p_0 \Delta q = q_1 \Delta p - p_1 \Delta q \quad (8)$$

In the formula (8) $q_0 \Delta p$ and $q_1 \Delta p$ also is a change of a total cost of production due to change of the factor of the price « $\Delta v_p''$ » at different « q » weights, and $p_0 \Delta q$ and $p_1 \Delta q$ — change of the same cost due to the factor of quantity « $\Delta v_q''$ » at different « p » weights. Hence, at any receptions of weighing it is possible to approve, that $\Delta ir = \Delta v_p'' - \Delta v_q''$. From here $\Delta v_p'' = \Delta ir + \Delta v_q''$.

Having substituted this value $\Delta v = \Delta v_q'' + \Delta v_p''$ in the formula, we shall receive

$$\Delta v = \Delta v_q'' + \Delta v_p'' + \Delta ir = 2\Delta v_q'' + \Delta ir$$

From here

$$\Delta v_q'' = \frac{\Delta v - \Delta ir}{2} \quad (9)$$

Having replaced « $\Delta v_q''$ » on $\Delta v_p'' = \Delta v_q'' - \Delta ir$ in the formula $\Delta v = \Delta v_q'' + \Delta v_p''$, we receive

$$\Delta v_p'' = \frac{\Delta v + \Delta ir}{2} \quad (10)^1$$

Thus, in formulas 7-10 at calculations $i_q = \sqrt{\frac{i_v}{ir}}$, $i_p = \sqrt{i_v ir}$, $\Delta v_q'' = \frac{\Delta v - \Delta ir}{2}$ and $\Delta v_p'' = \frac{\Delta v + \Delta ir}{2}$, also

it is possible to involve simultaneously at once all four sets of cost weights of Fisher ($q_0 p_0$, $q_1 p_0$, $q_0 p_1$, $q_1 p_1$) and by that to solve a problem of weighing (Kuritsyn A. V., Sologubov S. V., 2010 a).

If we now shall pass from individual indexes to indexes modular,

(1) instead of the individual index attitude ir it is received cumulative index attitude IR

$$IR = \frac{\sum q_0 p_1}{\sum q_1 p_0} = \frac{\sum i_p q_0 p_0}{\sum q_0 p_0} : \frac{\sum i_q p_0 q_0}{\sum p_0 q_0} = \frac{\sum q_1 p_1}{\sum \frac{q_1 p_1}{i_p}} : \frac{\sum q_1 p_1}{\sum \frac{q_1 p_1}{i_q}} = \frac{\sum ir q_1 p_0}{\sum q_1 p_0} = \frac{\sum q_0 p_1}{\sum \frac{q_0 p_1}{ir}} \quad (11)$$

(2) individual value indexes of the goods are replaced with the general value index I_v

$$I_v = \frac{\sum q_1 p_1}{\sum q_0 p_0} = \frac{\sum i_v q_0 p_0}{\sum q_0 p_0} = \frac{\sum q_1 p_1}{\sum \frac{q_1 p_1}{i_v}} = \frac{\sum (i_q)^2 ir q_0 p_0}{\sum q_0 p_0} = \frac{\sum q_1 p_1}{\sum \frac{q_1 p_1}{(i_q)^2 ir}} = \frac{\sum \frac{(i_p)^2}{ir} q_0 p_0}{\sum q_0 p_0} = \frac{\sum q_1 p_1}{\sum \frac{ir q_1 p_1}{(i_p)^2}}$$

(3) individual indexes of quantity $i_q = \sqrt{\frac{i_v}{ir}}$ and the price $i_p = \sqrt{i_v \times ir}$ are replaced with cumulative indexes

¹ Formulas (9) and (10) may be received by logorifmiing the formula (7) $\lg i_q = \frac{\lg i_v - \lg ir}{2}$; $\lg i_p = \frac{\lg i_v + \lg ir}{2}$. Crossing from relative values to their absolute meaning get formulas (9) and (10)

$$I_q'' = \sqrt{\frac{I_v}{IR}} \quad \text{and} \quad I_p'' = \sqrt{I_v IR} \quad (12)$$

(4) influence of absolute change of volume « $\Delta v_q''$ » and the price « $\Delta v_p''$ » on change $\Delta v = \Delta v_q'' + \Delta v_p''$ of cost also vary in the appropriate image

$$\Delta V = \Delta V_q'' + \Delta V_p'' \quad (13)$$

$$\text{Where } \Delta V_q'' = \frac{\Delta V - \Delta IR}{2}, \quad \Delta V_p'' = \frac{\Delta V + \Delta IR}{2}.$$

Let's consider the resulted algorithm from positions of the offered approach.

According to table 1 it is found

$$IR = \frac{\sum q_0 p_1}{\sum q_1 p_0} = \frac{232106.5}{390468.5} = 0.59443$$

Then, using formulas (12), we define

$$I_q'' = \sqrt{\frac{1.68085}{0.59443}} = \sqrt{2.82767} = 1.68157 \text{ or } \approx 168.16\%$$

$$I_p'' = \sqrt{1.68085 \otimes 0.59443} = \sqrt{0.99915} = 0.99957 \text{ or } \approx 99.96\%$$

Hence, the cumulative index of physical volume under the offered approach has made 168.16%, i.e., the volume of realization of a commodity output on the enterprise has grown on 68.16%, that in absolute calculation has given the additional income at a rate of 156419.4 c.u. the Cumulative index of the price has made 99.96%, i.e., the price was reduced to 0.04% that 1942.6 c.u. (Table 3) have led to loss of profitability from sales for the sum.

Table 3 Calculation of Relative and Absolute Change Value Index (Including Under Factors)

The goods	$ir = \frac{i_p}{i_q} = \frac{q_0 p_1}{q_1 p_0}$	$\Delta ir = q_0 p_1 - q_1 p_0$	$\Delta v = v_1 - v_0 = q_1 p_1 - q_0 p_0$	Including	
				$\Delta v_q'' = \frac{\Delta v - \Delta ir}{2}$	$\Delta v_p'' = \frac{\Delta v + \Delta ir}{2}$
A	1,22046	16512,4	-11890,9	-14201,65	2310,75
B	1,45829	6487,2	5901,6	-6194,4	292,8
C	0,18598	-142150,8	106550,4	124350,6	-17800,2
D	1,26240	1568,3	-4750,7	-3159,5	-1591,2
E	0,66244	-40779,1	70469,6	55624,35	14845,25
Total	0,59443	-158362,0	154476,8	156419,4	-1942,6

4. Results

The offered way of decomposition of a parameter of a total cost of sales, in opinion of authors, represents model of rational “smoothing” of influence of kinds of averages and receptions of weighing on change of an end result to means of new statistics — individual (ir) and cumulative (IR) the index attitude to which in an offered way rather essential role is allocated. The last is caused by that, first, from the point of view of micro-economics ir and IR is original “watershed” between market interests of the seller and the buyer as by virtue of dual character of a supply and demand.

- the seller, offering in the market the goods, asks the buyer of money, aspiring smaller quantity of the goods (in our case as the indicator of this interest acts $i_q < 1$ or $I_q'' < 1$) to sell under higher price ($i_p > 1$ or $I_p'' > 1$). That is the

seller is interested in, that $ir = \frac{i_p > 1}{i_q < 1} > 1 \rightarrow \max$, no less than as $IR = \frac{I_p'' > 1}{I_q'' < 1} > 1 \rightarrow \max$ in this case the seller

maximizes the function of utility;

• the buyer, on the contrary, offering money, asks the necessary goods the seller, aspiring for smaller money ($i_p < 1$ or $I_p'' < 1$) to buy a lot of the goods ($i_q > 1$ or $I_q'' > 1$). Thus, maximizing the function of utility, the buyer is interested in it, that $ir = \frac{i_p < 1}{i_q > 1} < 1 \rightarrow \min$ or $IR = \frac{I_p'' < 1}{I_q'' > 1} < 1 \rightarrow \min$.

Hence, the substantial component ir and IR consists that the seller is interested in growth of the index attitude, and the buyer is interested in its decrease.

Secondly, formulas (7) and (12) give essentially other, differing from traditional, a variant of calculation of indexes of volume and the price. By means of these formulas individual and general value indexes are displayed by symmetric image on an index of the price and an index of quantity, instead of designed from them as it is accepted in traditional formulas $i_v = i_q \times i_p$ and $I_v = I_q \times I_p = I_q' \times I_p'$. Speaking in other words, formulas (7) and (12) is a quintessence of the direct factorial analysis, in which research is conducted by deductive way — from the general (i_v and I_v) to private (i_q and i_p , I_q'' and I_p'').

In traditional formulas $i_q = \frac{q_1}{q_0}$, $i_p = \frac{p_1}{p_0}$, $I_q = \frac{\sum q_1 p_0}{\sum q_0 p_0}$, $I_p = \frac{\sum q_1 p_1}{\sum q_1 p_0}$, $I_q' = \frac{\sum q_1 p_1}{\sum q_0 p_1}$ and $I_p' = \frac{\sum q_0 p_1}{\sum q_0 p_0}$, research

of relationships of cause and effect is carried out in the way of a logic induction — from private separate factors (i_q and i_p , I_q and I_p , I_q' and I_p') to generalizing (i_v and I_v), that concerns to a prerogative of the return factorial analysis. Conceptually author's scheme of a direct and return index method of the factorial analysis is presented on Figure 1.

Thirdly, in a context of formulas (9) and (10) individual index attitude is harmoniously entered in the theory of elasticity of a supply and demand. So, if factors of dot price elasticity on the beginning (E_H) and the end (E_K) the period to count under formulas (Chubakov G. N., 1995)

$$E_H = \frac{q_1 - q_0}{q_0} \cdot \frac{p_1 - p_0}{p_0} = \frac{i_q - 1}{i_p - 1}$$

$$E_K = \frac{q_1 - q_0}{q_1} \cdot \frac{p_1 - p_0}{p_1} = \frac{i_q - 1}{i_p - 1} \otimes \frac{i_p}{i_q}$$

that is easy for noticing, that $E_K = E_H ir$. Whence $ir = \frac{E_K}{E_H}$, that is the individual index attitude is an attitude of

factors of dot price elasticity of the goods on the end and the beginning of the period describing change of elasticity of demand (offer) between these dates. On the other hand, the attitude of formulas (9) and (10) gives us factor of average (arc) elasticity

$$\bar{E} = \frac{q_1 - q_0}{q_0 + q_1} \cdot \frac{p_1 - p_0}{p_0 + p_1} = \frac{\Delta v - \Delta ir}{\Delta v + \Delta ir} = \frac{\Delta v_q''}{\Delta v_p''},$$

describing price elasticity of a supply and demand during any period.

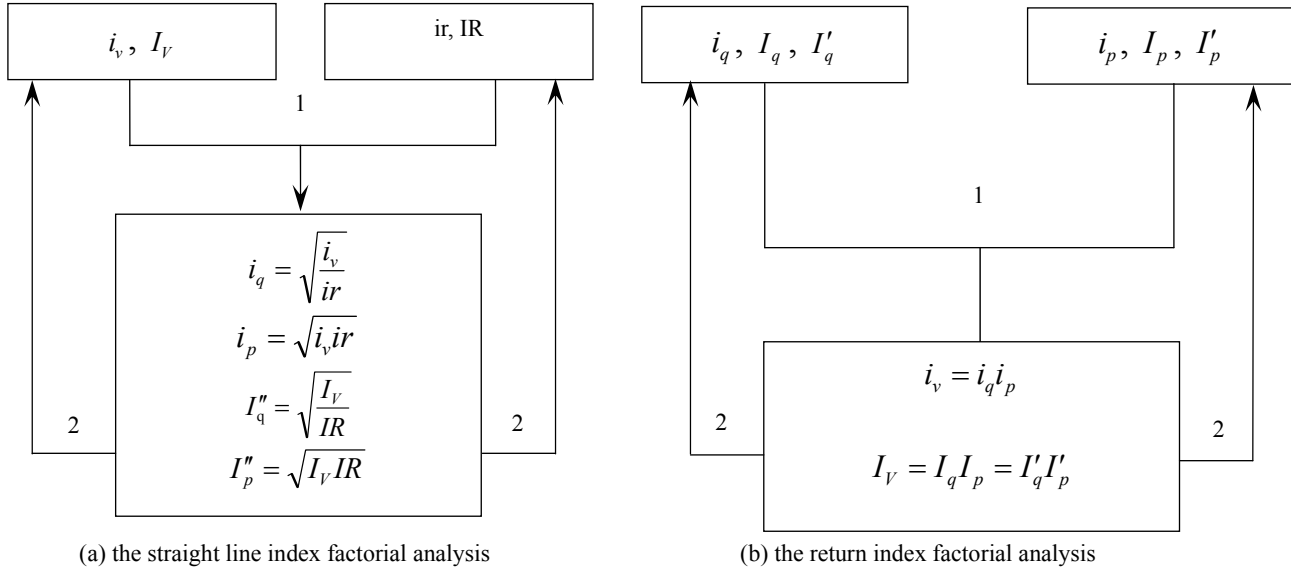


Figure 1 The Conceptual Scheme of a Direct and Return Index Method of the Factorial Analysis

Fourthly, from expressions (11) follows, that the cumulative index attitude is indifferent and to a problem of a choice of a kind of average², and to a problem of a choice of weights at calculation of indexes of the price and quantity as its size remains constant, and, means, steady and stable as at use of various kinds of average, and various variants of cost weighing.

Fifthly, the opportunity of an involvement as in individual ($i_q = \sqrt{\frac{i_v}{ir}}$, $i_p = \sqrt{i_v ir}$), and modular ($I_q'' = \sqrt{\frac{I_v}{IR}}$, $I_p'' = \sqrt{I_v IR}$) indexes of volume and the price equivalent and equivalent individual (ir) and average (IR) index attitudes provides a uniform way of calculation of these indexes, removing that the main problem of an index method of the factorial analysis.

Sixthly, mathematically individual indexes of the price ($i_p = \sqrt{i_v ir}$) and quantities ($i_q = \sqrt{\frac{i_v}{ir}}$) are coordinates of the point laying on a gradient of function $I_v = I_q I_p$. The vector of a gradient of this function looks like

$$\text{grad}(I_v) = \frac{\partial}{\partial I_p} I_v(I_q, I_p) i + \frac{\partial}{\partial I_q} I_v(I_q, I_p) j = I_p i + I_q j$$

The formula grand (I_v) means, that for any spatial point with coordinates (I_q, I_p, I_v) abscise I_q and the ordinate I_p is coordinates of a vector of a gradient which is a directing vector for a straight line $I_p = I_v I_q$ laying on plane $I_q O I_p$. Easier speaking, the cumulative index attitude characterizes a direction of the quickest increase of function $I_v(I_q, I_p)$.

5. Concluding Remarks

Thus, methodological features of application of the index attitude, its mathematical and statistical contents³ testify to importance of this parameter for an index method of the factorial analysis. On the other hand,

² Here we speak about average arithmetical, average harmonic and average geometrical.

³ About other mathematical and statistic features IR may be learnt in Dzukha V. et al. (2011), Fisher I. (1922), International Labour Office (2004), Kuritsyn A. V., Sologubov S. V. (2011) and Kuritsyn A. V., Sologubov S. V. (2009).

microeconomic aspects and harmonious coordination with the theory of elasticity allow to hope, that by means of the index attitude in indexology new turn to economic problems of indexes, to research of their internal, economic maintenance will be outlined. It will allow to give to a quantitative estimation influence of changes of the price and quantity on formation of the value index, a main task of the indexes considered today, new economic sense in which basis studying the social and economic attitudes developing between subjects of the market as a result of economic activities lays.

