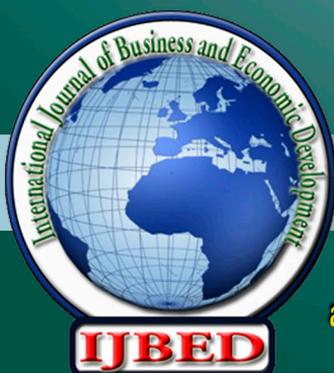


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An African View on Global Business Ethics: Ubuntu – A Social Contract Interpretation

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Keywords

Ubuntu, ISCT (Integrative Social Contract Theory), hypernorms, authentic norms, macro- and microsocial contract, communitarian

Abstract

In recent years there has been growing interest in Ubuntu, a communitarian African philosophy based on virtues such as tolerance, reciprocity, compassion and harmony. Several authors have suggested theoretical ways in which it might be applied to the field of business management and business ethics. This paper tries to show, that applying the categories of business ethics as proposed by Donaldson/Dundee's Integrative Social Contract Theory (ISCT) to the communitarian Ubuntu philosophy can provide a special approach to global business ethics. The paper clarifies in which way Ubuntu values are particular to Africa and universal at the same time. It also shows that 'harmony' in the sense of Ubuntu demonstrates similarities with Japanese and Chinese managerial practices.

1. Introduction: Ubuntu Philosophy

A unique feature of the sub-Saharan culture is its non-individualistic character. Community is a striking feature in African thought and life. According to Yusufu Turaki: "People are not individuals, living in a state of independence, but part of community, living in relationships and interdependence" (Turaki, 2006: 36). Most scholars define Ubuntu as a communitarian ethic quoting the African aphorism: 'umuntu ngumuntu ngabantu' which was translated by Mbiti as "I am, because we are; and since we are, therefore I am" (Mbiti, 1989: 106). Gyekye cites an Akan proverb to explain the relationship between society and the individual, which reads "The clan is like a cluster of trees which, when seen from afar, appears huddled together, but which would be seen to stand individually when closely approached" (Gyekye, 1997: 40).

As a Nguni word, Ubuntu is South African, but there are equivalents in Tswana and Shona. The concept has extended to Kenya, Tanzania, Mozambique, Angola and the Democratic Republic of Congo and reflects sub-Saharan Africa as a whole. There are even parallels between Ubuntu and the ancient Egyptian concept of Maat.

Africa's achievements and genius lie in social and spiritual spheres, and hence imitation does not give them competitive advantage. Africa can win in a global economic arena if it draws on its spiritual and social heritage. The fight against Apartheid has demonstrated that the collective solidarity of the African people and the spirit of Ubuntu can be harnessed for transformation (Mbigi, 1995: 4).

Ubuntu is of global relevance and provides a model for other countries in this environment of inequality and historical division. Shutte (2001: 4) is "...not thinking mainly of a political experiment but of an ethical one, an experiment in trying to live by values that have been hidden or forgotten."

As shown by this paper, this ethical experiment needs a stronger theoretical foundation. Interpreting Ubuntu by means of ISCT can provide a requisite theory for (global)-business ethics consistent with the traditional values of sub-Saharan Africa and those of Asia.

2. Methodology and Application of Integrative Social Contract Theory (ISCT)

For many years, research in business ethics had mainly applied normative or descriptive methods. Researchers with a philosophical background used purely normative, non-empirical

methods for their study of business ethics, whereas management scholars trained in descriptive empirical methods applied their own techniques. Normative approaches to business ethics identify moral principles and methods of moral reasoning that justify judgements of what is ethically right or wrong, thus guide us through what we ought to do. Descriptive approaches, however, focus on the “is” of economic affairs, including attempts to describe or model ethical decision making, as well as empirical studies of ethical attitudes and/or behaviours of different communities and populations (Dunfee/Smith/Ross,1999: 149).

Donaldson and Dunfee tried to solve this lack of integration by interconnecting the normative and empirical approaches in business ethics. They presented a normative theory which “incorporates empirical findings as part of a contractarian process of making normative judgements” (Donaldson/Dunfee, 1994: 254). Bridging between the “is” and “ought” should follow as Donaldson and Dunfee argued: “We label the theory we are proposing integrative social contracts theory (ISCT) because it integrates two distinct kinds of contracts. The first is a normative and hypothetical contract among economic participants, a social contract similar to the classical contractarian theories in philosophy and political economy. This general contract, in turn, defines the normative ground rules of creating the second kind of contract. The second is an existing (extant) implicit contract that can occur among members of specific communities, including firms, departments within firms, informal subgroups within departments, national economic organizations, international economic organizations, professional associations, industries, and so on. The aggregate of these extant social contracts contains much of the substance of business ethics. We believe that this way of conceiving business ethics not only helps one in understanding the normative justification for business decisions, but it also helps one in reaching such decisions” (Donaldson/Dunfee, 1994: 254).

The authors also sought to avoid extreme relativism and extreme universalism. The position of ethical universalism implies that there exists a set of universally binding norms. These norms direct people to behave everywhere in exactly the same way as they do at home. According to relativism, the ethics of a particular culture is no better than any other and therefore there are no international rights and wrongs (Donaldson, 1996: 4f).

ISCT provides a middle position between relativism and universalism, allowing a substantial “moral free space.” ISCT is identified as pluralism, since it takes into account different cultures and communities with their different norms and values. Furthermore, it suggests that context plays an important role in ethical decision making. Thus, relativism is avoided. ISCT also suggests that some trans-cultural norms (“hypernorms”) are superior to other norms, which avoids extreme relativism (Donaldson/Dunfee, 1999: 19ff). It follows that the theory helps managers to recognise the importance of their own cultural values like the philosophy of Ubuntu without losing sight of fundamental moral commitments (Burg, 2009: 665).

Consequently, the ultimate purpose of ISCT is to provide a stable, normative framework for practical moral decision-making in international business operations. Subsequently it is shown that Ubuntu, as a communitarian philosophy like ISCT, can provide a particular approach to global business ethics when its philosophy is interpreted by means of the following ISCT-categories:

1. Identifying relevant communities
2. Authentic norms
3. Hypernorms and micro- and macrosocial contracts.

These categories, if interpreted in the context of Ubuntu philosophy, provide a sketch of theory of global business ethics.