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Determining the Use of Contract in Brazilian Feedlot: An Empirical Analysis

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Abstract: The cattle activity appears in almost 75% Brazilian farms. The production runs, on average, for 3 years (finishing cow-calf), based on pasture (extensive system). Feedlot arises as an alternative to intensify production. Investments in feedlot depend on the intensive capital and involves greater risks of production and market. By the side of the industry is need to provide quality meat, standardized and continuously, making this sector seek partnerships and contracts suppliers. Because of these risks and the uncertainty of the trade, the use of contracts between producers and industry has been growing in the last years. Regarding the uncertainty of the agents, according to the New Institutional Economics, is not possible to predict all the events surrounding the transactions; this way, the contracts are incomplete. This article aims to analyze the determinants of contract between producers and slaughterhouses in Brazil. The data used to make this analysis were 669 questionnaires with Feedlots in some states in Brazil. It was used a model to determine the main factors determining the use of contracts. The results show that the variables cattle, machines, and prizes were statistically significant at 1%, and prize as the main variable determining of contract between feedlots and industry.

Key words: contract; cattle; feedlot

JEL codes: L14, Q11, Q13

1. Introduction

Historically, Brazil has been a major producer of cattle beef. In the last 5 years it has become the largest exporter of the meat. According to FAO (2012), 1 in 4 kg of cattle beef sold in the world is Brazilian. The exported volume exceeds 2.4 million t, generating resources in excess of \$4 billion. This number accounts for roughly 20% of national production. The total volume of resources handled by the sale of cattle beef in Brazil exceeds the 10 billion dollars per year.

The Brazilian beef chain presents some problems related to the heterogeneity of production and processing (capitalized farmers and small producers; slaughterhouses with high technological standard and illegal slaughter, etc), lack of coordination between the links (conflicts in relationships) and influences of the institutional

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environment as a mediator of the problems in this chain (Benitez, 2000; Caleman & Zylberstajn, 2010).

The cattle beef activity appears in almost 75% Brazilian farms, becoming one of the main activities in rural areas, according to IBGE (2012). The production runs, on average, for 3 years (finishing cow-calf), and for this reason, it is essential to agricultural enterprises the standpoint of property. It is also an essential component of the cash flow properties, generating the necessary liquidity to enable all the activities within them.

The weak point of this success that has been highlighted is how to sustain this growth since the restrictions on land and climate appear not only in Brazil, but in the entire planet. The growth of international consumption and the need to preserve the Amazon have shown that land need to increase productivity. The Brazilian beef cattle production occupies the largest slice of Brazil's arable land and is losing space for other agricultural activities. Furthermore in Brazil, in certain periods of the year, the climate impacts in lower pasture production and consequently lower production of meat.

In this way, beef cattle need to increase land productivity and periods between harvests. Feedlot arises as a great alternative to intensify production. Investments in feedlot depend on the economic sustainability because it requires intensive capital and involves greater risks of production and marketing. By the side of the industry with the expansion of the consumer market is need to provide quality meat, standardized and continuously, making this sector seek partnerships and contracts with cattle's suppliers.

Because of these risks and the uncertainty of the trade, the use of contracts between producers and beef industry has been growing in the last years. This little used tool in the recent past and this sector has been gaining ground among producers, especially among the feedlots, that see in the expansion of the market a chance to qualify their flock and ensure the return of your investment.

2. Literature

2.1 Beef Cattle

The growth of national beef production is reaching higher rates compared to the past due to an increase in productivity. In Table 1, it can be observed the Brazilian beef production evolution, which exceeded 9 million tons on carcass equivalent in 2009. In the last 13 years (1996 to 2009), the production increased 53.7%, according to the Brazilian National Beef Cattle Council (CNPC, 2012).

Analyzing the herd for the past 13 years, it is noticeable that the cattle number increased up to 37 million head, measured by the Brazilian Institute of Geography and Statistics (IBGE) and published by the Association of Brazilian Beef Exporters (ABIEC), showing an increase of 27.3% per year.

The average productivity in kg/cow/year increased by 27.51% (Table 1). The rate of increase in this period was 2.2% per year, 2007 being the most outstanding as the national productivity registered a 5.83% raise when compared to the previous year.

On the other hand, in border regions, the expansion and consolidation of the beef cattle sector can be explained, mainly throughout the last years, by the diffusion of advanced technologies in genetics, nutrition, management and health. As a result, there was a raise in the sector productivity, transforming the national cattle farming into a competitive activity.

Beef production is spread throughout the national territory, but more intensely in the central and southern regions of the country. The states of Minas Gerais, Mato Grosso do Sul, Goiás and Mato Grosso have the highest number of herds, representing 37% of the national total.

Table 1 Total Meat Production in Brazil, Total Beef Cattle Herd and Productivity, Geometric Growth Rates and Coefficient of Determination, 1997 to 2009

Year	Beef cattle Herd (million head)	Total Production (thousand tons eq. carcass)	Productivity (kg/herd/year)
1997	156.1	5,820	37.28
1998	157.8	6,040	38.28
1999	159.2	6,270	39.38
2000	164.3	6,650	40.47
2001	170.6	7,151	41.92
2002	179.2	7,540	42.08
2003	189.1	7,792	41.21
2004	197.8	8,488	42.91
2005	200.3	8,776	43.81
2006	199.1	9,053	45.47
2007	193.2	9,297	48.12
2008	191.2	9,000	47.07
2009	193.1	9,180	47.54
GGR	2.02	4,28	2.21
R ²	0.8392	0.9626	0.9145

Source: CNPC, 2012

On the other hand, the states with a higher relevance in slaughter activity are located in the central and western regions, where there are small consumer centers and big meat producers. The excess from those states are sent especially to São Paulo and Rio de Janeiro, which are the main consumer centers.

The price per arroba increased in the last 12 years. However, there were some periods with a significant amount of benchmark fluctuations, either because of the consumer market, or the production sector, which slaughtered many reproductive animals and reduced supplies. It is well known that the price variable is highly determining in the investment analysis and risk management.

The period between January 1997 and December 2011 registered a price increase of 21.8% within the state of São Paulo, as observed in Figure 1. On the one hand, a big fluctuation was recorded, as the one in 1999, when the arroba reached one of its peaks due to the depreciation of the Brazilian Real to the US dollar, which allowed more sales and consequently price increase. On the other hand, in 2006 prices were the lowest with regard to the previous 50 years. Finally, the highest price since 1994 was in 2010, when the domestic market, with growing income, demanded large quantities of meat, increasing the product value (Carvalho & De Zen, 2010).

Regarding the consumer market for beef in Brazil, there are distinguished two niches. The first is formed by low-income consumers, whose main decision variable in choosing the product is the price. The second niche market corresponds to the group of consumers with high purchasing power, focused primarily on product quality (Carvalho & De Zen, 2010).

Thereby the Brazilian beef chain is characterized by its complexity and diversity. The demand for quality products with traceability is related to healthy, social and environment concerns. For that an efficient coordination between industry and production should be accomplished. This new context imposes challenges to this sector. The processing industries, mainly those oriented to the international market, develop Quality Programs that, in last instance, represent a private initiative for carcasses classification and standardization. These programs aim to

incentive the production of standardized animals in order to attend industrial processes optimization and consumer demand for quality. Compensations are given to cattle growers as a form of incentives in order to have animal carcasses with some attributes related to beef quality (Caleman & Zylberstajn, 2010).

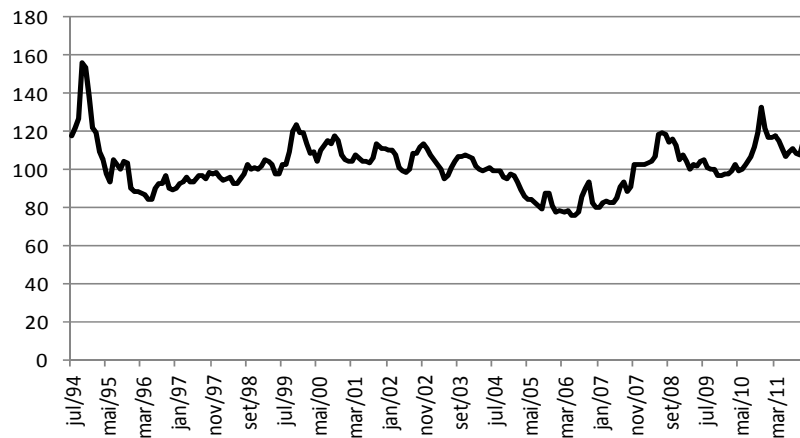


Figure 1 Finished Cattle Cash Prices in R\$/arroba within the State of São Paulo from Jul/94 to Dec/11, Deflated by the Consumer Price Index (CPI) (Basis = Dec/2011)

Source: Cepea/Esalq-USP, 2012

2.2 Feedlot

The Brazilian cattle production has always been characterized by extensive system (pasture). Currently, with the incorporation of new technologies to increase productivity, there is intensive production systems in some regions, most known as feedlot (use feeds, main grains). In this system the animal remains for about 90 days in the fattening ration being treated with high protein and energy feed reaching a mean weight gain of 1.5 kg/day.

This system has been gaining importance in Brazil in the last decade. Figure 2 shows the number of animals confined evolution in the country in twelve years. The growth is observed with fluctuations in some years due to low prices paid to the animal and feed costs high. In 2012 the total number of confined animals was 3.9 million, which represents only 2% of the total herd Brazil.

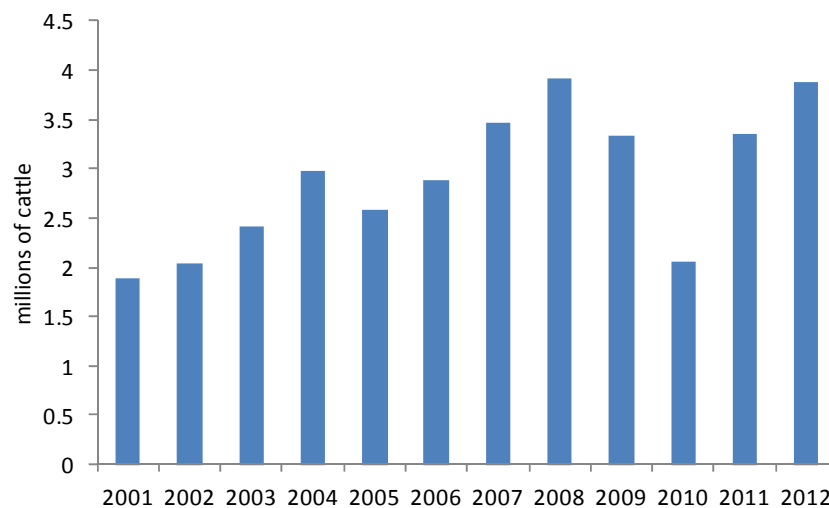


Figure 2 Number of Cattle in Feedlots-Brazil

Source: Assocon & Beefpoint (2013)

An important point of feedlot production in Brazil is the largest supply of animals in the second half of the year when traditionally there is a lower supply of pastures due to climate and consequently the number of animals. Thus becomes an important regulatory mechanism in price between industry and producer. The importance of confinement is observed in Figure 3 which shows the total number of animals slaughtered and the participation of animals from confinement. The share of this production system in total slaughter reaches 25% in the months from August to November.

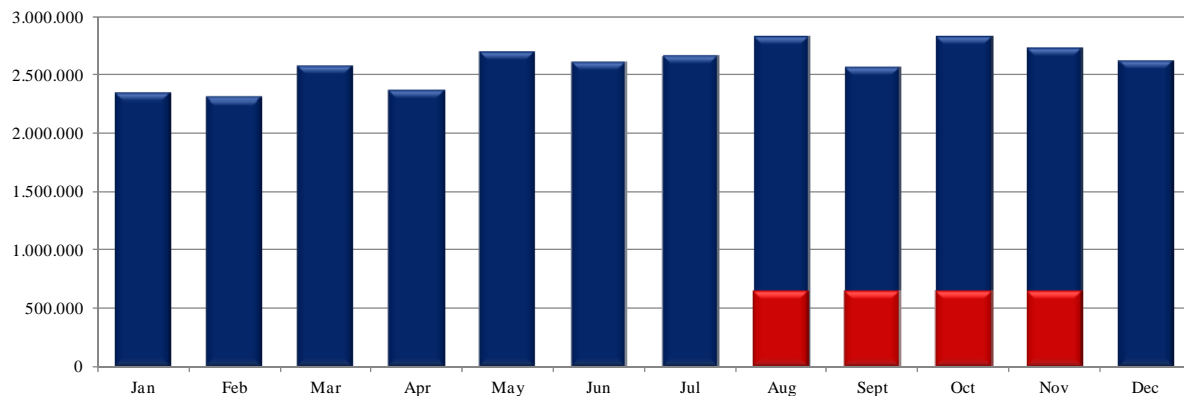


Figure 3 Number of Feedlot's Animal Slaughtered in the Total of Brazilian Slaughter — Millions of Herds

Source: Assocon (2013)

However as previously described this system is still in the growth stage in Brazil representing a small share of beef production and with the use of contracts between producers and industry still small. An example for the country both in this production system so with the coordination of the chain is the U.S.

Since the late eighties, the size of the North American feedlots increased while the quantity is reduced, gaining economies of scale in cattle feed — about 2% of feedlots fatten 85% of all livestock in the country finishing stage (International Livestock Congress, 2002; Brocklenbank et al., 2008). Gains are checked in purchases of inputs for livestock feed (Barkema et al., 2001; Brocklebank et al., 2008) and ownership of technologies that reduce the variable costs of production, including feed efficiency programs, new protocols for health management and treatment system, electronic identification of animals-also improved the efficiency of the management system (Brester, 2002; Brocklebank et al., 2008).

The coordination of the beef market in the United States was characterized by a movement out of the spot market to expand into different market structures, with contracts, strategic alliances (with other links in semen production and calves) and vertical integration. Coordination in the spot market is low, transactions are conducted by numerous buyers and sellers from a single determinant-the price (Hobbs; 1996; Brocklebank et al., 2008).

The contracts have been typically used by processors/packers and the feedlot. Its growth has motivated the search for the reasons for this growth by Lawrence et al. (2001), The processing companies are motivated to perform contracts with the feedlot as a tool to ensure the quality of meat that can then establish contracts based on specific attributes with dealers. Economies of scale are also observed due to the flow of slaughter can be maintained near full capacity (Brocklebank et al., 2008).

The first incentives for the establishment of contracts by the feedloters are to ensure premium quality and get better prices by carcass of the animal sold. Differential pricing by type of carcass allows feedlots identify the problem areas and make adjustments to achieve the desired levels of price premium. The establishment of

contracts allows feedlots have guaranteed capacity and stable prices, allowing management efforts are conducted with animal production (Hayenga et al., 2000; Brocklenbank et al., 2008).

2.3 Theory

Regarding the uncertainty of the agents, according to the New Institutional Economics, is not possible to predict all the events surrounding the transactions; this way, the contracts are incomplete (imperfect). The uncertainty changes the knowledge on future transactions. This aggravates the problem of incompleteness of contracts. Thus, changes the choice of more efficient governance structure adopted by the firm.

According to Williamson (1971), uncertainty is one of the characteristics of the transaction. This author defines the governance structure as a mechanism of adaptation in the task of transacting; being that the organizational structure varies according to certain characteristics of these transactions, such as: (1) asset specificity, (2) frequency and (3) uncertainty. The specification of the asset (investment) can define the degree of stiffness of the contractual relationship; greater asset specificity means that it has a unique function that cannot be modified without costs, ie when the specific asset is being incurred higher begin to develop new forms of rigid contract. The frequency of transactions can be classified as occasional or recurrent. Uncertainty is the third dimension of an economic transaction; conditions of uncertainty comes from possible opportunistic behavior after the drafting of the contract. It may result in unexpected behavior even during the execution of this contract.