3. Identifying Relevant Communities and Different Interpretations of Ubuntu

Applying ISCT to “African ethics” in the sense of Ubuntu has to start at identifying the key communities for the decision-making process. At this point it has to be made sure that all significant communities which may be affected by a particular business practice must be considered by the identification process of key communities. A community is defined as “a self-defined, self-

circumscribed group of people who interact in the context of shared tasks, values, or goals and who are capable of establishing norms of ethical behavior for themselves" (Donaldson/Dunfee, 1999: 39). Identifying relevant communities related to "African ethics" comprises "values associated with the largely black and Bantu-speaking peoples residing in the sub-Saharan part of the continent, thereby excluding Islamic Arabs in North Africa and white Afrikaners in South Africa, among others" (Metz, 2007: 321). However, the core element of the definition of an ISCT community consists of the capacity of an identifiable group of people to develop authentic norms (Donaldson/Dunfee, 1999: 100). Authentic norms are authenticated and accepted by the uncoerced consent of the majority of a community (Donaldson/Dunfee, 1999: 38f). One requirement for the authenticity of a norm is that the norm has to be supported by attitudes and behaviour of the community (Donaldson/Dunfee, 1999: 90-94). Authentic norms are primarily designed to maintain cultural sensitivity, as they ensure tolerance and respect for cultural diversity (Douglas, 2000: 103). There are various ways to join or become a member of a community. The membership in a community can result from contractual commitment, or just from participation in a group and being acknowledged by others as a member of that group (Donaldson/Dunfee, 1999: 41). The definition of a community allows a great, open-ended, variety of economic communities. Consequently, defining the boundaries of a community is one of the challenging issues in applying ISCT (Dunfee/Smith/Ross, 1999: 30).

In search for potential key communities for interpreting African ethical theory the key insight is that persons depend on persons to be persons, *umuntu ngumuntu ngabantu*. This gives the African conception of community its distinctive character. There are two main, however, opposing versions of recognising a community: The individualist version that underlies liberalism and capitalism and the collectivist version that underlies socialism and communism. They can be differentiated according to the priority that is given to the importance of the individual or to society as a whole. African scholars try hard to distinguish between these and the African idea of community. "Leopold Senghor, has coined the term 'communalism' and speaks of a 'community society' in order to distinguish the African conception from European collectivist theories such as socialism and communism" (Shutte, 2001: 26). "Negro-African society is collectivist or, more exactly, communal, because it is rather communion of souls than an aggregate of individuals" (Senghor, 1964: 49).

The search for potentially relevant communities which may have a stake in ethical decisions should start with the parties directly affected by or involved in business decisions. Such parties can constitute a community by themselves, but they can also be members of broader communities that might have norms relevant to the decision, such as communities of members of an entire profession, tribe, or nation. Simultaneously, it has to be taken into account that there may exist sub-communities that have ethical rules which are different from those of a broader community. In this direction Gyekye (1992) criticises the African view that African social order is through and through communal. It ignores or even denigrates the idea of individuality in African social thought and practice. He argues that the individual person takes precedence over that of the community sources in the thought of the Akan, the largest ethnic group in Ghana. In terms of ISCT, Akan is a sub-community, because Akan thought interprets the community differently. In Akan a community is a communion of individuals rather than one of souls. In terms of business management Akan people recognise their firm as a collection of individuals rather than as a community.

"What Akan/African social thought attempts to do is to integrate individual desires and social ideals; it attempts, that is, to integrate and keep in creative balance individual uniqueness and social participation" (Gyekye, 1992: 13). This contrasts with the African conception of "breathing together they have one breath, one spirit, one heart. A community is a unity of a uniquely personal kind" (Shutte, 2001: 27).

A good way to move on is Thaddeus Metz's theoretical foundation of Ubuntu which provides the means to specify the concept of community more precisely. He evaluated six different theoretical

interpretations of the concept out of which he himself already rejected four as unsatisfactory. Hence, we consider the two remaining ones:

“U4: An action is right just insofar as it positively relates to others and thereby realizes oneself; an act is wrong to the extent that it does not perfect one’s valuable nature as a social being” (Metz, 2007: 331).

“U6: An action is right just insofar as it produces harmony and reduces discord: an act is wrong to the extent that it fails to develop community” (Metz, 2007: 334).

Metz rejects U4 “probably the dominant interpretation of African ethics in the literature” (Metz, 2007: 331) and he accepts U6 as “the most promising theoretical formulation of an African ethic to be found in the literature” (Metz, 2007: 334). He concludes further “... the common idea that Ubuntu prescribes self-realization through communal relationships (U4). What is largely doing the work in this view, I submit, is not the focus on self-realization, but rather the communal relationships. Focusing on relationships, as opposed to self-development, presents an interesting contrast to what is dominant in Western ethics and in any event better coheres with firm moral judgements about when, how and why to help others” (Metz, 2007: 340). Reconciling self-realization and communalism can be expressed in Tutus fundamental requirement to promote harmony in his following characterization of Ubuntu:

“Harmony, friendliness, community are great goods. Social harmony is for us the sum mum bonum – the greatest good. Anything that subverts or undermines this sought-after good is to be avoided like the plague. Anger, resentment, lust for revenge, even success through aggressive competitiveness, are corrosive of this good (Tutu, 1999: 35)”. (Metz, 2007: 334).

Consequently, it is possible to interpret “a person is a person through other persons”, in such a way that both U4 and U6 are true. The actions that produce harmony, reduce discord and develop community are simultaneously the actions that perfect one’s valuable nature as a social being. Now, it can be stated that an “African pedigree is the requirement to produce harmony and to reduce discord, where harmony is a matter of identity and solidarity” (Metz, 2007: 340). Metz is aware that this theory is still incomplete and imprecise in many ways.

It has to be emphasized that ethics of harmony and the African idea of community underlie all traditional customs and institutions. Relevant to ethics are the clan, the indaba, the extended family, the ancestors, the earth as the home and property of humanity as a whole (Shutte, 2001: 28).