As in the instance of the contract between the Feedlot cattle and the meat industry, the uncertainty of the market (supply and demand) is what leads the agents to seek this kind of relationship. Despite many differences that occur between production systems in a country with continental proportions as Brazil, the most widely used commerce system is still traditional price contract over the counter on the day of last judgment of sale. The last sense of Assocon (National Feedlot Association) showed that only 28% and 17% of confinements in Mato Grosso and Sao Paulo, respectively, used contracts to negotiate cattle with the industry. The use of the sense is used as a parameter for judging the proportion of farmers involved in marketing. This is due to the fact that producers are used as a tool of containment finishing animals, have a more technical manpower, a more professional system as a whole.

When analyzing the issue of specific assets, Lafontaine (2007) shows that some empirical tests are not designed to identify the precise nature of specificity. Instead they test for its presence in more general terms. To illustrate, one study (Weiss, 1992) assesses residual correlation of share-price returns, under the hypothesis that, when specificity is important, shocks to one firm will affect the other in the same direction. In the case of Brazilian feedlots, this can occur when the producer ranges a level of standardization that the slaughterhouse wants. In this case, the producer can receive a prize for the herd quality.

3. Goal

This article aims to analyze the determinants of contract between producers and slaughterhouses in Brazil.

4. Methodology

The data used to make this analysis were 669 questionnaires with Feedlots in the states of Goiás, Mato Grosso and Sao Paulo in Brazil (Cepea/Assocon). It was used the Probit, Logit and Tobit models to test and determine the main factors determining the use of contracts. The choice of the model mentioned occurs because the dependent variable (contract) take many values equal to zero. And this type of data leads to a corner solution

very common in economics. To test the hypothesis we used a Logit econometric model, considered appropriate for cases with discrete binary dependent variable. The dependent variable is the contractual arrangement observed in each transaction, and the transaction carried out by contractual arrangement 0 if the contract between producer and industry and 1 case otherwise

Therefore the choice of the above model (Wooldridge, 2009). The program to run the model described above was Stata.

$$Contract = \beta_0 + \beta_{1i}cattle + \beta_{2i}distance + \beta_{3i}machines + \beta_{4i}prize + \beta_{5i}price + \beta_{6i}cost + u_i$$

Where:

Contract: 0 if no contract between producer and industry and 1 case otherwise

Cattle: The amount of livestock in confinement

Distance: distance between the farm and industry

Machines: number of machines used in the feedlot

Prize: Prize paid by industry for the quality of cattle

Price: Price of market future in the period of sale

Cost: Cost of production in start of feedlot production

The hypotheses to be tested are:

H₀: the larger of the herd, the more risk and greater use of contracts;

H₁: The greater the technology employed (machinery), greater use of contract;

H₂: the greater the distance between the farm and industry, the greater is the use of contract;

H₃: if there receiving prize for quality, there is use of contract;

H₄: if the price of market is high, there is use of contract;

H₅: if the production cost is high, there is use of contract.

5. Results

The survey along the feedlot in the São Paulo, Mato Grosso and Goiás states, reached a total of 669 producers and together have 1,256,171 animals in 2009, representing 40% of the total animals in Brazilian feedlots. The analysis of the survey data showed that only about 30% of interviewed (farmers) used the contract to negotiate the animal with industry, and that these producers have 79% of the animals, i.e., 990.851 animals are negotiated via contract with industry.

In Table 2, it is with the results of Tobit model, which were run to related the variables cattle, prize, distance and machines with the use of the contract.

The results show that the variables cattle, machinery and prizes were statistically significant at 1%. So, the hypotheses H₀, H₁ and H₃ can't be rejected. That is when the greatest level of cattle quality, as well as the increased risk of production and cattle size, there is a quest for realization of contract between feedlot cattle and beef industry. As the machinery, the greatest level of technology adopted interfere in the use of contracts. However the hypotheses H₂, H₄ e H₅ are rejected. The greatest of the distanced adopted doesn't interfere in the use of contracts, as with the price and the cost. For the latter two hypotheses, the majority of Brazilian ranchers are not accustomed to the use of contract and waiting until the last moment to make a sale, a negotiation. In this high-risk system, there is lack of planning between costs and returns.

Table 2 Results of Tobit Regression

						Number of obs = 669
						Pseudo R2 = 0.1043
Contract	Coef	Std. Err.	t	P > [t]	[95% Conf. Interval]	
Cattle	0.000057***	(8.78e-06)	6.49	0.000	0.0000397	0.0000742
Distance	0.0001984	0.000313	0.63	0.526	-0.0004156	0.0008125
Machines	0.0406093***	0.00895	4.54	0.000	0.0230379	0.0581807
Prize	0.1599346***	0.0395	4.05	0.000	0.0823881	0.2374811
Price	0.0079424	0.00928	0.86	0.392	-0.01028	0.0261649
Cost	0.0023752	0.00604	0.39	0.694	-0.0094893	0.0142397
_cons	-1.631***	0.445	-3.67	0.000	-250.396	-0.758349
/sigma	1.086***	0.0662977			0.9559281	1.216

Note: ***p < 0.01, **p < 0.05, *p < 0.1

Source: Results of model

The results found show that the increase of one unit of the prize, there is a increase of 0.159 units in the use of contract. The results are similar with that happens in the activity in the United States, where the use of the contract between producers and industry happens for additional pay for quality and standardized meat.

6. Conclusions

The focus of the article was to identify the determinants of the choice of arrangements contatualis transaction between the processor-beef producer confined in the three producing states in Brazil. To understand the dynamics of the transaction, as regards existing contractual arrangements were analyzed as the size of the transaction (specific assets: cattle, prize, distance, machines) that generally influence the formation of a contractual arrangement, based on the economics of Transaction Costs.

Identified the variables that determine the choice of contractual arrangements, through statistical analysis (Tobit).The analysis of the survey data showed that only about 30% of interviewed (farmers) used the contract to negotiate the animal with industry, and that these producers have 79% of the animals, i.e., 990.851 animals are negotiated via contract with industry.

The results show that the variables cattle, machinery and prizes were statistically significant at 1%. In general, this study indicates that investments in specific assets (cattle, prize, machines), increases the dynamic of transaction feedlot, with the search for the use of contract with beef industry. It is important to emphasize that in this work the H₂, H₄ e H₅ were rejected. The results found show that the increase of one unit of the prize, there is a increase of 0.159 units in the use of contract, the most impactful variable in the use of contract

Finally, we conclude a transaction more likely to align with the contractual arrangement according to specificities of the assets involved in the production (cattle, prize, machines). Longer distance between the producer and the processor (greater locational, specificity) did not influence the formation of the contract, ie, the distance is not relevant to the formation of a contractual arrangement, as in Brazilian case the variables of market (price and cost) have not impact in the use of contract.

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Waste to Energy: The Energy for the Future

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Abstract: The continuing interest to alternative sources of energy is increasing gradually as the world today is very much concern about global warming, global climate changes and growing energy demand in short order. Rapidly growing world population, urbanization, industrialization and consumption based economy are accelerating incremental energy demand & municipal solid waste (MSW) generation which are being cause of mass pollutions & rising the earth atmospheric greenhouse gases (GHG), resulting global warming & ecological catastrophe. Global warming, the increase in the temperature of the earth's neon-surface air is the greatest challenge the world is confronting with and world grave concern for earth's all living creations. Every nation, including large & small, wealthy & poor, developed & developing, is under the impact of the ravage. Since 2009 global average surface temperature has been increasing by 0.6°C every year and the acceleration is even being faster gradually. It has been indicated that by the end of 21th century world's average surface temperature will increase by 2.4-6.4°C, might exceed the earth's ability to adapt. Unusual temperature will affect hydrology & biology of earth-everything including economy, ecosystem & substances. The potential consequences of global warming will be devastative, such as raising the sea level, increased occurrence of severe weather events, changing pattern of diseases, more frequent of wildfire & drought, severe food & water shortage and lose of tropical forests and many species. The effect of global warming is already in earth and having significant & costly consequences on our climate, our health and our environment. The excessive acceleration of greenhouse gases (GHG) in earth's atmosphere, generated through the combustion of fossil fuel & waste landfill, is mainly accountable for these unusual weather events. Changing pattern of energy, more specifically, carbon neutral or carbon negative sources of energy only can save the world from the upcoming devastation.

Key words: global warming; global climate changes; municipal solid waste; fossil fuel; greenhouse gases; alternative sources of energy; waste to energy

JEL code: Q420

1. Introduction

Global warming is one of the most current & widely discussed global issues which represent a serious and growing threat to earth's all living beings. The consequences of global warming & global climate changes are extremely devastative the world going to confront with. Earth's atmospheric GHG acceleration through human activities is mainly accountable for this.

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Rapidly growth world population, massive combustion of fossil fuel & mounting of municipal solid waste (MSW) landfill are closely linked with it.

World population is growing rapidly. During the period between 2013 & 2025 the world population is estimated to increase by 20% to 8 billion which will multiply to around 9 billion by 2050 (World Bank 2012).

With the rapidly growing population a relatively silent problem is soaring up daily that is skyrocketing enhancement of municipal solid waste (MSW). The generation of MSW is projected to be increased to 2.2 billion tons/year by 2025, from 1.3 billion tons/year in 2013 (World Bank report-2013). By 2025 the more dominant part of MSW will be the organic fractions which will increase the greenhouse gas emission from current 42 billion tons/year to around 80 billion tons/year, will be a serious cause of global surface temperature rising.

This is concern with the other challenges that with the rapidly growing industrialization, urbanization and population growth, world energy demand & consumption are increasing sharply. World energy consumption is estimated to increase from 560 quadrillion Btu (British thermal unit) in 2014 (524 in 2010) to 630 Btu in 2020 and 820 quadrillion Btu in 2040, will play an extreme role of uncongenial acceleration of GHG in earth's atmosphere (IEO Reference case).

The growing demand of conventional energy & MSW generation are becoming more challenging, the challenges the current world are experiencing with global warming & global climate changes.

In this very condition when earth's atmospheric GHG emitted by combustion of fossil fuel & MSW landfill are responsible for global warming, global climate changes & ecological catastrophe, carbon negative "Waste to Energy (WTE)" technology could be a viable alternative to confront the upcoming challenges. The technology will play an intensive role to accomplish two interrelated challenges the world is currently confronted with: incremental energy demand and rapidly increasing global temperature (CCOB-2010).

2. Rapidly Acceleration of Municipal Solid Waste (MSW) & Global Challenges

Countries around the world today are confronting with overwhelming ecological, economic & social problems of processing and containment of MSW.

Due to globalization & global economic affairs people are moving from rural & remote areas to urban areas either for better opportunities, better employment & incomes, better living facilities or education. People who are once shifting to cities are not very often leaving, accelerating the urban population. Today 3.78 billion people that is 54% of total world population live in urban areas & the figure is expected to increase to about 6 billion that will be 66% of the total population (9 billion) by 2050, more than the total world population lived in 2000 (World Bank 2012).

Since the world hurtles toward urban future, the volume of MSW, one of the most significant byproducts of urbanization, is soaring up ever quicker than the proportion of urbanization. A study conducted by the World Bank's Urban Development department 2013, revealed that just a decade before 0.68 billion tons of MSW were generated annually was an average of 0.64kg/capita/day by 2.9 billion urban populations. The volume was increased to 1.3 billion tones by about 3 billion urban populations in 2013 and by 2025 the generation of MSW is projected to accelerate to 2.2 billion tons annually by about 4.3 billion urban populations. Report simply indicated that by 2025 the more dominate part of MSW will be the organic fractions as the demand for agricultural goods will increase by 70% and meat will double which will accelerate global GHG emission more frequent than what is

today, will create new problems that have to be faced.

The extreme generation of MSW will multiply the expenditure of MSW management, MSW oriented environmental damage and ecological casualty. The report indicated that by 2025 the annual expenditure of MSW management is projected to increase from \$205 billion in 2013 to \$375 billion. The landfill food waste will accelerate global GHG emission from 34 million tons in 2013 to 48 million tons. Diseases carrying vectors such as insects and rodents are proliferated due to uncontrolled waste as they get proper breeding environment and feeding over it. According to Dan Hoorn Weg, the leading urban specialist in the Finance, Economic & Urban Development Department of World Bank, 5% of the total global GHG and 12% of the total global CH₄ are emanated from post-consumer waste and landfill methane respectively & the landfill shares of global anthropogenic emissions from 8% to 10%.

Report simply spells out that this is due to massive generation of MSW and nonscientific treatment of it, especially in large cities in developing countries where very common practices of MSW treatment are just kicking off on road sides and open dumping areas or uncontrolled burning.

A consumer based life-style which is driving force of much of the global economy, is primarily accountable for excessive generation of MSW. So, reduction of economic activities is the quicker option to slash the generation of MSW, is not an attractive option.

3. Growing Demand of Energy & Global Challenges

The world today is consuming massive conventional energy and the demand is growing in short order, accelerating earth atmospheric GHG and global surface temperature.

With the rapid growing population, urbanization, industrialization and a projected doubling of the global economy growth, global energy demand & consumption are rising rapidly. Improved living standard; comes through urbanization & rising income, lead to increase household & industrial energy consumption by wider penetration of electronic appliances, modern transportations and other conveniences. According to BP's Energy Outlook 2035, global energy demands continue to grow further beyond 2030 to 2035. The consumption is expected to soar up by 41% in between 2012 and 2035. According to International Energy Outlook (IEO) Reference case, world energy consumption will enhance to 630 quadrillion Btu in 2020 and 820 quadrillion Btu in 2040 from 560 quadrillion Btu in 2014 (524 in 2010). Per capita energy consumption will increase by 25% by 2040.

The World Energy Outlook (WEO) 2013 projected that by 2050 the world would have to generate enough electricity for an additional 3.3 billion people as 2 billion will be multiplied between 2013 & 2050. The Exxon Mobil's outlook for Energy 2013 project that between 2013 & 2040, global chemical energy demand projected to rise by 55% is an account for 35% of growth in industrial sector. Energy used for power generation is expected to grow by more than 50% by 2040, will continue to be the largest source of energy demand. The largest source of energy consumption will come through the industrial sector which will continue to consume over half of the global energy by 2040. The International Energy Outlook 2013 projected that fossil fuel, including oil, natural gas and coal, will supply 80% of the global energy through 2040.

3.1 World Total Energy Consumption, 1999-2040

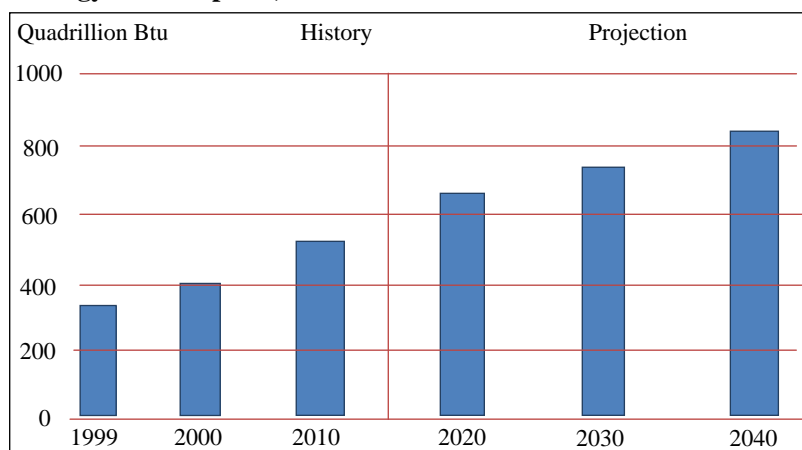


Figure 1 Shows World Total Energy Consumption, 1990-2040

Source: IEO

The aftermath of massive consumption of conventional energy would be unusual global warming & global climate changes. Global energy-related CO₂ emission will become worse than expected. According to International Energy outlook (IEO) 2013 reference case, global CO₂ emission from fuel combustion continue to grow from 31.2bmt (billion metric tons) in 2010 to 45.5bmt in 2040, living the world on the track for a long-term average global temperature increase of 3.6°C or more. Scientists of National Oceanic & Atmospheric Administration said that during the 21st century the earth could warm by an additional 7.2°F if we fail to reduce GHG emission from burning fossil fuel. Fatih Birol, the chief economist of the International Energy Agency, said that despite the global agreement to stay below 2°C, the world is on the track that, without action, leads to an increase of 4°C or more by 2050, indicated that such a rise might exceed the world's ability to adapt.