Applying ISCT so far, we have determined harmony as a specific norm held in the identified community of Ubuntu. The relevant community in Ubuntu ethics is based on the premise that no community member would be what he or she is without the community. From the above follows that the identification of relevant communities and the identification of key norms are in part mutually dependent and intertwined, since communities can be defined in terms of authentic norms and authentic norms can be defined in terms of community (Rowan, 2001: 382).

4. Identifying Authentic Norms

In ISCT, ethical norms represent collective viewpoints concerning the correct behaviour of agents under specific circumstances. Put differently, these norms are rules that guide behaviour (Donaldson/Dunfee, 1999: 83). To identify norms it may be helpful to bear in mind the origin of norms: Norms usually result from experience in dealing with practical matters (Hartman, 2009: 708). Donaldson and Dunfee argue that the reliance on norms results from the ‘bounded moral rationality’ (see 5.2) of people. They believe that norms also develop from the enormous variety of moral preferences among individual community members and their communities. Furthermore, companies or organizations reflect the religious or cultural attitudes of their surrounding culture or employees. They also explain that norms serve communities to achieve their goals efficiently (Donaldson/Dunfee, 1999: 84ff). These aspects, as well as social connections, trust and culture play a significant role in growing and sustaining norms (Burg, 2009: 671).

In some cases, norms can be easily found and identified in explicit contracts, laws, or written rules. In most cases, however, norms exist informally, e.g. within implicit, unspoken agreements or unwritten promises. The business environment is heavily laden with analogous unwritten ethical rules that guide behaviour (Donaldson/Dunfee, 1999: 84).

Mbigi, the 'founder' of the Ubuntu philosophy as management practice, advances five key social values of Ubuntu. This is known as the collective fingers theory. Fingers must be seen as individuals, who interact in a collective way to achieve a particular objective. A finger represents an authentic norm that is necessary to create and maintain a collective culture. The corresponding values are survival, solidarity, compassion, respect and dignity (Mbigi, 1995: 111). Poovan et al. (2006) interpret Ubuntu as a collective system and its core values include survival, solidarity, spirit, compassion and respect/dignity. Metz, on the contrary, emphasises "the requirement to produce harmony and to reduce discord, where harmony is a matter of identity and solidarity" (Metz, 2007: 340). It would go beyond the scope of this paper to describe all these values in depth. However, the value 'harmony' will be discussed separately in association with the characteristics of authentic norms.

A prerequisite for the authenticity of norms, and simultaneously an indicator for non-coercion, is the right to exit and voice for individuals within the community. To exercise voice implies the attempt to bring about a change in the authentic norm within the community, including any means of communication that may influence the attitudes and behaviours of the community members (Donaldson/Dunfee, 1999: 163). When members are unable to change objectionable norms, they should have the option to exit the community (Donaldson/Dunfee, 1999: 164). However, the determination of the existence of the right to exit a community might be problematic (Husted, 1999: 230f). But research work shows that the capacity of Africans to tolerate and forgive makes it easier to reach consent. Good managers are people-oriented and not task-oriented. Research also shows that in Africa organisational cultures, authority is exercised in a rather 'caring' or paternal way and respect for authority is high, which makes it easier to reach consent (Sigger et al., 2010: 8).

Due to cultural differences in orientations to communication context consent can be difficult in cross-cultural situations. Communication context is an integral part of the way people interpret the world around them. For an authentic African community norm like harmony, truth-telling and promise-keeping are important. Here the problem emerges how to communicate the contents of these values as differences in moral reasoning make the determination of consent problematic. Donaldson/Dunfee however explains "that the forms of reasoning used within communities for the adoption of norms do not directly influence the determination of authentic norms under ISCT" (Donaldson/Dunfee, 1994: 276). However, the form of reasoning is crucial to the issue of obtaining an informed consent, and informed consent can be promoted by means of African oral traditions like storytelling, songs and slogans and for inspiring and consensual leadership. Mbigi suggests using role models such as folk singers, traditional healers and traditional farmers and stresses the importance of dialogue for the aim of building consensus (Mbigi, 2005: 35-66). This aim may be achieved by debates and endless efforts during meetings. But, time consuming dialogues and consultations are of no importance in African culture. It is widely accepted that participatory decision making improves the implementation of the decisions and make them more sustainable (Sigger et al. 2010: 8).

Another prerequisite for the authenticity of norms, and simultaneously an indicator for noncoercion, is the right to exit and voice for individuals within the community. To exercise voice implies the attempt to bring about a change in the authentic norm within the community, including any means of communication that may influence the attitudes and behaviors of the community members. Because such a right depends upon institutional and structural factors which differ considerably across nations. The right to exit in a national context can be characterised by closed markets and monopolistic conditions. Such an exit may be effectively non-existent. When

considering labour markets for example, one can state even in Europe, that labour markets are relative inflexible and make switching jobs somewhat daunting. African labour force is confronted with the "Black-White-Problem" which is a barrier for many job searching people. Likewise barriers are the communal rules of tribes. In addition, an exit can be very costly because of transaction or search costs. This example indicates briefly the need for empirical research to determine whether the right of exit exists and is executable in the respective cultures and economic systems.

Finally, it can be stated that community-norms which are not grounded in consent, or which deny any meaningful participation in the norm generation process, or which restrict exit, are not considered by the ISCT framework, since this implies that a true social contract does not exist (Donaldson/Dunfee, 1999: 209). In sum, the identification of authentic norms is an important step in ISCT and should not be ignored, underutilized or inappropriately aggregated, since "in most cases, authentic norms will provide the essential meat for the ethical analysis" (Dunfee, 2006: 306).

5. Contracts and Hypernorms: Universal Limits and Community Consent

According to Khoza Ubuntu delivers the basis of a social contract that stems from supportiveness, cooperation and solidarity. The social contract "transcends the narrow confines of the nuclear family to be extended kinship network, the community. With diligent cultivation, it should be extendable to the business cooperation" (Sigger et al., 2010: 3). ISCT evokes two types of social contracts, the hypothetical but universally valid macrosocial contract, and the factually valid microsocal contract of local communities (Wempe, 2009: 761f).

The choice of affiliation to communities and of generating specific norms in microsocal contracts entails freedom and freedom also implies the right for contractors to revoke consent. This means, as illustrated above, that community members have the right to leave or exit the community (Donaldson/Dunfee, 1999: 41).

Furthermore, a rational choice would assume knowledgeable, informed contractors as otherwise their consent to a microsocal contract would not be binding (Donaldson/Dunfee, 1994: 262). The members of microsocal contracts have another option to satisfy the condition of consent, which is the right of voice. Donaldson and Dunfee explain it as the right of community members to speak out for or against existing and developing norms within the community (Donaldson/Dunfee, 1999: 43). This could lead to changes in thinking and behaviour among community members and in the end even to the emergence of new authentic norms.

Sole authentic norms, however, have no specified moral valence, because the moral free space that has been established by the macro-contractors does not have any limits yet - i.e. potentially immoral norms may result. Thus, authentic norms cannot be said to be ethical due to their acceptance by broad groups (Donaldson/Dunfee, 1994: 264). Furthermore, left to themselves, authentic norms are not sufficient to resolve ethical conflicts on inter-cultural or international levels (Douglas, 2000: 103). Therefore, it is necessary to establish a set of standards for the macrosocial contract, and this set is so fundamental to human existence, that all communities would agree with it. Such standards or universal norms serve to evaluate low-order norms and Donaldson and Dunfee call them "hypernorms." The authors expect hypernorms to be reflected in a convergence of religious, political, and philosophical thought (Donaldson/Dunfee, 1999: 43f). Hypernorms are recognised as "key limits on moral free space, and are essential to establishing consent in microsocal norms while recognizing precepts and values common to most people" (Donaldson/Dunfee, 1999: 49f). Furthermore, they are applicable to all cultures and actions (Donaldson/Dunfee, 2006: 64). In this respect, hypernorms can be considered as mitigation against relativism, Dunfee even describes them as an "important bulwark against cultural relativism" (Dunfee, 2000: 310).

Donaldson and Dunfee identify procedural, structural and substantial hypernorms (Donaldson/Dunfee, 1999: 51ff). Procedural hypernorms are those which specify the rights of voice and exit, which are essential to support consent in microsocal contracts. Substantive rules of argumentation have to be considered in terms of human communication "everyone is allowed to

express his attitudes, desires, and needs" (Habermas, 1990: 89). In indigenous African cultures, music and dance play pivotal roles in communication and are unifying an embodiment of strength in a community. The Shona people in Zimbabwe have a total of 20 dances, which can be classified into three categories in terms of their function:

- Developmental dances, which contribute to socialisation of individuals and groups.
- Preventive dances, which contribute to maintaining social harmony.
- Remedial/rehabilitative dances, which are aimed assisting individuals and communities to solve problems (Mbigi, 2005: 62-65).

Structural hypernorms are those essential for political and social organisation, and hence, support background institutions in society which are necessary for a properly functioning society and economy. This includes, for instance a legal system designed to assure fair business relations. The Ubuntu institutional governance model is characterized by principles of inclusion, consensus democracy and stakeholder accountability, rather than by narrow shareholder accountability (Mbigi, 2005: 194). Mbigi observes close similarities between the Ubuntu institutional governance model and the German and Japanese inclusive capitalist system. Japanese and German inclusive capitalist systems "pay particular attention to stakeholder accountability in their governance systems. This resonates with the inclusive African cultural values of Ubuntu" (Mbigi, 2005: 195).

The most important hypernorm of ISCT is the substantive hypernorm. Substantive hypernorms represent basic concepts of the right and the good. They are recognised by the macrosocial contractors and base on the convergence of human experience and intellectual thought. Promise keeping, respect for human dignity and harmony are samples for substantive hypernorms. However, the source of substantive hypernorms is unapparent: Whereas procedural and structural hypernorms are specified or implicit within the macrosocial contract, the existence of substantive hypernorms is simply recognized by hypothetical contractors (Glac/Wan Kim, 2009: 697). Donaldson and Dunfee refuse to provide a comprehensive list of hypernorms. "We emphasize again that the specification of a definitive listing of hypernorms is not necessary to the understanding and application of ISCT" (Donaldson/Dunfee, 1999: 54).

The different kinds of evidence in support of a hypernorm are as follows (Donaldson/Dunfee, 1999: 60):

1. "Widespread consensus that the principle is universal.
2. Component of well-known global industry standards.
3. Supported by prominent nongovernmental organisations such as the International Labour Organization or Transparency International.
4. Supported by regional government organisations such as the European Community, the OECD, or the Organization of American States.
5. Consistently referred to as a global ethical standard by international media.
6. Known to be consistent with precepts of major religions.
7. Supported by global business organisations such as the International Chamber of Commerce or the Caux Round Table.
8. Known to be consistent with precepts of major philosophies.
9. Generally supported by a relevant international community of professionals, e.g., accountants or environmental engineers.
10. Known to be consistent with findings concerning universal human values. Supported by the laws of many different countries."

Generally, it can be said that the more types of evidence in support of a hypernorm, the stronger the presumption.

At this point, it seems to be advisable to summarize the results of scholars who have applied ISCT with regard to the hypernorms they identified. Although more than two dozen of articles about applying ISCT to different ethical problems, only few scholars applied the suggested process of

identifying hypernorms in detail. Hartman, Shaw and Stevenson (2003), and Herold and Stehr (2010) are the only ones who applied the proxies extensively. Hartman et al. (2003) applied the proxies to issues pertaining sweatshops and international labour standards in a manner that seems to be “exemplary” (Dunfee, 2006: 306). The sources they used in their analysis include well-known industry standards (Social Accountability 8000), principles supported by prominent non-governmental organisations (International Labour Organization Conventions) etc. In their analysis, they were able to identify 16 norms as hypernorms with the definition given by Donaldson and Dunfee. Their norms are catalogued by their area of responsibility, including employees, customers and suppliers, and environment and society. They argue that these hypernorms can constitute a basis for internationally active companies in developing their own code of ethics. The identification of local norms and relevant communities is at least partially an empirical task, but the empirical identification for substantive hypernorms is often not straightforward as the results of the scholars have revealed. Therefore, Husted proposes a purely philosophical approach without trying to incorporate an empirical reality into its methodology. “The identification of hypernorms on the basis of philosophical theory without reference to the empirical test of convergence would allow more rapid change in the roster of hypernorms. As a result, hypernorms would be able to lead, rather than lag moral reform” (Husted, 1999: 233).