The impact of such an unusual global warming & global climate changes would be extremely devastating for the earth's all living beings. Global warming will affect the hydrology & biology of earth-everything including economy, ecosystem & subsistence. This phenomenon (incremental temperature rising) will be causes of unusual acceleration of ecological catastrophe such as acid precipitation, stratospheric ozone depletion, rising sea levels, increasing occurrences of several weather events, more frequent of wildfire & drought, food shortage, changing patterns of diseases, severe water shortage, the loss of tropical forests and many species.

Rising temperature will hamper global food security due to sharp production drop affected by frequent heat waves and more severe drought. A research conducted by U.S Department of agriculture found that by 2050 reduction of crops yielding will accelerate by 10% of 2000 levels, eventually decreasing global food security. They argue that to plants ground-level O₃ (ozone) performing more damages than all combined air pollution.

Moreover, vulnerability of the aging electricity is increasing seriously to rising consequence of global warming.

Dr. Margaret Chang, the director general of WHO in 2014, states that “this is already evidence that overwhelming climate changes endanger human health” (27-29 Aug. 2014, WHO conference, Geneva, Switzerland, Report: RIA Novesti 27.08.2014).

Sir David King, the chief scientist of Blair, described the threat of global climate changes as greater than global terrorism.

This is evidence that natural disasters were cause of displacing same 22 million people, three times more than from conflicts & wars in 2013, were twice as many people were displaced in 1970s (Report: RT News 17.09. 2014).

3.2 Cooking Fuel & Environmental Embezzlement

This is another factor to be concern that 1.3 billion of the world population that is about 20% of the total population still out of the electricity supply facilities and an overwhelming of 2.5 billion people that is around 43% of the total population still rely on biomass, which includes fuel woods, charcoal, agricultural waste & animal dung, as their every day's cooking fuel. The number is reported to multiply to 2.6 billion in 2015 and to 2.7 billion in 2030, concerning the massive escalation of deforestation, household air pollution & global climate changes through emitting CO₂ and atmospheric bromine in the form of methyl bromine lead to the chemical destruction of ozone in the stratosphere. Currently deforestation is accountable for an estimated 15 to 20 percent of atmospheric CO₂ emission.

Indoor smoke, mostly produced by the combustion of biomass for cooking or house hitting, is the cause of death of an estimated 4.3 million/year and reduction of an average life expectation of by 8.6 months. More than 50% of premature death among the children under 5 is due to pneumonia caused by particulate matter inhaled from household air pollution.

4. Potential Ways to Avoid the Danger

Rapid population growth, industrialization, urbanization, severe economic growth activities & consumption based life-style are the driving forces for rapidly growing global temperature and global climate changes; pushing the green planet to the devastation day by day. These aforementioned events are the ways of lives of world's 9 billion people in the modern global arena. People of today's world cannot start living in the forest or go back to the cave lives. But some measures can be taken to alleviate the human caused GHG emission to lessen the global warming and global climate changes to survive and sustain and keep the green planet remain habitable for the future generation.

Alternative sources of energy which are low, neutral or negative GHG emitted; for example, wind power, solar power, hydroelectric power, waste-to-energy etc. could be viable alternatives. According to World Health Organization (WHO) report 2014, changes in energy & transportation policies could save "millions of lives" as in 2012 air pollution alone resulted in the death toll of seven millions worldwide (27-29 Aug. 2014, WHO conference, Geneva, Switzerland, Report: RIA Novesti 27.08.2014).

Together with other sources of green energy, WTE could be very effective component to overcome the upcoming challenges the world going to confront with rapidly growing global temperature, global climate changes and energy demand in short order. The WTE technology on one hand will reduce the acceleration of earth atomospheric Greenhouse gases emitted through combustion of fossil fuel & MSW land fill and on the other hand will meet the rapidly growing energy demand.

According to US Environmental Protection Agency, WTE is a clean, renewable and reliable source of energy.

According to the estimation of U.S Environmental Protection Agency, "every ton of MSW can contribute to prevent 1.3 tons of CO₂ emission when it goes to WTE plant due to the following factors:

- Eliminate CH₄ emission from landfill: WTE facilities avoid the emission of CH₄ that would have been generated if MSW were sent to landfill.

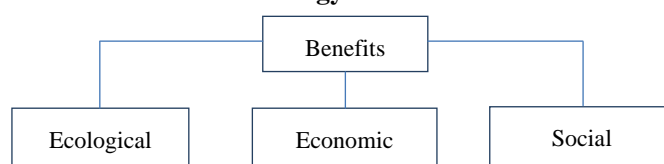
- Eliminate CO₂ from fossil fuel combustion: when WTE facilities generate a megawatt of electricity it avoids emission that would have been generated by fossil fuel power plant.

- Eliminate CO₂ from mining & metal plants: WTE facilities recover ferrous metals & reduce the GHG emission from mining for metals. So, WTE facilities avoid the emission of CO₂ that would have been emitted by mining & production of metals.

Moreover, WTE facilities contribute to abundant emission & fuel consumption by reducing transportation of MSW to distant landfill.

The Davos report produced by the World Economic Forum 2009 suggest that WTE facilities can hold lead the way to a clean and more energy independent future. The report simply indicated that WTE facilities are emerging green technology that can contribute to reduce GHG emission and change the world's energy consumption pattern.

4.1 The Remarkable Welfares of Waste to Energy



Benefits:

- Decrease landfill waste
- Reduce GHG emission
- Accelerate recycling objects & rate
- Slash the reliance of fossil fuel
- Diversify the energy industries
- Ensure green & cheap source of energy
- Create new employments

4.2 Existence Waste-to-Energy Technologies Worldwide

(1) Thermal technologies:

- Incineration
- Gasification
- Thermal depolymerization
- Pyrolysis
- Plasma arc gasification

(2) Non-thermal technologies:

- Anaerobic digestion
- Fermentation production
- Mechanical biological treatment

Through the existence technologies either MSW are mass combusted which is eco-destructive or only organic matters of MSW are processed to generate energy.

Incineration, the mass combustion of MSW, is the most common Waste-to-energy implementation, is cause of mass pollutions. Combustion of MSW produce CO₂, N₂O, SO₂, furans & other dangerous pollutions including ground water quality pollution, and a host of air& soil pollution. Ash of the combusted MSW is hazardous. Bottom ash which is around 10% of the volume and about 20-30% by weight of MSW input is less harmful but

the fly ash, relatively a tiny portion of MSW input, is extremely hazardous. Moreover, the ashes contribute for further landfill. Incineration of MSW generates two types of CO₂: Biogenic (67%) & anthropogenic (33%).

Biogenic, the largest portion of generated CO₂, is the part of earth's natural carbon cycle and earth can absorb it. But the anthropogenic, the remaining 33% of the generated CO₂, is the additional GHG to the earth's atmosphere, come from man-made substances in the waste that is combusted, such as unrecyclable plastic & rubbers.

4.2.1 Advanced Neo-digestion Technology (Proposed)

Unlike the old fashioned mass incineration of MSW or digestion of only organic matters of MSW, the Advanced "Neo-digestion Recycling & Energy conversion of MSW" technology digests a very wide range of MSW which include both organic and solid matters ranging from industrial chemical liquid to wood waste & timber.

4.2.2 Specific Types of Waste that Are Processed

- Municipal solid waste (MSW)
- Industrial & commercial waste
- Hospital waste
- Construction waste
- Cafe & restaurant waste
- Household waste
- Wood & garden waste
- Abattoir waste
- Toxic waste
- Animal waste & agricultural waste
- Contaminated oil & Oil sludge
- Industrial liquid chemical waste

4.2.3 Range of Waste

- Hydrocarbon such as oil
- Complex sugar such as vegetable waste
- Organic chemical such as animal fats
- Veterinary waste such as animal tissue, blood etc.
- Hospital waste: blood, human tissues, wounded dressing, disposable instruments etc.
- Contaminated oil such as used oil from engines, transformers & other machineries
- Construction waste: wooden doors and windows, timbers framing, waste wood etc.
- Biomass: household & gardening waste, agricultural waste, dung, forestry waste, energy crops etc.
- MSW: discarded food, paper, fabrics etc.
- Industrial liquid waste
- Any other disposable waste

4.2.4 Procedures

In Neo-digestion Technology, waste materials are decomposed in biogas plant by bacteria in the absence of oxygen and converted into energy-known as biogas that consists of 60% CH₄ & 40% CO₂. The generated biogas is then used to generate electricity. The waste of the biogas plant is used as eco-friendly compost fertilizer.

The digestion process begins with the bacterial hydrolysis of the input materials in order to break down

insoluble organic polymers such as carbohydrate & make them available for other bacteria. Acidogenic bacteria then convert the sugar & amino acid into CO_2 , H, ammonia, & organic acids. Acetogenic bacteria then convert these resulting organic acids into acetic acid, along with additional ammonia, H, & CO_2 . Finally methanogens convert these products into CH_4 & CO_2 .

4.2.5 Implementation

Collecting MSW from dumping sites, disposable waste materials are sorted out from undisposable materials, such as concrete, bricks, stons and other valuable materials which are recycled, for example, cans, irons, aluminum, plastic etc. Then the disposable waste materials are grind and deliver to the biogas plant with waste water or chemical liquied waste to generate biogas. In the plant biogas is generated by series of natural biological digestion process.

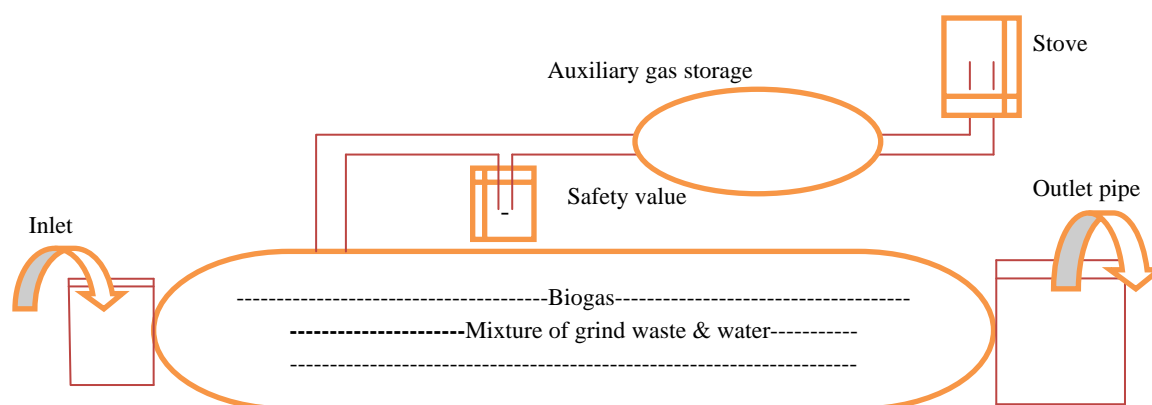


Figure 2 An Ideal Biogas Plant

4.3 The Digestion Process Consists of Two Basic Stages:

- (1) The acid producing stage &
- (2) The Methane production stage

At the initiative stage, raw sludge is attacked by ferm entative bacteria that break the sludge down into organic acids, alde-hydes and alcohols under anaerobic condition. The organic fatty acids are produced in the greatest quality.

At the following stage, the organic acids, aldehydes and alcohol are dicomposed by acetogenia bacteria and converted into CH_4 & CO_2 .

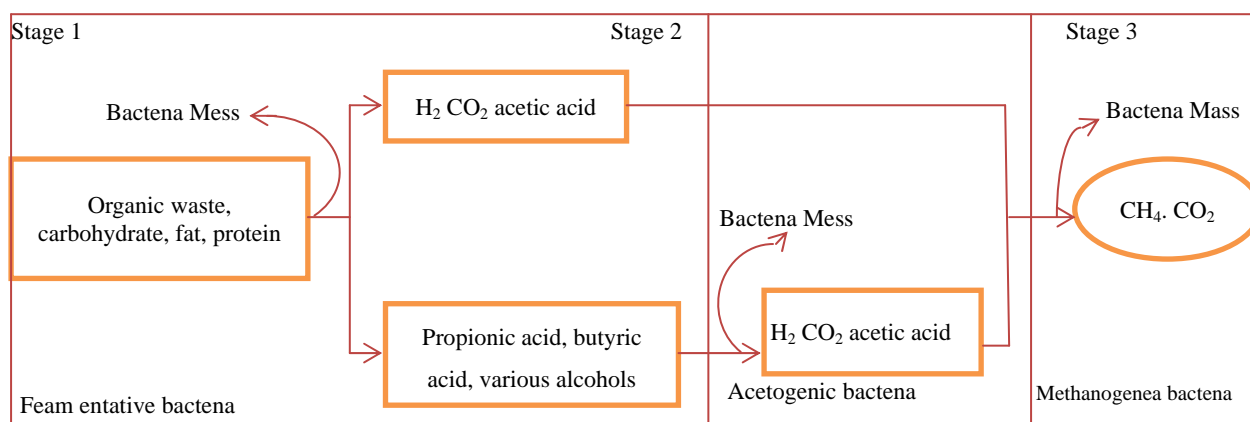


Figure 3 Biogas Generation Procedures in the Plant

4.3.1 Electricity by Biogas

Electricity is generated by the produced biogas in combined cycle electricity generation unit which is the combination of both gas turbine unit & steam turbine unit.

In this technology gas is first heated and hot gas is used to turn the gas turbine unit to generate electricity and then the waste gas is used to boil the water to produce steam to spin the steam turbine unit to generate electricity.

This technology is most effective and cheap. By the technology 60% more electricity is generated by the same amount of gas and same expenditure of conventional single turbine unit.

4.3.2 Ecological Welfare of the Proposed Technology

It is a carbon negative source of energy. The technology produces electricity at a negative emission rate of GHG when compared to allow CH₄ to form in landfill & fossil fuel combustion to generate electricity.

The technology is primarily a CH₄ processing technology that turns landfill CH₄ into gas form.

When CH₄ is burned in the electricity generation unit to generate electricity, CH₄ is converted into H₂O & CO₂. The latter is 25 times less environmental destructive than CH₄. Moreover, the emitted CO₂ of the plant is biogenic that is part of the earth's natural carbon cycle. While trees & plants grow up through photosynthesis process they remove earth atmosphere's CO₂ that is return to the atmosphere back while paper, food & biogenic waste are burnt.

The WTE facilities opposed to the emission of GHG into earth's atmosphere by combustion of fossil fuel for the mission of many years. Such substitution of energy from WTE facilities cut down the GHG emission associated with energy production from combustion of fossil fuel.

The waste of the WTE facility is used as ecofriendly compost fertilizer that recycled back valuable nutrients to the land through the production of digestion.

5. Conclusion

Carbon neutral or carbon negative WTE technology of this type is the demand of time when changing pattern of energy is extremely indispensable to keep the earth's atmospheric GHG in adaptable level to avoid the potential ecological catastrophe. The proposed technology on one hand will rein the acceleration of earth atmospheric greenhouse gases and on the other hand will meet the rapidly growing energy demand. Worldwide appliance of this technology can save the green planet from the upcoming danger.

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Multilingual or Failed? Is the Trilingual Luxembourgish Public Education System a Failure or a Success Story?

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Abstract: The purpose of this study is to describe and explain the Luxembourgish trilingual public education system and, consequently, to determine whether the Luxembourgish trilingual public education system is a system of success or of failure. The aim is to determine whether people in Luxembourg and the rest of the world have a positive or negative opinion towards the trilingual public education system in place, or if they rather would prefer a bilingual public education system, or any other combination of languages of instruction in education. 154 questionnaires were collected and 36 interviews conducted among (1) Luxembourgers with Luxembourgish Nationality (Lux.Nat.), (2) Luxembourg residents including Lux.Nat. and foreigners who reside in Luxembourg (Lux.All.), and (3) the rest of the world (World). More specifically cross-cultural management theories by Hofstede et al. (2010), Hofstede (2001) and House et al. (2004), in combination with language theories by Lewis (2006), Blackledge and Ceece (2010), (Cummins (2000), García (2014, 2009), and language and management theories by Brannen, Piekari & Tietze (2014) serve as basis for the language as identifier theory (Schinzel, 2013a). There is a high failure rate of school students who tend to not understand the language of instruction especially in mathematics, biology, chemistry, and history, and the command of the English language in schools is insufficient. The results indicate that most respondents prefer integration not separation of the population, the system should maintain its instruction in the three official languages of the country: Luxembourgish, French, German. Residents should adopt a geocentric approach residing in a multilingual and multicultural reality in Luxembourg. Some of the interviews are reprinted; discussion, implications, and recommendations for future research follow.

Key words: language and management; Hofstede, education; cross-cultural management; international business; language; trilingual public education system; Luxembourg

JEL code: F

1. Introduction

The language situation in Luxembourg has been subject to numerous researches, publications, discussions, debates (Fehlen, 1998a; Maurer-Hetto, 2009; Horner, 2007; Weber, 2008; Weber & Horner, 2010), and reforms (FGIL, 2012; Kurschat, 2014, pp. 4-9), involving even the OECD (Carey and Ernst, 2006). Despite these efforts a solution to the complexity of the situation — integration versus separation (Fehlen et al., 1998b) — seems a remote, unattainable goal. Plurilingual school education (Maurer-Hetto, 2008; Maurer-Hetto & Roth-Dury, 2008)

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goes in parallel with conflicts (Elcheroth, 2010, p. 40), and reflects the complexities and paradoxes of a multicultural national identity shaped by history (Kraemer, 1995, pp. 74-75).

2. Literature Review

2.1 Luxembourg

The language situation in Luxembourg's schools is deeply anchored in the specific place the Grand Duchy of Luxembourg takes in Europe and in the world. With its small size of only 2,586 km², 82 km long and 57 km wide at its longest and widest points it is one of the smallest European countries. Its borders are with Germany (138 km), France (73 km), and Belgium (148 km) (The World Factbook). The resident population as of 1 January 2014 (Statec, 2014) included 90,764 Portuguese, 37,158 French, 18,773 Italians, 18,159 Belgians, and 12,659 Germans. Cross-border workers make the specific situation (Statec, 2013): Luxembourg's total population consisted of 537,000 inhabitants of whom 298,200 (55.53%) were Luxembourgers and 238,800 (44.47%) were foreigners. Domestic employment was 379,000. During the daytime, 156,900 cross-border workers came to Luxembourg to work, 39% of the domestic employment: 77,800 from France, 39,500 from Belgium, and 39,600 from Germany (Schinzel, 2013a, 2013b). You have to genuinely understand the meaning of "*Mir wëllebleiwe, watmir sin*" ("*We want to remain what we are*") (Berg, 1993).

The national language is Luxembourgish (Lëtzebuergesch), and administrative languages are French, German, Luxembourgish (Statec, 2013). Citizenship is only awarded to people who speak Luxembourgish (Spizzo, 1995). The language defines the in-group (Briley et al., 2005) and the out-group. Those who speak Luxembourgish are part of the in-group and those who do not speak the language are part of the out-group.

2.2 Management Scholars

Management scholars, such as Hofstede (2001), Hofstede et al. (2010) and House et al. (2004) have acknowledged that language has indeed an impact on culture. Hofstede (2001) defines culture as the "collective programming of the mind which distinguishes the members of one human group from another". This explains the author's choice of 3 different groups for the present research: Lux.Nat., Lux.All., World. This research does not investigate Hofstede's 6 dimensions of culture, but rather the murky field of language and management, it tests their theory of culture across languages rather than across national borders, which is what above mentioned management scholars do. Hofstede et al.'s (2002) criticism of his own theory goes, among others: "Nations are not the best units for studying cultures". Table 1 (Schinzel, 2012) shows Hofstede's cultural dimensions of Lux.Nat., and Lux.All., Hofstede's estimates on Luxembourg, his data for France, Germany, the UK, Belgium FR, Belgium NL, Italy, the Netherlands, China, the USA, and Japan, where the cultural differences become clear.

Table 1 Cultural Comparisons: The author's Luxembourg, Lux.Nat. in Comparison with Hofstede's UK–BelgiumFR–Belgium NL–Italy–the Netherlands NL–China–USA–Japan (on a scale from 1-100, 1 being the lowest and 100 the highest score)

	The author's Lux.Nat.	The author's Lux.All.	Hofstede's estimates on Luxbg	Hofstede's France	Hofstede's Germany	UK	Belgium FR	Belgium NL	Italy	NL	China	USA	Japan
PDI	29	36	40	68	35	35	68	61	50	38	80	40	54
UAI	95	97	70	86	65	35	93	97	75	53	30	46	92
IDV	34	51.5	60	71	67	89	71	78	76	80	20	91	46
MAS	54	47	50	43	66	66	60	43	70	14	66	62	95
LTO	65	69	64	63	83	51	82	82	61	67	87	26	88
IVR	55	53.5	56	48	40	69	57	57	30	68	24	68	42
MON	24	10	-	16.5	9.9	35.4	-	-	35.2	11.9	0	57.2	4.0

2.3 The Luxembourgish Public School System

Kraemer (1995) describes the situation in multilingual Luxembourg as follows: the language issue starts already in pre-school, as the instruction language is Luxembourgish, which represents a problem for foreign children, who often speak French or Portuguese. Luxembourgish is given the “integration” function, preparing foreign children for an alphabetization in German in primary school. Later, French will replace German progressively to become the main language instruction in secondary school (Weber & Horner, 2008).

To cite Weber and Horner (2008, p.89): “Moreover, there are few alternatives for parents whose children cannot cope with the state school system. The small number of private, religious (i.e., Catholic) schools follows the state school curricula and students take exactly the same examinations, including the Secondary School Leaving Examination. The only alternatives are the Lycée Vauban, the Waldorf School, the European School and the International School, but they tend to charge high fees and to cater for an international elite. As a result, the only other option taken up by 3.6% of the school population is to attend schools just across the border mostly in Belgium or France (Berg & Weis, 2005, p. 58).”

In his 2014 publication “Quellepolitiquelinguistique pour l’écoleluxembourgeoise?”, Weber suggests several new models to reform the current system (Weber, 2014a, pp.10-11). He suggests a first reform system: in Cycle 1 (préscolaire), all languages should be tolerated, as children in pre-primary education with migration backgrounds experience difficulties with the Luxembourgish (Christmann & Sunnen, 2007; Bodé & Content, 2011). In Cycle 2 alphabetisation should be in a language known by the pupils: Luxembourgish, French or Portuguese. However he suggests 2 parallel systems: the French speaking and the German speaking. On the other hand, the second reform system would consist in a simultaneous bilingual alphabetisation where half of the subjects would be taught in Luxembourgish and the other half in French. English would be introduced from the 3rd or 4th cycle on, in the “lycées” a fourth language would be introduced from the 6th on, i.e., German, Portuguese, Spanish or Italian. From 4th and 3rd cycle on some subjects would be taught in English (Weber, 2014a, pp. 10-11). See also Weber 2014b.

The 1984 legislation on language made Luxembourgish the official language together with French and German. Despite the growing number of foreign children, Luxembourgish is the language of instruction in pre-school (age 3-6): “précoce” and “préscolaire”, with the aim to prepare pupils for the alphabetization in German in primary school (age 6-12). In secondary school (age 12-19), German as language of instruction will be replaced by French, until French is near mother tongue level (Kurschat, 2014b).

Fernand Fehlen, whose research focus is on the language situation in Luxembourg (Fehlen, 1997, 2002), published his first “Baleine” study in 1998 (La Baleine/In English: The Whale), followed by a second “Baleine” study in 2009 (Fehlen, 2009). With these he drew attention to the fact that Luxembourg needs to concrete an integrative education system and a language policy that prevents the loss in multilingualism (Houtsch, 2010). Fehlen, with his studies, attempts an explanation of the role of the Luxembourgish language. He shows, despite its smallness, the complexity of the country and its society. The Grand Duchy hosts people who have been living in Luxembourg for a long time, or who just moved, or who moved several years ago, who work in different companies, in different jobs, from lowest to highest qualifications, with the specific situation of the cross-border workers, and workers who are sent to or from Luxembourg for work only for a few years. However, he explains, Luxembourgish is mostly used as a spoken language. Its use as written language is limited, with the result that German is mostly used as a written language. The instruction in French in secondary school is responsible for the

high failure rate of pupils, following Fehlen (Houtsch, 2010). If you only speak Luxembourgish, you will fail on the job market, states Fehlen. He further asks: How can somebody who doesn't master his mother tongue, master another language? He states further: the Luxembourger who speaks in another language, always lacks content in his speech, as he has to concentrate on the form (the language).

2.4 Hypotheses

There are more issues to the research subject besides the five main themes (1) integration not separation of the population, (2) learn the three official languages of the country: Luxembourgish, French, German, (3) be prepared for the multilingual and multicultural reality in Luxembourg, (4) high failure rate given the fact that children do not understand the language of instruction especially in mathematics, biology, chemistry, history, and (5) pupils do not learn English well enough.

The author formulates the following three hypotheses.

Hypothesis 1: Lux.Nat. will highly favor trilingualism. Lux.All. will be less in favor of trilingualism. The rest of the world will be afraid of trilingualism in education.

Hypothesis 2: Lux.Nat. will be against bilingualism. Lux.All. will be less against bilingualism. The rest of the world will favor bilingualism.

Hypothesis 3: The other school options will be equally less preferred by all three categories: Lux.Nat., Lux.All., World.

Investigating the above formulated three hypotheses is the content of this research. The deployed methods, instruments, processes are described in the following chapters, providing the respective results from questionnaires, questionnaire's open questions and interviews. The objective is to validate the above formulated hypotheses and to come up with implications and discussions.

3. Methods and Instruments

The first instrument was a questionnaire developed by the author in English, translated by mother tongue speakers into German and French and back translated for validity check. A five-point Likert-type scale was employed to indicate responses that ranged from 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree. The first part of the questionnaire investigated the advantages of the trilingual public education system, the actual system. See the questions in the tables below. In a second part, the advantages and disadvantages of one of the proposed reform systems was investigated. See the questions in the tables below. In a third part, the respondents' personal opinion was questioned, respectively if they prefer the trilingual current public system, a bilingual system or rather any other education system. Some open questions are reprinted hereafter. The second instrument was the interviews. Semi-structured interviews were carried out during fall, winter 2014 and spring, summer 2014. Respondents were from the three categories: Lux.Nat. (6), Lux.All. (22), World (8). Interviews were carried out in Luxembourgish, English, French, German, Italian, and Spanish. They were by phone, via skype or in person and lasted between 15 and 60 minutes. For confidentiality reasons, interviews were not taped, nor recorded or filmed. Instead in-depth notes were taken during the interviews. After the interviews, the respondents were presented the summary of the interview and their consent was asked. Interviews in Luxembourgish, French, German, Italian or Spanish were translated into English. Some interviews are reprinted hereafter.

4. Results and Data Analyses — Questionnaire's Closed Questions

4.1 Questionnaire Respondents

Business men and women in Luxembourg and all over the world were asked to fill in the questionnaire. Companies in Luxembourg and worldwide were chosen and not more than 10 respondents per company considered, allowing a representative view on the situation. The questionnaire was completed by a total of 154 respondents, divided into three categories, Lux.Nat, Lux.All., World, as follows: 110 residents of Luxembourg, out of them 62 Luxembourgers with Luxembourgish nationality (Lux.Nat.). Other nationalities among the Luxembourg residents were Italians (19), French (13), Portuguese (11), Spanish (3), Germans (2), Dutch (2), Belgians (2), Polish (1), Czech (1), Slovak (1), Greek (1), and Kazakh (1). 152 questionnaires were usable, 2 were not filled in completely.

The 42 residents outside of Luxembourg (from the rest of the World) came from Canada (13), France (8), Italy (3), Germany (2), Greece (2), Belgium (2), Switzerland (2), China (1), Israel (1), the USA (1), Turkey (4), from Spain (1), and the UK (1).

The languages are native languages: Luxembourgish (52), French (24), Italian (19), Portuguese (13), German (6), English (5), Russian (5), Turkish (4) and Spanish (4). Other mother tongues among the respondents were: Turkish, Mandarin, Cantonese, Taiwanese, Creole, Hebrew, Czech, Greek, Dutch, Vietnamese, Polish, Arabic, Slovak and Catalan, each accounting for 1 respondent.

Out of the 154 respondents, only 1 person indicated having 3 mother tongues: Portuguese, German and English. 2 respondents speak seven languages, 13 speak 6 languages, 22 speak 5 languages, 49 speak 4 languages, 33 speak 3 languages, 24 speak 2 languages, and only 6 respondents speak just one language. In general it can be said: most Lux.Nat. speak Luxembourgish, German, French, English, some in addition speak Portuguese, Italian and/or Spanish. Most French speak just French, some with a little English. Most Portuguese living in Luxembourg speak Portuguese, Luxembourgish, German, French, and some English. In general, English native speakers just speak English, without any other foreign language notions, some with a little Spanish.

Interestingly, only eight people indicated having 2 mother tongues.

Out of the 154 respondents, 13 have double nationality, and 17 changed their birth nationality into another nationality.

In total the 154 respondents come from 29 different countries and speak 22 different languages.

The respondents' age categories were age 0-19 (2), age 20-24 (13), age 25-29 (11), age 30-34 (14), age 35-39 (16), age 40-49 (40), age 50-59 (35), over age 60 (20).

38% of the respondents were males, 62% females.

There is an equal distribution of all diplomas among the respondents: A-level (33), professional education (19), undergraduate degree (16), master's degree (43), doctorate (29), other (10).

Concerning job type, the distribution consists of 18 civil servants, 41 teachers/professors, 18 employees, 9 assistant/secretaries, 4 consultants/HR, 9 bank managers, 6 manual workers, 14 retired, 2 house wives, 5 commercials/economists, 8 hospital workers, 3 IT managers, 2 lawyers, 1 architect and 11 students.

The industry sectors of the respondents are: the state/government (24), education (53), bank/finance (34), hospital/medical (5), construction (3), none (12), industry (2), IT/high tech (4), and services/commerce (12).

The respondents' migration background is as follows: out of the 152 valid respondents 66 moved from a birth country to another country, respectively 43%. Among these migrations is the migration stream to Luxembourg: 14

moved from France to Luxembourg, 14 from Italy, 9 from Portugal, 4 from Germany, 3 from Spain, 3 from Belgium, 1 from Guadeloupe, 1 from Greece, 1 from Poland, 1 from Kazakhstan, 1 from Russia. Other migrations among the respondents from and to other countries in the world are: 3 from the Netherlands to Germany, 1 from the Netherlands to Belgium, 1 from Austria to Switzerland, 1 from Israel to the USA, 1 from Jordan to France. The migration stream to Canada is: 1 from Mexico, 1 from Russia, 1 from Ukraine, 1 from China, and 1 from Taiwan.

Following the above initial preparations of the data basis the calculation of the questionnaire's results provided the following results:

Table 2 What Are the Advantages of this Trilingual Public Education System (The Current Education System)?