Donaldson/Dunfee also “propose to use the existence of the convergence of religious, cultural, and philosophical beliefs around certain core principles as an important *clue* to the identification of hypernorms. We proceed in this manner because, again, even if hypernorms are certified solely through the light of reason, we should expect to encounter patterns of the acceptance of hypernorms among people around the world” (Donaldson/Dunfee, 1999: 59).

5.1 The Hypernorm of Necessary Social Efficiency

In the previous paragraph we noted that the class of structural hypernorm is broad. Next we provide an example of a structural “efficiency” hypernorm in the context of Ubuntu. This hypernorm refers to the need for institutions and coexistent duties designed to enable people to achieve “necessary” social goods. By “necessary goods”, Donaldson/Dunfee (1999: 119) “means those things that any society anywhere is bound to want more of, such as justice or overall economic welfare.”

In a market system individual pursue their own good by pursuing the necessary social good. By contrast, in Mbigi’s institutional governance system the individual pursues the necessary social good instead of his or her own good. This model is characterised by the principles of inclusion, consensus democracy and stakeholder accountability (Mbigi 2005: 194-197).

As already stated, Mbigi is fond of the German and Japanese cooperative strategies undertaken by societies or segments of societies to achieve fairness and social welfare. Donaldson/Dunfee (1999: 126) call these strategies “necessary goal strategies” or “efficiency strategies” because “their implementation occurs in an amazing variety of forms, including markets, social institutions, rules, policies and other social structures”. Efficiency strategies or in terms of Mbigi’s “inclusive strategy” are used in other cultures like the Confucian political/economic system with its historical roots in China or Ningen Kankei and Wa in Japan (see paragraph 6). Figure 1 depicts how efficiency strategies mediate between publicly available resources and necessary social goods.



Figure 1: The Role of Efficiency Strategies

Source: Borrowing from Donaldson/Dunfee (1999: 126)

Efficiency strategies can incarnate in formal systems, while others are expressed through informal norms and habits. For example, formal Western values of efficiency in terms of legalistic contractual relationships in the production process approved in Mbigi's "development model" (Mbigi, 1995) can be integrated in African informal visions by means of songs, slogans, dancing which in turn enhance aggregate welfare. Productivity and efficiency is not solely the result of formal institutions but also a part of the holistic view as paragraph 6 will show.

5.2 Communitarianism and Bounded Rationality

Efficiency strategies are not only embedded in formally rational system. Rational decision making favours objective data, formal processes of analysis and the decision maker has full or perfect information about alternatives beyond subjectivity and intuition. However, humans are imperfect creatures especially in ethical decision making. Their moral rationality is bounded. Bounded moral rationality creates a significant amount of moral opaqueness among the contractors. Contractors know that economic morality emerges from agreements or shared understanding about personal precepts within a group or community (Donaldson/Dunfee, 1999: 28).

Morality and rationality are acquired through community life and not derived from ideologies or universal categories as already discussed in the context of authentic norms. In this sense it follows that we can talk of communitarian morality and rationality. In so far Ubuntu is based on the communitarian ethical concept of bounded moral rationality. According to Donaldson/Dunfee rationality in economic ethics is bounded in three ways:

- "by a finite human capacity to assess facts,
- by limited capacity of ethical theory to capture moral truth, and
- by the plastic or artefactual nature of economic systems and practices" (Donaldson/Dunfee, 1994: 258).

On the whole, we can state that the components of ISCT discussed so far are designed to clarify local norms without losing a basis for cross-cultural normative judgements, which means to make situation specific moral decisions which are culturally sensible without being relativistic. As illustrated in the following section this nexus is the origin for the interpretation that Ubuntu values are particular to Africa and universal at the same time. It is now possible to provide a sketch of a theory of global business ethics with the traditional cultures of Africa and Asia.

6. Ubuntu World View: A Parallel with Asian Management Systems

In Mbigi's interpretation of Ubuntu the firm is no longer a practical and functional economic unit based on the life-world as a world view. In his opinion, it is necessary to go beyond the local, i.e. to the abstract world of ethics and values. This abstract world is regarded as the philosophical foundation for all practice to enable people to understand realities better when interpreted or

translated in terms of world views in order to synthesising vision and reality in a holistic way. This view, if interpreted in terms of ISCT means that Ubuntu, as a concept of African Humanism, shows that authentic norms of the micro level such as humanness, dignity, harmony, etc., represent the local view compatible with the world view, the macro level, or substantive hypernorms. This view is also supported by Hartman “who sees hypernorms as global authentic norms, believes that hypernorms do indeed evolve” (Donaldson/Dunfee, 1999: 76).

Some scholars do not agree with this interpretation and consider Ubuntu values different from those maintained by Western societies. However, literature provides almost no empirical support to back this claim. In contrast West and other scholars “consider Ubuntu values to be universal. Western examples that are comparable to African examples then provide support for a universal Ubuntu. While this may be true, consistently maintaining such a view of Ubuntu together with the claim that sub-Saharan African societies maintain a value system that is different to that maintained in the West then appears problematic” (West, 2014: 50, fn. 6).

If “harmony” is considered as a universal value in Ubuntu philosophy or specified as a hypernorm in ISCT, then harmony is intrinsically associated with the concept of communalism. “Harmony means the habit of working together in the spirit of harmony, service and teamwork, in which care is taken to balance individual rights with communal rights” (Mbigi, 2005: 96).

Proper reciprocation generates harmony, otherwise violence may be generated. In this sense reciprocity is a sacred duty (Richards, 1980: 76-77). Harmony is the product of mutually favourable human actions, or as expressed in the Swahili word Ujamaa it is about care and reciprocity. Nyerere contrasts socialism and capitalism and concludes that Ujamaa is opposed to capitalism and socialism. He does not explain in detail the meaning of Ujamaa and states that Ujamaa is a moral mindset, essentially an ethic or simply a praxis of Ubuntu (Nyerere, 1968: 12).