		Total	Lux.Nat.	Lux.All.	World
		N = 152	N = 62	N = 110	N = 42
1.1.	Integration of all children into the multicultural, multilingual, multinational environment in Luxembourg.	4.01	4.02	<u>4.06</u>	3.90
1.2.	Children learn 3 languages and have the opportunity to study in L, G, F.	4.13	<u>4.31</u>	4.13	4.17
1.3.	Children are educated following the multicultural education in Luxembourg.	3.82	3.88	3.85	3.69
1.4.	Children are prepared for the multilingual reality of Luxembourg, for the future, for work, for life.	4.05	3.97	<u>4.04</u>	4.05
1.5.	L+G+F is to be seen as ONE language, not three, we add English, Spanish as foreign language.	2.75	<u>2.53</u>	2.69	<u>3.02</u>
1.6.	Often, none of the three languages (L+G+F) is the mother tongue of the children at home, but it is Portuguese, Italian, ..., what allows pupils an alphabetisation in L+G+F.	3.54	3.54	3.62	3.38

Regarding the advantages of the current trilingual public education system, the scores among the 152 total valid respondents divided into the three categories Lux.Nat, Lux.All., World were as above.

The above numbers demonstrate that the World has a different view of the current situation than Lux.Nat. of themselves, or Lux.All. in general of the country they are living in.

Table 3 What Are the Disadvantages of This Trilingual Public Education System (The Current Education System)?

		Total	Lux.Nat.	Lux. All.	World
		N = 152	N = 62	N = 110	N = 42
2.1.	Pupils do not understand the language of education and therefore cannot follow the content in e.g. biology, mathematics, chemistry...	3.30	<u>3.42</u>	3.35	3.19
2.2.	Pupils are not performing well in the field of study (e.g. biology, mathematics, chemistry...), because they don't understand the language.	3.29	<u>3.53</u>	3.34	3.14
2.3.	This causes a high failure rate.	3.17	<u>3.46</u>	3.33	<u>2.76</u>
2.5.	Loss of identity in terms of culture. Language is not only a method of communication but also determines my cultural identity, my: who am I?!	2.93	2.81	<u>2.99</u>	<u>2.79</u>
2.6.	Pupils do not learn English well enough. English is neglected. L+G+F favoured.	3.05	3.00	3.01	3.29

Regarding the disadvantages of the current trilingual public education system, the scores among the 152 total valid respondents divided into the three categories Lux.Nat., Lux.All., World were as follows:

The differences in scores were not so big, as "Pupils do not understand the language of education and therefore cannot follow the content in, i.e., biology, mathematics, chemistry..." scored highest among Lux.Nat. (3.42), followed closely by Lux.All. (3.35), and third by World (3.19), etc.

The above numbers demonstrate that the World has a different view of the current situation than Lux.Nat. of themselves, or Lux.All. in general of the country they are living in.

Table 4 What Would be the Advantages of this Bilingual Public Education System (The Discussed Proposed but Contested Reform-System: In Kindergarten the Language of Education Would Remain Luxembourgish. But Then the Child Would Have the Choice between A Full Education (Primary And Secondary) in German Language of Instruction, or in French)?

		Total	Lux.Nat.	Lux.All.	World
		N = 152	N = 62	N = 110	N = 42
3.1.	All children still would learn Luxembourgish in Kindergarten.	3.91	3.85	3.87	<u>3.95</u>
3.2.	The choice of one language of instruction for primary and secondary education allows that children understand the content of instruction (e.g., biology, mathematics, chemistry...).	3.69	3.68	3.65	3.74
3.3.	The failure rate would decline.	3.30	3.27	3.36	<u>3.19</u>
3.4.	Children could better concentrate on the content of instruction than on the language of instruction.	3.66	3.69	3.70	3.55
3.5.	Better motivation of children who will be more motivated to learn the different subjects thanks to the taught language.	3.43	3.44	3.44	3.43
3.6.	Pupils could concentrate better on learning English .	3.24	3.21	3.20	3.48

Regarding the advantages of the bilingual public reform system, the scores among the 152 total valid respondents divided into the three categories Lux.Nat., Lux.All., World were as follows:

The differences in scores were not significant, as “All children still would learn Luxembourgish in Kindergarten” was answered nearly identically by all three categories: Lux.Nat. (3.95), Lux.All. (3.87), the World (3.89), etc.

Table 5 What Would Be the Disadvantages of This Bilingual Public Education System (The Discussed Proposed But Contested Reform-System)?

		Total	Lux.Nat.	Lux. All.	World
		N = 152	N = 62	N = 110	N = 42
4.1.	This reform system would be a separator of the population – those who speak German — divided from those who speak French.	3.60	3.86	3.67	3.40
4.2.	This separation in 2 different languages would divide the society into different levels.	3.36	3.60	3.46	3.12
4.3.	Children/Pupils would not be prepared for the multilingual reality in Luxembourg, where at least L, G, F are needed in everyday situations.	3.62	<u>3.95</u>	3.75	3.31
4.4.	There might not be enough teachers in Luxembourg capable of teaching and/or in German and/or in French in <u>primary and</u> secondary school.	2.88	2.88	<u>2.78</u>	3.19
4.5.	There would be an administrative problem, because this division would duplicate all classes, new school rooms would be needed, new schools would need to be constructed.	3.44	3.57	3.46	3.48
4.6.	This language division (in German or French) would re-enforce the cultural division into German or French culture .	3.58	3.76	3.63	3.50
4.7.	Other countries (Germany, France,) also experience the same problem with immigrant children not understanding the language of instruction in class.	3.29	3.31	3.22	3.52

Regarding the disadvantages of the bilingual public reform system, the scores among the 152 total valid respondents divided into the three categories Lux.Nat., Lux.All., World were as follows:

This reform system would be a separator of the population — those who speak German — divided from those who speak French’ scores highest among Lux.Nat. (3.86), followed by Lux.All. (3.67), and third by the World (3.40), etc.

Table 6 What Is Your Personal Opinion. Which System Would You Prefer?

			Total	Lux.Nat.	Lux.All.	World
			N = 152	N = 62	N = 110	N = 42
5.1.1	I prefer the trilingual public education system (the actual system: in Kindergarten Luxembourgish as language of education, in primary school German, and in secondary school French)?	yes no Total	98 54 152	53 (84%) 9 (16%) 62 (100%)	77 (65%) 33 (21%) 110 (100%)	22 (52%) 20 (48%) 42 (100%)
5.1.2	I prefer the bilingual public education system (the system under discussion, where children decide which language of education they chose for both primary and secondary school: German or French)?	yes no	45 105	9 (16%) 53 (84%)	27 (24%) 82 (66%)	19 (45%) 23 (55%)
5.1.3	I prefer other options: (please complete the three questions below only if you answered this question with yes)	yes no	56 92	23 (36%) 37 (64%)	41 (37%) 67 (63%)	15 (34%) 26 (63%)
	5.1.3.1 There is the choice to go to European School for an education in your mother tongue.	Average	2.93	2.73	2.95	2.81
	5.1.3.2 There is the choice to go to International School, or St. George , for a full education in English.	Average	2.62	2.49	2.48	3.11
	5.1.3.3 There is the choice to go to LycéeFrançais for a full education in French.	Average	2.67	2.51	2.55	3.13

In the category “All respondents” out of a total of 152 valid respondents 98 were pro trilingualism, which corresponds to 64%. Only 54 were against, corresponding to 35%. Bilingualism was favored by 45 (30%), with 105 (69%) voices against. Other schools (European School, International School, LycéeFrançais) were favored by 56 (37%), and 92 (61%) were against.

In the category “Lux.Nat” these equations change. Out of a total of 62 Lux.Nat. the trilingual public education system was preferred by 53 (84%), with only 9 (16%) voices against it. Regarding the bilingual reform system, only 9 (16%) were for it, whilst 53 (84%) were against it. Other schools were considered positively by 23 (36%), but negatively by 37 (64%).

In the category “Luxembourg including all nationalities” these results change again. Out of a total of 110, still 77 (69%) are pro the current trilingual public education system, but this is less than the 84% from the Lux.Nat. 33 (21%) are against it, which is more than the 16% Lux.Nat.. The bilingual system is preferred by 27 (24%), and rejected by 82 (66%). Other schools are preferred by 41 (37%) with 67 (63%) against them.

In the category “Rest of the world” the distributions change once again. Out of a total of 42 respondents 20 (52%) are pro the current trilingual system, 20 (48%) are against. The bilingual system would be preferred by 19 (45%), but rejected by 23 (55%). Other schools are favored by 15 (37%), while 26 (63%) are against.

The rest of the world mainly is afraid of the challenges that comprehend the three languages to be learnt by the child and ideally by the parents.

84% of the Lux.Nat are pro trilingualism, whereas the percentage decreases to only 69% for ‘Luxembourg including all nationalities’, and a small majority of 52% pro trilingualism for the rest of the world.

On the other hand, the percentage in favor of bilingualism increases from a weak 16% pro bilingualism among Lux.Nat., to a 24% pro bilingualism among ‘Luxembourg including all nationalities’, and a strong 45% pro bilingualism for the rest of the world.

Taking the three categories together by summing them up, trilingualism is preferred by a total of 65% of all the respondents of this research, with 84% by Lux.Nat., 69% LuxAll, 52% rest of the world.

The other school’s option was equally chosen by the 3 categories: 36%, 37%, 37%, totaling up to 37% in the total batch of all respondents.

5. Results — Questionnaire’s Open Questions

Open questions aimed at providing deeper insights besides the above discussed categories (1) integration not separation of the population, (2) learn the three official languages of the country: L+D+F, (3) be prepared for the multilingual and multicultural reality in Luxembourg, (4) high failure rate given the fact that they do not understand the language of instruction especially in mathematics, biology, chemistry, history, and (5) pupils do not learn English well enough.

By keeping the three categories, (1) Lux.Nat., (2) Lux.All., (3) World, the open questions’ responses provided in-depth insight into serious reflections of directly concerned parents, whose children follow the Luxembourgish trilingual education system, or who consider doing so or who hypothesize in case of an eventual move to Luxembourg. Besides the above mentioned categories of advantages/opportunities and disadvantages/fears, here is what some of the respondents said:

Lux.Nat. respondent who is for the trilingual system	<i>“I followed the Luxembourgish school system and today I am very happy to have done it (as my origins are Portuguese). I must admit that it was very hard: German lessons and some matters (biology/geography) were given in German. I felt alone as nobody (my parents) could support me on a day to day basis with my homework. My child is in the Luxembourgish school system. I speak Luxembourgish, Portuguese and French with my own child...”</i>
Lux.Nat. respondent who is against the system:	<i>“... The Luxembourgish education system is not the best, pupils don’t have enough knowledge, following the PISA results, especially in sciences, biology, physiques, chemistry, philosophy. They only learn these matters by heart without any generation of own ideas or any creativity. ... Motivation in general is low. ... School teachers lack knowledge themselves and teach frontally without any inspiration ... What misses at their language level is the mastering of one language. Pupils express themselves badly in written and orally in all languages. ... Pupils’ only wish is to become school teacher or civil servant because of the fringe benefits. There is no real motivation, nor enthusiasm ...”</i>
Lux.All. respondent who is for the trilingual system:	<i>“... It is an enormous chance for our children to be given the possibility of learning three languages. ... Knowing to speak three languages opens up their mind for other languages, cultures and knowledge ... Yet, we should teach better our teachers. ... Today my son speaks five languages, despite the initial problems with German, he had needed extra tutorial lessons ...”</i>
Lux.All. respondent who is against the trilingual system:	<i>“... The requirements are too high. Strong pupils are able to follow, weaker not. Languages should be taught differently. French and German should be taught together from primary school on, and additionally offer extra tuition classes for weaker pupils. ... Luxembourg pupils have problems with French, whereas others with German. ... European School, International School, St. George ... are no public schools and therefore not for free ...”</i>
“World” respondent who is for the trilingual system:	<i>“I think a trilingual system best prepares a child for the realities of Luxembourg and Europe. However, as a teacher, I would certainly think there would be issues switching from one language in primary to a second language in secondary. It would be better to study in German and French all the way through. My husband and I are both bilingual English and Spanish, however, we tend to speak mostly in English out of habit ...”(Respondent from Canada)</i>
“World” respondent who is against the trilingual system:	<i>“I think the current system is too complicated to be followed by a Chinese family, because we were taught English in China, so it is very difficult to learn 3 new languages, not only for the child but also for the parents. I just feel this is too complicated ... Hope someday I will have the opportunity to visit Luxembourg with my child to experience the education system of your country.”(Respondent from China)</i>

6. Results — Interviews

Among the 36 interview responses the main themes already mentioned and questioned above re-appeared. (1) integration not separation of the population, (2) learn the three official languages of the country: Luxembourgish, French, German, (3) be prepared for the multilingual and multicultural reality in Luxembourg, (4) high failure rate given the fact that children do not understand the language of instruction especially in mathematics, biology, chemistry, history, and (5) pupils do not learn English well enough. Other themes were discussed. The interview responses were categorized into the three categories: (1) Lux.Nat., (2) Lux.All. and (3) World and following if

they are pro or contra the trilingual education system.

Lux.Nat. respondent who is for the trilingual system:	<i>"We absolutely have to stick to our trilingualism. This is our identity, our culture. It represents a challenge and at the same time our wealth. In France, in Alsace, there is a similar situation: they also have trilingualism: French, German, Alsatian, and the Alsatians also speak well English"</i>
Lux.Nat. respondent who is against the trilingual system:	<i>"The main issue is the division into 'Lycée Classique' and 'Lycée Technique' Integration is a complicated matter. The integration of the Portuguese children is lagging behind. The reality is that the good Luxembourgers go to 'Lycée Classique' where they speak Luxembourgish and German, but the bad Portuguese and French attend 'Lycée Technique' where they speak French"</i>
Lux.All. respondent who is for the trilingual system:	<i>"... We have to keep trilingualism at all costs. When I started going to school, I spoke only Italian as my parents only spoke Italian with me. I rapidly learned Luxembourgish, French and German and later English. But mathematics is a matter I just don't understand, in whatever language ... It's fantastic, with my language knowledge, I can travel everywhere in the world ... We have to continue to have our children develop in a multilingual society ..." (Respondent: Italian living in Luxembourg)</i>
Lux.All. respondent who is against the trilingual system:	<i>"... Time spent with the instruction of three languages is at the detriment of the matter of its own. At the moment children in Albania or in France study 'history' or 'mathematics', the real content of it, because the linguistic problems are not given. Here the language is dominant, not the content ..." (Respondent: Albanian living in Luxembourg)</i>
"World" respondent who is for the trilingual system:	Future research is needed to get an interview in this category. So far none has occurred.
"World" respondent who is against the trilingual system:	<i>"... Language is a highly contested subject in Québec in general and particularly in Montréal. I always refused that my children learn English at low age, because it is important that they master their mother tongue first before learning other languages ..." (Respondent from Quebec, Canada)</i>

7. Conclusion, Discussion Implication and Future Research

This research has brought light to the particular elements of trilingualism in Luxembourg. A huge majority respondents from Lux.Nat., Lux.All., and the rest of the world provided astonishingly similar answers. From the questionnaires, the written open questions and the interviews no significant differences in the results emerge. Only one question regarding preference of the system showed significant differences between Lux.Nat., Lux.All., and the rest of the world. Hypotheses 1, 2, 3 were validated. Trilingualism is part of the Luxembourgish constitution, namely Luxembourgish, French and German are the three official languages of the country. It is the characteristics of the country, it is its culture, its collective programming of their mind (Hofstede et al., 2010). While Cummins (2000) researches Canada's language situation-French-English-and García (2009, 2014) in the USA-Spanish-English — tends to translanguaging, Blackledge and Creese (2010) situate linguistic practices in their respective social, historical, cultural and political contexts, Brannen, Piekkari and Tietze (2014) combine language and management and Schinzel (2013) uses language as identifier.

This research paths the way for more studies in the field of multilingualism and multiculturalism. In a world of increasing separation, conflict, crisis and war, the integrative, tolerant system of Luxembourg may serve as an example for peace, integration, tolerance, and harmonious coexistence.

Luxembourg is searching for new visions. Right in the heart of Europe, Luxembourg fights for peace, integration, tolerance, harmonious coexistence among people from different race, color, and mother tongue, qualities that are becoming increasingly rare in today's world. Future research could investigate into a comparison with Canada, Alsace, Switzerland, China, combining language and management.

In conclusion, even though the language situation in Luxembourg has been subject to many discussions, debates and reforms, numerous questions concerning future developments remain unanswered: What will the future of Luxembourg look like? Where does Luxembourg go? Where does the current developments lead to? Will it be the multilingual integrative direction (Maurer-Hetto, 2008; Maurer-Hetto & Roth-Dury, 2008), or will it be

the monolingual, separatist direction? The ongoing continuous changes reflect the mood of modification that reigns. Luxembourg searches for its visionaries, just like Europe, in memory of Victor Hugo, Winston Churchill, Alcide de Gasperi, Robert Schumann, Jean Monnet, and Altiero Spinelli (Bumb, 2014, pp. 2-3).

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Improving Competitiveness of Traditional Textile Industry of Lurik through the Utilization of Intellectual Property Rights

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Abstract: Lurik is one of the Indonesian indigenous traditional woven types of cloth. This objective of this article is to describe the utilization of Intellectual Property Rights (IPR) to improve the competitiveness of traditional lurik woven cloth through the use of industrial trademark and design. The use of industrial trademark and design is able to improve the selling point of traditional lurik woven cloth.

Key words: revitalization; traditional lurik woven cloth; and Intellectual Property Rights (IPR)

JEL code: D

1. Introduction

Lurik is one of the Indonesian indigenous traditional woven types of cloth. The main motif of lurik cloth takes the shape of stripes which suggests the modesty of Javanese people in accordance with the origin of the word “lurik” which comes from *lorek* (in Javanese language). The existence of lurik cloth is getting marginalized by the presence of modern textile industry day by day. If this is not taken into serious account, then it is not impossible that the industry of lurik cloth will extinct within the next five years. The extinction of this industry will not only deprive the source of living for the people of the villages, but also eliminate one of the heritages of indigenous traditional work of Indonesian people. The industrial centers for traditional lurik woven cloth currently exist in some areas, such as Klaten, Yogyakarta, and Sukoharjo.

Lurik woven cloth has a very long history in Indonesia, particularly in Java, in accordance with the data from Sonobudoyo Museum of Yogyakarta as quoted by the Javanology Institute of Research and Community Service Institution of Sebelas Maret University (2012). The data from the inscriptions, literary works, statutes, and temple reliefs state explicitly that the tradition of woven cloth has been existing in Indonesia since the mid ninth century AD. It is stated in the inscription of King Erlangga (1033 AD) that there was lurik woven cloth with the *tuluh watu* motif (glittering or shining stone in Javanese language). This is confirmed by the finding of terracotta statues adorned in lurik woven cloth in the temples in Trowulan, East Java.

The researcher has gone through difficulties in finding the output of any previous research on lurik woven cloth through cyberspace tracking. It is nearly able to say that there is not any scientific research on lurik yet. The discussions on lurik have just been limited to those in the news of printed and electronic media. So, it can be said that this research is a pioneer in the field of the development of traditional lurik woven cloth.

The industry of traditional lurik is a small-scale business which has become one of the pillars of national

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economic security. The research conducted by Sulistyastuti (2004) indicates that the Small and Medium Enterprises (SMEs) hold an important role in the national economic sector of the developing countries. The existence of SMEs in a developing country is related to the efforts made by its government to overcome various problems, either economic or social, namely: reduction of unemployment, eradication against poverty, and equity of income.

The research conducted by Triyanto (2012) in Klaten and Yogyakarta points out that some efforts have been made in order to develop the industry of traditional lurik. Such development is conducted in terms of improvement in the quality of fabric and product diversification. However, such development has only been conducted in Klaten and Yogyakarta. Meanwhile, the industry of traditional lurik in Sukoharjo which is dominated by “crude” lurik has not received development assistance. Sukoharjo has escaped the attention since most people think Klaten and Yogyakarta are the only centers for lurik.

This paper focuses itself on the development of lurik in Sukoharjo regency by utilizing the system of Intellectual Property Rights (IPR). Such a utilization is made by changing the industry of traditional woven cloth into creative industry. The approach of IPR is made in the form of creating the works of industrial design with the fabric of traditional lurik. Industrial design is one of the forms of IPR which is very important to the industrial world.

The expediency of IPR on the economic development has been undoubted. The Washington Post 28 April 2001 reports that “. . . if there is one lesson in the past half century of economic development, it is that natural resources do not power economies, human resources do”. This statement reminds us that human resources hold more important role than natural resources in the economic growth. An expert on modern economy, Tapscott (1998) puts forward that “...the new economy is a knowledge economy and the key assets of every firm become intellectual assets ...”.

The objective of this research is to put forward a new perspective to the craftsmen of traditional lurik woven cloth so that they are willing to keep up with the advancement through time by making improvement and innovation on their industry. These revitalization and innovation are expected to make the selling point of lurik products able to increase in such a way that it can enhance the welfare of the village people. The increase in the selling point can also attract the interest of people of young generation to occupy themselves diligently with the industry of lurik. More than that, the preservation (pelestarian) of the industry of lurik implies the preservation of national asset as well.

2. Review of Literature

The role of IPR in the economic development is already undoubtedly significant since the countries in possession of the non-physical asset (intellectual asset) or the type of asset on the basis of science and technology contributes wealth much more than those physically-based asset or natural resources in accordance with a lot of data. The developed countries, such as the United States of America, were in possession of the sources of revenue from the intellectual asset on the basis of science as much as 36.5% of their Gross National Product (GNP) in 1980. So were Japan, Korea, and Singapore. They have been more developed than Indonesia which is rich in natural resources (Junus, 2003).

There are several advantages which can be obtained from the system of IPR in the economic development (Junus, 2003; Priharniwati, 2004):

- (1) To create conducive climate for investors;
- (2) To accelerate industrial growth, create new employment, boost economic growth, improve the quality of life of human beings by fulfilling the needs of human beings in widely;
- (3) To provide legal protection as well as to drive the creativity of the people;
- (4) To promote the dignity of human beings and Indonesian people;
- (5) To improve the productivity, quality, and competitiveness of the product of the economy of Indonesia;
- (6) To raise the position in trade and investment;
- (7) To develop technology;
- (8) To drive companies to compete internationally;
- (9) To help the commercialization of an invention;
- (10) To maintain international reputation for the importance of export.

The utilization of IPR for SMEs holds an important role in business development. This is in line with the opinion of the Head of IPR Division of Bandung Technology Institute Nyoman Pugeg Aryatha who states that there are actually many advantages for the doers of SME to register their product for IPR, such as protection to prevent any other party from taking advantage without permission from the proprietor of the right. In addition, product patent right will affect the increase in the selling price of the product. The registration for IPR also holds the role to prevent piracy which can inhibit the development of SMEs (*bisnisJabar.com*, 2011).

As released in *bisnisukm.com* (2012) the utilization of IPR for SMEs is highly important in their business development. There are more than 60 million technologies which can be accessed for free by making use of IPR regime. So, businessmen can learn, make use of, and develop them. The potency of business activities of SMEs for IPR globally includes such rights as copyright, trademark/service mark, industrial design and even patent and simple patent. An SME which operates in the field of shoe-making industry, for instance, has such existing potencies for IPR as the copyright for the pictures of its designs of shoe, the protection of industrial design for its designs of the shoes, the protection of trademark for the trademark labelled onto its shoe product.

The utilization of this system of IPR for the industry of traditional lurik woven cloth can be started by registering trademark. The word 'lurik' has been registered as a trademark to the General Directorate of IPR of the Ministry of Justice and Human Rights. The trademark 'LURIK Suyatmi' has also been registered in order to help its craftsman to promote the business. Such an administration of trademark is important in order to have the branding of a product. In addition to trademark, IPR is utilized in the creation of industrial design as one of the IPR regimes (Triyanto, 2012). The definition of Industrial Design in accordance with Law Number 31 Year 2000 is as follows:

“a creation on the shape, configuration, or composition of either line or color, or both line and color, or their combination which comes in three-dimensional or two-dimensional shape, gives aesthetic impression and can be manifested in three-dimensional or two-dimensional pattern and used to produce a product, stuff, industrial commodity, or handicraft.”

3. Methodology

3.1 Type of Research

This paper is the output of research and development (R&D). Research and development is the method of research used to generate a certain product and to test the effectiveness of the product. The research with research and development type includes the steps elaborated as follows (Sugiyono, 2008):

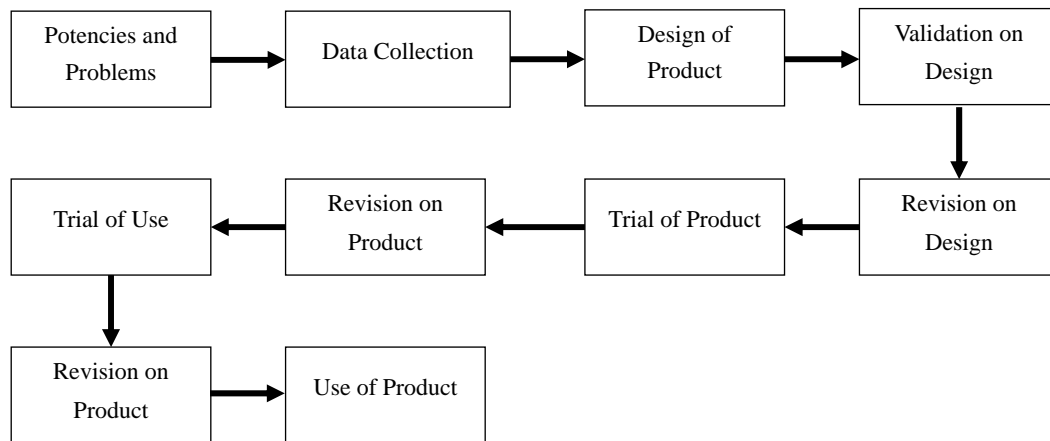


Figure 1 Steps in Research & Development (R &D)

3.2 Data Collection

The data of this research were gathered through library research, observation, and interview. Library research is the search for literature information which describes both of the previous and current views on the topics of the researches contained in the journals, books, and other like documents. Library research is also useful to gather the literature relevant to the topic of the research (Creswell, 2008). The instruments used in the documentation study took the form of the documents containing the outlines or the category with the data searched.

Field observation was conducted by the researcher in order to pay particular attention, see, and listen carefully. The researcher used all senses to record what was seen, listened to, smelled, felt, and touched. The researcher became the instrument to obtain information on field (Neumann, 2006). This research was conducted by making direct observation. The direct observation was conducted in this research in order to see the process of making, selling, and distributing lurik woven cloth in the market. The locations of the observation consisted of Sukoharjo, Klaten, and Yogyakarta.

This research used two interview models. Those models were structured and unstructured interviews. The instrument of written guide for interview was used prior to interviewing and the informant was previously informed by the researcher of the agreement on the place and time of interview as well as the hints of content of the interview in this research. Meanwhile, there was not any standard guideline used in the unstructured interview. The researcher was going to ask, listen, feel, and record all that was informed by the informant naturally/informally (Neumann, 2006).

3.3 Data Analysis Technique

This research used qualitative data analysis technique. Such a data analysis consisted of three stages conducted simultaneously, namely: data reduction, data display, and conclusion drawing/verification. The data reduction was the process of selecting, focusing, simplifying, abstracting, and transforming the “crude” data gathered from the field notes. Data reduction is a type of data analysis which aims at sharpening, classifying, focusing, omitting the unnecessary data, and organizing the data to have the final conclusion. Data display was made by presenting a group of information arranged in a simplified unity of form with selective configuration which is easy to use in order to be possible to make a decision. After the data are presented well in an organized way, conclusion drawing or verification is conducted (Miles & Huberman, 1984). The interactive analysis model of Miles and Huberman can be seen in Figure 2.

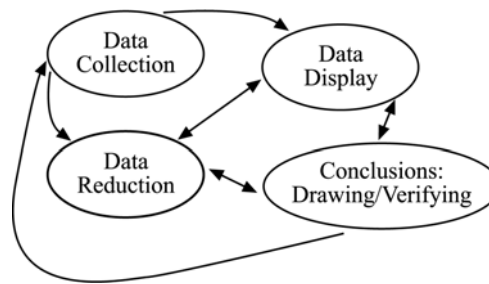


Figure 2 Components of Data Analysis: Interactive Model

4. Results and Discussion

4.1 Constraints in Development of Traditional Lurik Woven Cloth

The results of the research conducted by Triyanto (2012) in Tawang village, Weru subdistrict, Sukoharjo regency point out that the development of the industry of traditional lurik woven cloth goes through some constraints viewed from the aspects of production process, quality, product diversification, selling point, marketing, and regeneration.

4.1.1 Technological Constraint

Traditional lurik woven cloth is created through a very complicated and long process which involves handwork with a lot of exertion. The process starts from buying cloth, and then washing, dying, starching upon the cloth, vaporizing the starch, and then drying, spinning, first rolling, second rolling, and weaving the starched cloth. All of the process is done manually by relying on the handwork with a lot of exertion.

The lack of technological support becomes the general problem faced by SMEs. (Sudaryanto, 2005; Mizar et al., 2008). Such a problem faced is related to the utilization of science and technology which is still for minimum in the world of such an industry. This is caused by some factors. The still limited access to the sources of information and technology as well as the service of science and technology are to mention but a few. The other problem which become the constraints for SMEs in increasing their business scale is among others the low quality of the resources (physical, mechanical/equipment, human, and fund) as well as the management (Ministry of Industry and Trade, 2005).

The use of technology in the industry of traditional lurik woven cloth is not intended to replace Non-Machine Weaving Equipment (NMWE) since we may not eliminate the particular characteristics of the traditional woven cloth produced by using NMWE. Modern technology is needed in the preparation process toward the weaving process with the use of NMWE. Thus, the production line can be cut in such a way efficiency in the production process can be made.

4.1.2 Quality Constraint

The product quality still becomes the major problem in the development of SMEs in accordance with the research conducted by Sriyana (2010). This also happens in the industry of lurik woven cloth in Sukoharjo. The lurik woven cloth produced in Sukoharjo is different from that produced in Klaten and Yogyakarta. Such lurik cloth is the type of lurik cloth which tends to be coarse due to the use of coarse thread from tetron/TC fabric. In addition, the weavers in Tawang village in majority are elderly people and less skilled. Even though they have been given fine (cotton) thread, their lurik product is not maximal in quality. The weavers in Sukoharjo has escaped the attention of various parties all this time in such a way that they still cannot grow for maximum. The attention to the industry of lurik woven cloth has been focused more on those in Klaten and Yogyakarta all this time.

4.1.3 Product Diversification Constraint

The lurik weavers in Sukoharjo sell their product in the form of sheets of greige. They bring their product directly to the nearest traditional markets. There are also some market merchants who come directly to the weavers to buy their lurik cloth. This kind of sale causes the expediency of woven cloth to be limited to the daily needs of the villagers, such as to carry basket, to be made the clothes of elderly people, and other purposes related to the daily activities of the villagers.

The significance of product diversification is in line with the result of the research conducted by Laksono (2004) which states that the ability of a company to generate profit increases significantly following the launching of its new product. It is concluded out of such an analysis that the policy of product diversification made by the industry has a positive effect on the business development.

4.1.4 Selling Point Constraint

The sale of lurik woven cloth in the form of sheets of greige has caused the its selling point to be very low. One sheet of cloth sized 60x300 cm, for instance, is only priced IDR 20,000.00 for maximum. Some certain types of cloth of the same size are even priced only IDR 8,000.00. The laborious effort and hard work of the weavers do not get proper appreciation. This is contrary to the fact that it is such a complicated process to make woven cloth which requires special skill and a lot of physical exertion.