The purpose of Ubuntu as a societal value is to reshape social relations in African societies and in African workplaces. Managers who are good conversationalists will share Ubuntu as a concept that can free workplaces from one sided, instrumental approaches to human beings and create an atmosphere of cultural harmony (Karsten, 2005: 614). In this context Prinsloo points out that “...at the same time Western values of efficiency and enterprise was integration with African values of harmony and community control. Productivity is promoted by communicating and capturing the company’s vision by means of songs, slogans, tribal dancing, drinking, eating, and honouring the best workers and giving prizes” (Prinsloo, 2000: 282).

The value “harmony” is not exclusive to Ubuntu but also rooted in Non-African traditions. As the following analysis shows, harmony in the sense of Ubuntu is a particular kind of commitment and loyalty to the social group, and similarities can be stated for Japanese and Chinese managerial practices.

The universal value “harmony” corresponds to the Japanese family system “Ningen Kankei” and the cultural concept of “Wa” which is usually translated into English as “harmony”. “Wa” implies peaceful unity and conformity within a social group, in which members prefer the continuation of a harmonious community over their personal interests. This deep understanding of sharing emphasises the desire for harmony in interpersonal relations and the consideration of others within a group (Reischauer, 1994). “Wa” comprises nine cultural values: Enryo, Tatemaie, Sasshi, Giri, Awase, Kenson, Kata, Kankei and Jouge. This value system reflects and supports Wa (Reischauer, 1994). Here, we briefly describe only “Amae” and “Kenson” because they are associated with the cultural degree of group collectivity and group harmony similar to Ubuntu. Amae is a form of mutual dependency and links a kind of relationship in which one person belongs to a group and depends on another’s love. Kenson means negation of individual ability in order to maintain the nature of the social and collective relationship and to avoid individual heroism which would disturb group interests (Yokochi/Hall, 2001: 192-193).

When Japanese try to explain their system of relationships they use *shuhdanshugi* or “groupism” as a more neutral concept than “collectivism” because the word sounds neutral to Western (Itoh, 1991: 107).

For example, the Japanese family oriented communalism or “*Ningen Kankei*” has been transformed into corporate communalism. Each family member is an integral part of the whole, and derives his or her place in the context of the community. The strength of human relations in a community is of main importance. The intensity of contact is a key feature of human relationships. “A proverb that guides many companies in Japan is as follows: the company exists for the workers – this is a meta-value or ethic that is highly pervasive throughout the workplace in Japan” (Davis, 2012: 5).

Like in traditional African and Japanese ethics, the institution of the family and the value “harmony” is also central for Confucianism. Confucian virtues as humanness (*ren*), virtue (*de*), loyalty (*zhong*), rightness (*yi*), reciprocity (*shu*), etc. are also part of Confucian ethics applied to business:

- being sincere towards others (i.e. no deception and always seeking for mutual benefits);
- being trustworthy in handling transactions (i.e. treasuring one’s credibility);
- taking righteousness as profit (i.e. treasuring righteousness more than profitability);
- being grounded on kindness (i.e. being kind to others and not taking advantages on them)

(Lee, 1996: 67).

Chu highlights the importance of harmony as a central value in the Confucian value system. According to Chu “In Chinese Confucian culture, authority is respected and harmony is cherished. (...) Among peers, harmony takes precedence over respect and authority. To maintain harmony, conversations are not only carefully worded but also calculated for this purpose. Dissenting opinions are avoided as well” (Chu, 1988: 127).

Generally, it can be stated that these Confucian virtues are fundamental not only for China and Japan but also for Singapore, Vietnam, and Korea, i.e. the Far East, in general (Ware, 1955: 18).

There is also a close connection to Buddhism as “the morality of Ubuntu is intrinsically related to human happiness and fulfilment” (Shutte, 2001: 30). The “Holistic View” is also represented in Buddhism and Ubuntu and refers to the necessity that all employees have a clear view of the corporation as an interdependent system, and accept that their task is to work together in harmony (Dalai Lama/Van den Muyzenberg, 2008: 136, 139).

The inclusion of world views means that a firm is no longer a mere economic unit but becomes a thriving, enterprising holistic community in the sense of a traditional African community which has much in common with communities in Japan, China and South East Asia (see figure 2). “Japan’s example should be important for Africa, because it shows that modernization need not mean Westernization. Africa and developing countries need to learn from developed ones, but they do not have to abandon their culture and traditions in the process” (Guest, 2004: 23).

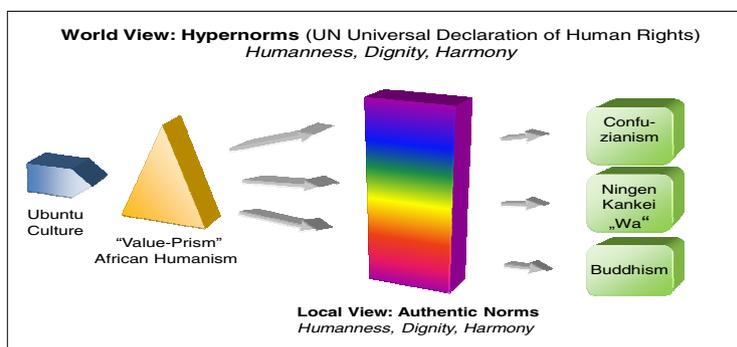


Figure 2: Ubuntu World-View: Integration of the Local with the Nation World-Wide

Source: Own illustration

7. Conclusions and Recommendations

All things considered, ISCT is a very promising concept of business ethics. The basic idea of integrating empirical evidence and normative theory is unique. This article has elucidated, that applying the categories of business ethics as proposed by ISCT to the communitarian Ubuntu philosophy can make suggestions for a new approach of cross cultural management and global business ethics. But much work remains to flesh out this skeleton. Metz, for example, points out “the most justified normative theory of right action that has an African pedigree is the requirement to produce harmony and to reduce discord, where harmony is a matter of identity and solidarity” (Metz, 200: 340). He is aware that this theory is still neither accurate nor complete and he concludes that some questions like the following can contribute to refining it: “Must harmony be realized in order to do, right? (...) Must one always be part of the harmony promoted? (...) May one ever promote harmony globally at the expense of the local?” (Metz, 2007: 340-341).