4.1.5 Marketing Constraint

The utilization of traditional lurik woven cloth is dominated by the people from low social and economic class. They utilize lurik cloth for their daily needs, such as to carry goods when they go to the market or rice field and to wrap the goods bought in the market. The market segment of people from low social and economic class causes the selling price of lurik to become very low. As well, the weavers can only sell their product in local market. They have not had known where they should sell their product to obtain higher price. The problem in marketing is the problem which small and medium enterprises (SMEs) in general face. The research conducted by Sriyana (2010) on the SMEs in Bantul, Yogyakarta points out that marketing still becomes the major constraint in the development of SMEs.

4.1.6 Regeneration Constraint

The low wage and gloomy prospect causes the people of young generation to be uninterested in becoming weaver. The lurik craftsmen cannot afford to pay the weavers with proper amount of wage since the selling price of lurik is low indeed. The weavers in majority are elderly people at the present. The weaving activity is only intended to spend the leisure time while waiting for the harvest season when they reap their crop in the rice field. On the other hand, they prefer working in the rice field with the higher amount of wage when the harvest season comes. The industry of traditional lurik woven cloth in majority is currently getting into the last generation. If the industry is not sustained by the young generation, then it can be assured that this industry will immediately be left in the memory.

4.2 Utilization of IPR in Developing Traditional Lurik Woven Cloth

This study focused two-utilization of intellectual property rights, namely patents and industrial designs. The use of patents and industrial designs are very useful to improve the efficiency of the industry and the increase in the value of the product.

Technology can reduce the use of human labor. Use of technology is not intended to replace the traditional weaving with modern machinery. Use of the machine is only used to reduce human labor before manual weaving.

4.2.1 Patent Approach

The use of patent (modern technology) is not to replace traditional machines. The technology is used to reduce the use of human labor in the processing threads before weaving. The use of technology is expected to improve the efficiency of the industry. Traditional machine is still used because it has cultural values that need to be preserved. .

This study resulted in the use of technology to reduce manpower namely *winding machine*. This technology has been registered at the Directorate General of IPR and patent registration number S00201300316 dated December 9, 2013.



Traditional machine
(before)



Winding machine
(after)

Figure 3 Winding Machine for Traditional Weaving

4.2.2 Industrial Design Approach

Utilization of industrial design aims to increase the sale value of traditional Lurik cloth. Previously the weavers only sell fabric in the piece of cloth with a lower selling price. Utilization of industrial design can increase the sale value Lurik traditional cloth by 50%.



Before (raw clothes)



After (art lamp)

Figure 4 Industrial Design Development for Traditional Cloth of Lurik

5. Conclusion

The improvement in the competitiveness of traditional lurik can be made by making use of the system of IPR. The trademark and industrial design are two regimes of IPR which can be utilized to have creation and innovation the industry of traditional lurik. The Sukoharjo lurik is more suitable to be developed into handicraft product on

the basis of its tendency to have coarse characteristic. If this lurik is intended to be produced as fashion product, then it would better focus itself on the production of clothes for segmented market target, which is middle and higher social and economic class in order to have proper selling price.

6. Recommendations

Based on the research results and conclusions above, then to save the traditional weaving industry Lurik needs to be done the following things:

- (1) Lurik traditional weaving industry needs to get a 'touch' of IPR, especially brands, industrial designs and patents to increase competitiveness;
- (2) Lurik traditional products must be sold as a finished, not raw fabrics to obtain a fair price then;
- (3) Lurik traditional weaving industry needs to take advantage of the technology, especially in the process before weaving;
- (4) The younger generation needs to be introduced to the importance of maintaining traditional Lurik as one of the nation's cultural heritage.

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Acting Together: How Rural Tourism Can Promote Sustainable Human Development?

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Abstract: In recent years, the diversification of livelihoods for people in rural areas has become the leading concern in developing countries. Under the pressure of a growing population and the process of industrialization and urbanization, on the one hand, and climate change, on the other hand, an increasing number of people, living in rural areas, have to leave the agricultural sector and look for unstable jobs in urban cities. This paper aims to describe and analyze the value chain of the rural tourism sector in Vietnam. Although the development of the Vietnamese rural tourism sector is still in its early stages, this paper argues that it could be a solution for rural people to stay in their villages and to face the aforementioned challenges to their livelihoods. Rural tourism can therefore actively contribute to rural development if local people use their collective agency to enhance the development of this new sector. In doing so, they will not only create new opportunities for themselves, but will also contribute to the sustainable human development of their communities. Developing this sector, however, is only possible if rural communities act together. Through their collective action, they are able to generate and enhance their individual and collective capabilities thus promoting sustainable human development in their communities.

Key words: collective capability; rural tourism; sustainable human development; Vietnam

JEL code: O

1. Introduction

Rural tourism is a segment of the tourist industry which is newly developing in Vietnam since around 10 years. There are many reasons for the growing interest of administrators in rural tourism. On one hand, the development of rural tourism would be a key to the diversification of tourist supply. On the other hand, it is also a necessary measure to reduce poverty and stimulate the economic growth by improving the living standards of local people in undeveloped regions.

This paper aims to describe and analyze the value chain of the rural tourism sector in Vietnam. Although the development of the Vietnamese rural tourism sector is still in its early stages, this paper argues that it could be a solution for rural people to stay in their villages and to face the aforementioned challenges to their livelihoods. Rural tourism can therefore actively contribute to rural development if local people use their collective agency to enhance the development of this new sector. Through their collective action, they are able to generate and enhance

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their individual and collective capabilities thus promoting sustainable human development in their communities.

2. Concept of Rural Tourism

Rural tourism includes several activities and services offered and run by the population living in rural areas which showcase rural life, art, culture and heritage. As its concept appears to be broad enough, rural tourism covers not only agritourism or farm tourism, but also ecotourism and other rural based types of holiday.

Formally, the concept of rural tourism has not yet been mentioned in legal documents or local plans of development in Vietnam. In practice, however, this type of tourism has been developed in several localities, spread out from the Northern mountainous areas to Mekong Delta region in the south.

The services of rural tourism in Vietnam could be named as:

- Visiting the beautiful places, historic and cultural sites, farms, handicraft villages and participating in village activities;
- Catering service with local food and products;
- Shopping for local specialties and souvenirs;
- Lodging service;
- Vehicle rental/transport services.

3. Rural Tourism and Rural Development

Vietnam's economy is experiencing the structural shift from agriculture to industry and services. At present, the per capita income in rural areas is approximately two times lower than in the urban areas (GSO, 2012) and the income gap tends to become wider. Meanwhile, the investment and employment opportunities seem mainly concentrated in urban areas. In that context, there will be an inevitable trend of spontaneous migration, which has been proved by research that it would tear the social fabric of rural areas, encouraging deforestation and growing the pressure on the economy, society and environment in urban areas. Thus, in the long term, it is essential to find solutions to the rural development as well as the improvement of farmers' living standards.

In fact, the structural transformation from agriculture to non-agriculture would face hidden risks and challenges. Therefore, initially should only a part of agriculture sector be shifted to rural tourism and agricultural activities then will support the development of rural tourism. Conversely, the development of rural tourism will also contribute to increased reinvestment in agriculture sector. Tourism in general and rural tourism in particular have contributed relatively well to the poverty reduction, especially in remote areas. According to Mitchell and Le (2007), a minimum of 26 percent of tourism spendings had been within the hand of the poor.

The development of rural tourism will also help to reduce poverty through economic development, maintaining and expanding handicraft industry while at the same time contributing to heritage conservation and environmental protection. Besides, the condition of infrastructure, such as roads, canals, irrigation, power and information networks in rural areas would be also improved.

4. Rural Tourism's Value Chain

This paper adopts the value chain approach which was proposed by R. Kaplinsky and M. Morris. "The value chain describes the full range of activities which are required to bring a product or service from conception,

through the different phases of production..., delivery to final consumers and final disposal after use” (Kaplinksy & Morris, 2002). The value chain approach identifies the actors through the chain, as input suppliers, producers, processors, and traders. In order to develop the value chain of the rural tourism, the following elements were analyzed: markets, horizontal and vertical linkages, environment and institutional supports.

4.1 Rural Tourism Markets

Demands in the whole tourism market increased in the last years. According to General Statistic Office (GSO), in 2010, there were 8,234,200 incoming tourists go through all tour operators, so with 68% more than in 2006. Among this total, 2,385,800 tourists are foreigners, with more 25% than in 2006.

Concerning the customers of rural tourism in Vietnam, foreign visitors still dominate the market. Domestic customers seems focus primarily on the traditional type of sea tourism, not yet the rural areas.

However, the economic development in Vietnam after Doi Moi (rennovation) has raised the needs for leisure activities, including traveling. Besides, similar to the early stage of the rural tourism development in Western societies, there is a high demand of rural residents going back to the countryside on vacation after migrating to urban areas for employment and settlement. The rural tourism therefore has a lot of space to grow.

4.2 Horizontal and Vertical Linkages

Linkages are the most important factors for the operation of the value chain. Horizontal linkage refers to the relation between actors, which enable and increase the scale of operation and their power of bargaining in the value chain, while vertical linkage relates to the connection between farmers and purchasers of their products and services (tour operators) enable farmers to have more security in the sale of outputs (contractual arrangements).

In Vietnam, the horizontal relations of actors in the value chain of rural tourism are characterized by competition as well as cooperation. The survey in Vinh Long province reveals some travel companies hire or purchase the locations of homestay accommodation to compete with the local farmers. Meanwhile, survey in Ba Be district, Bac Kan province revealed that the households in Pac Ngoi village cooperated with each other when they received a large tourist group that exceeded the capacity of a single household. The cooperation between farmers is a source of competitive advantage. In 2012, the Association of Tourism Service Providers of Ba Be district was created with 63 members, including farmers providing all kinds of tourist services as hosted accommodation services; catering (restaurant) services; transport services...

Besides, the vertical integration in the value chain is very loose. Farmers and customers often do not obtain full information about each other. The relation between tour operators and farmers is usually an one-way linkage, which is obviously in favour of the businesses. The situation has lead to two consequences: *first*, the service provided by farmers hardly meet the requirements of customers; *second*, due to the lack of transparency of intermediary actors, customers likely have to pay much higher than the prices that farmers are actually paid. Survey results in Sapa, Lao Cai province showed that homestay tourists pay directly to travel companies instead of the host families. That means after welcoming guests, the hosts have to wait for the payment and at the price that is decided by these companies. In some cases, the tour operators provide the food for the hosts to cook and only pay them for the accomodation, no other service charges.

Despite the fact that farmers are the providers of products and services, they have no direct contact with customers but act through tour operators who play a decisive role in the value chain. As a result, the farmers remain the most vulnerable actors of the chain. According to a 2013 survey in two communes of Ta Van and Ta Phin, Sa Pa district, Lao Cai province, the households often have to advance all their spendings when receiving visitors. Only later tour operators will pay them back. Consequently, when the tour operators lower their prices to

better their competition, the farmers would be the first to suffer. The delay in payment is also their frequent risk. Moreover, the households themselves also humbled their prices to compete with each other, making increasingly poor quality of the service.

4.3 Environment and Institutional Supports

A present drawback of Vietnam's tourism in general, including rural tourism is that farmers appear to be the outsider of all tourism development programs. In other words, the development of tourism in Vietnam still favour the public and private sectors rather than farmers. This leads to long-existing problems in Vietnam such as harassing and overcharging (cheating) visitors or providing poor service quality. The development of tourism in such a way has brought many negative consequences instead of positive effects on the social life and rural environment, and has ruined gradually the cultural identity of many localities.

In Vietnam, rural tourism is still in its infancy and spontaneity without any specific undertakings of governments at all levels nor financial support. On the contrary, farmers have to pay cost for the qualification of their lodging facilities. Moreover, when there is a need of financial mobilization, the households engaged in tourism always seem to contribute more than others as they are assumed as the richer than the neighbourhood.

On training programs, these households enjoy free attendance in tourism training courses offered by professionally related bodies. For example, the health agencies would provide training on safety for catering services, while tourism bureau would organize classes on tourism knowledge. The training costs would be covered by the state budget. However, because rural tourism is only a sub-sector of the tourism industry without particular policies guided by local governments, the training activities focus mostly on hospitality skills. The surveys in provinces of Vinh Long, Ben Tre and Tien Giang showed that 100 percent of households providing homestay services participated in annual tourism training classes. However, they said that some professional skills, such as room service, were designed for hotels rather than family housing. The training courses should be more relevant and tailored to rural tourism. In addition, the training program of food safety which remains unchanged over the years has discouraged the participation of farmers.

5. Human Development and Collective Capability Perspective

The analysis of the Vietnamese rural tourism value chain leads to the following ideas: to fulfil all its roles, rural tourism has to be developed in a way that ensures the long-term sustainability. Additional, local people need to involve to this process in an active way. In doing so, they will not only create new opportunities for themselves, but will also contribute to the sustainable human development of their communities. As a result, a better horizontal/vertical relationships in the value chain may lead to new prospective.

The capability approach developed by Sen (1987) provides a welcome broadening of vision in the field of human development studies. Based on welfare economics, this approach propose "the expansion of the 'capabilities' of people to lead the kind of lives they value — and have reason to value" (Sen, 1999). This analytical framework may be used to understand how local people can use their capabilities to enhance the development of the rural tourism sector. Briefly, local people have access to endowments (natural landscape and financial capital) and opportunities (rural tourism markets and public policies) which, combined with personal characteristics (i.e., specific skills, developed through learning or learning-by-doing process), are converted into a set of capabilities (doings and beings), some of which are chosen and become achieved functionings.

Gereffi et al. (2005) make a distinction between five types of governance for the value chains: market, modular, relational, captive and hierarchical, which is characterized by two criteria: the degree of coordination and the degree of asymmetry in power. The current Vietnamese value chain of rural tourism indicates a low level of coordination and a high degree of power asymmetry. Once the power of the actors is unequally distributed, the decision-making capacity cannot be the same for all actors.

According to Evans (2002), to enjoy a full range of capabilities, collective action may provide an arena for formulating shared values and preferences, and instruments for pursuing them. In addition, rural tourism, it is argued, is also a means to protect the environment and to preserve the cultural-historical heritages of rural communities, which is something we rarely can accomplish as individuals. Developing this sector, in fact, is only possible if rural communities act together. In a microeconomic perspective, the capability approach is ultimately about equating individual freedom (rural tourism activities) and collective development (environment & heritages protection) (Sen, 1999). Achieved functionings stand for achieved happiness, in this case, means a sustainable rural tourism development.

Organized collectivities are necessary to exploit the opportunities and to enlarge the capabilities of local people (Evans, 2002). Besides, the gathering endowments can provide a comparative advantage in the production of tourism thus contributing to positive overall objective. With the objective of integrating, once applied to the value chain, collective capability describes the interconnected links which exist between the various actors within the chain.

In Vietnam, there are several types of collective organizations, as farmer's union, women's union, cooperatives, etc. However, most of these organizations often operate in a formal way, without the initiative of members. Farmers still need a more active form of collectivity (e.g., the Association of Tourism Service Providers of Ba Be district), to process their collective action.

This approach also leads to analyzing the role of public policy in bringing together commodities and converting it's into a set of rural tourism products. Public policy, taking importance of collective action, should focus efforts to stimulate and sustain mass organizations. The latter are actually seen as an actor supporting for farmers.

6. Conclusion

In summary, with the advantages of rural communities and a large rural population, the potential of rural tourism development in Vietnam is obvious. However, the spontaneous development of rural tourism in passing years have showed instability. Due to the scatter and lack of comprehensiveness of small-sized households doing rural tourism, the potential and sustainability of the sector has not been ensured. Thus, rural tourism should be seen as a combination of sustainable tourism and rural development and there should be a proper strategy for the sector right from the beginning. In a near future, the formation of rural tourism associations at the local level should be also considered seriously.

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