After the theoretical framework of ISCT had been introduced, we have tried to illustrate that Ubuntu, as a concept of African Humanism, shows that humanness, dignity, harmony, etc. as authentic norms of the micro level, represent the local view compatible with the world view, the macro level in terms of ISCT.

Especially “harmony”, an authentic norm in Ubuntu philosophy and simultaneously a hypernorm according to ISCT, is intrinsically associated with the concept of communalism. Consequently, a theory of global business ethics consistent with the cultures of Africa and Asia has to consider that a business firm is no longer a mere economic unit.

This inclusion of world views means that a firm becomes a thriving, enterprising holistic community in the sense of traditional African communities which have much in common with communities in Japan, China and South-East Asia (see figure 2).

Furthermore, harmony, when associated with communalism means working for the benefit of the whole, the common social good. There is the problem emerging of how to share the common social good? Sharing in this context is ambiguous and calls for clarification.

Finally, there is no clear consensus which role Ubuntu might play in the context of individualism, market mechanism and capitalism. For further critical analyses of the role that Ubuntu can play in the context of global and African business ethics West's (2014) paper provides solid guidance beyond the ISCT-approach.

Additionally, it has to be seen that ISCT constitutes an important foundation for further refinements. The potential of ISCT may be enhanced by further research focusing on the evaluation and refinement of the process of community and hypernorm identification, the justification and nature of hypernorms, the analysis of whether hypernorms evolve, or the refinement of the process of identifying authentic norms. Much research work has still to be done to give the ethics of Ubuntu a solid theoretical base that can be transformed into a concrete praxis.

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Impact of Knowledge Economy on the Participation of Women in Labor Market

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Keywords

Knowledge economy, Women's participation, Labor market, Information and Communication Technology (ICT).

Abstract

Purpose: To examine the influence and participation of women in the labor market by the knowledge economy; in negative or positive manner.

Methodology: Quantitative research technique has been implied to evaluate women's participation in the labor market to minimize negative impacts of knowledge economy.

Findings: Within the service and agricultural sectors, the outcomes demonstrated that knowledge economy is found to have a significant impact on the participation of women's labor force. The only drawback that discourages the employment of women is the concept of culture and social norms.

Practical Implications: A higher participation of females in computer science, engineering and technology-oriented jobs would spur innovation and economic advances in all countries. **Originality Statement:** The research also depicted procedures to accomplish women's participation as a fundamental requirement for the achievement of developmental goals.

1. Introduction

The participation of women in society has been greatly focused in the last few years as compared to early days. In recent past few years, the contribution of women has completely changed the lifestyles with vast improvements. On such basis, the study has aimed to investigate the impact of knowledge economy on the participation of women in labor market in positive as well as negative manner.

The contribution of women in the labor market has been considered as a growing perspective across the globe. Currently, one of the most compelling phenomena has been observed to be the degree to which the women have enhanced their contribution in the labor force. It has been evaluated that the sustainable development of the economy is dependent on women, joining the labor market and using their capabilities and qualifications adequately. During late 1980s and early 1990s, the growth of women labor force increased as compared to men across the globe (Lim, 2002)

The development of knowledge-based economy (KE) is correlated with its four components, which include Innovation, Information & Communication Technology (ICT), Education, and Economic Incentives & Institutional Regime. The number of employed men or women would be decreased as a result of substituting human capital by advanced technological tools. Therefore, this study has contributed to investigate that how women employment is affected by the knowledge economy and how women employment goes up or down in different countries, as a result of activating knowledge economy pillars in the economic activity.

The major proposition for which the study was examined included that Knowledge Economy generates new job opportunities for women and changes the direction of women's participation in labor market towards more knowledge-based activities. Therefore, they can contribute to the economic development along with a more dependence of the World on the knowledge economy. A data analysis was used for collecting data about Knowledge Economy Index, KE's Pillars, Ratio of force

participation rate with male to female, and female employee rate in main sectors (as a ratio of female employment) in different countries to examine how women's participation in labor market have been affected by moving towards a knowledge-based economy. Finally, it concludes with the mechanisms to maximize positive effects and minimize negative effects of KE on women's opportunities to participate in the labor market (Alam, 1998).

2. Literature Review

Knowledge, innovation, and the advancement of technology constitute the way to achieve the developmental goals of the 21st century (Asongu, 2015). The Knowledge Economy (KE) is based on four pillars, which primarily include Education. It depends on creating products and services using intensive knowledge activities, which can easily contribute to scientific as well as technical advancement.

2.1 Performance of Social Networks regarding the Outcomes of Employment

Dante Contreras et al. (2007) investigated the performance of social networks elucidating market participation of labor, amongst the employed Bolivian women. The survey carried out to depict the role of social networks and investigated force participation of women labor and its effectiveness compared with salaried employment in men. The study concluded with having positive impacts on social networks and reduced gender discrimination was observed. Additionally, the researchers have also determined the links among the procedures, which have been used by successful job searchers to find work and a comprehensive system of networks by using the descriptive statistics.

2.2 Advantages of technology to Educational Organization

Educational organizations usually take a significant number of benefits from technology by promoting learning efficiency. However, women confronted many obstacles and barriers in contributing to the knowledge economy in the developing countries. Besides this, it can be assumed that women are more technophobic; therefore, technology does not meet their requirements more likely in developing countries (Antonio and Tuffley, 2014). The direction of women's employment to a virtual environment based on information and communication technologies have been changed through helping females in joining new business careers and get more opportunities in the labor market (Arslan, 2012).

2.3 Technological Innovations for Self-employment

An increase of 1% in women wage leads to an increased probability to participate in the labor market by 5% (Addabbo et al., 2013). In a majority of the low-income countries, females are less likely than males of the same age to be in paid for work, education, and training. The data, demonstrated that for the developing countries, more than two-thirds of working women are in vulnerable jobs or unpaid family workers, or work as seasonal laborers in the agricultural sector (OECD, 2014).

The knowledge economy can help the Arab World in accomplishment of the economic developmental goals and to remain competitive in the global economy of the 21st century. In the Arab World, the number of persons having access to the internet was observed to be ascended by more than 600%. Moreover, some Arab countries have turned out the initiatives as a matter to bring some advancement in their education sector as well as the infrastructure of their Information and Communication Technology (Orient Planet, 2014).

2.4 Knowledge Economy and Women

Several studies, conducted for the economic evaluation, have stated that the contribution of educated women is highly essential for the development of domestic and global market (Kearney et al., 2017). According to the United Nations Entity for Gender Equality and the Empowerment of Women, women seem to participate in labor markets on the basis of their qualifications and skills. In fact, the employment of men to the ratio of the population represented 72.2%, while for women this ratio was just 47.1% in 2013 (UN Woman, 2014).

Globally, females are less paid for the job in contrast with males. Moreover, just a range of 60% to 75% of men's wages is observed to be earned by women in a majority of the countries, throughout the entire globe (UN Woman, 2014). With increased contribution in the labor market, institutional, national, and international policies must ensue to provide the system with gender parity. Such figures play a significant role in promoting the economy and expanding the market. Women already hold a stable position in the areas of education, and their leadership skills are making them even stronger in the areas of politics and business (Kearney et al., 2017). Even though, socioeconomic factors are difficult to be assessed among the genders, but it has been observed that involvement of qualified women in labor market is a beneficial factor. It has not only contributed to the business in the long run, but has also displayed stability in the days of recession as the family with both working genders appeared to have a negative economic shock (Gorbachev, 2016). It has been declared with time that the association of women's contribution in the society and economic development is strongly positive (Doepke and Tertilt, 2014).

3. Methodology

This study aimed to explore the mechanisms for minimizing the negative impacts of knowledge economy on the contribution of women in the labor market and maximizing its positive impacts. Therefore, an analytical approach has been employed through the application of regression analysis. Moreover, the secondary data collection regarding Knowledge Economy Index (KEI) and women participation in the labor market in the Arab countries has been carried out through the World Bank reports (2012 and 2014) and IMF sources. The Knowledge Economy Index (KEI) reflects the degree to which the environment is conducive to efficiently use the knowledge in the process of an economic development. It is calculated as a cumulative index, which indicates the developmental stage of a specific region or country towards the knowledge economy. This index is computed on the basis of the average of the normalized performance scores of a country on all the pillars of the knowledge economy. In order to compute the KEI, there are three fundamental variables, which represent each pillar. These variables are mentioned as follows:

- The institutional regime and economic incentive pillar are computed by the constraints of tariff & non-tariff, the legislation standards, and the regulatory quality.
- The human resources and education pillar is calculated by average years schooling, secondary enrolment, and tertiary enrolment.
- The structure of innovation pillar is calculated by the receipts and payments of royalty and license fees, applications of the patent acknowledged by the US Patent & Trademark Office, and scientific and technical journal articles.
- The pillar of Information and Communication Technology (ICT) is calculated by telephones per 1,000 people, computers per 1,000 people, and internet users per 10,000 people.

This study is dependent on the combination of inductive and deductive approach by using the collected data and analyzing how the knowledge economy affects the number and the direction of job opportunities available for women. The inductive approach has been employed to process the broad data into the general model that can represent the part of our interest. The deductive approach further helps in determining if more data or themes are required from the previous set for the evaluation of the established set (Creswell, 2013). In such manner, the mechanisms of increasing the role of KE in activating women's participation in the labor market have been developed. On the basis of four pillars of knowledge economy, the factor is calculated in numeric as the Knowledge Economy Index (KEI). The inductive data is then compared with the additional parameters including particularly the participation of women in the labor market. The data about KE pillars in Arab countries were collected from IMF & MRD/Orient Planet, Arab Knowledge Economy Report. The data regarding the participation of women in the labor market have been collected through the World Bank, International Labor Organization, and Key Indicators of the labor market database 2014, Women's Bu-

reau (WB) Occupations, Gender shares of employment, and Computer and Information Technology Occupations 2013- 2014.

4. Results

The relationship among the Knowledge economy and the participation of women in the labor market has been analyzed by taking into consideration the available data regarding the two variables in some countries. In order to perform the analysis, those countries have been classified into two categories, i.e., the Arab Countries and non- Arab Countries, which can be observed in Table 1.

Country	Global Rank	KEI	Economic Incentive Regime	Education	Innovation	ICT
UAE	42	6.94	6.50	5.8	6.60	8.88
Bahrain	43	6.90	6.69	6.78	4.61	9.54
Oman	47	6.14	6.99	5.23	5.88	6.49
KSA	50	5.96	5.68	5.65	4.14	8.36
Qatar	54	5.84	6.87	3.41	6.42	6.65
Kuwait	64	5.33	5.86	3.70	5.22	6.53
Jordan	75	4.95	5.65	5.55	4.05	4.54
Tunisia	80	4.56	3.83	4.55	4.97	4.89
Lebanon	81	4.56	4.28	5.51	4.86	3.58
Algeria	96	3.79	2.33	5.27	3.54	4.04
Egypt	97	3.78	4.50	3.35	4.11	-
Morocco	102	3.61	4.66	2.07	3.67	4.02
Syria	112	2.77	-	2.40	3.07	3.75
Yemen	122	1.92	2.91	-	-	-

Table 1: Knowledge Economy Index (KEI) and its Pillars Score in the Arab Countries, 2014 (**Source**): Columns 1&2: World Bank, KEI 2014. Columns 3- 6: IMF & MRD/Orient Planet, Arab Knowledge Economy Report 2014.

It can be observed through the outcomes, that among the countries of Arab World, the UAE ranked 1st in the KEI during the time span of 2014. However, it has been ranked 42nd worldwide, with 6.94 scores. With a score of 6.9 and 6.14 on the index, the Bahrain and Oman ranked on a second and third number on the index respectively. Saudi Arabia ranked fourth in the region and 50th worldwide. On the other hand, women's participation for the labor market in UAE, Bahrain, Oman and the above-mentioned other countries in the same period have been illustrated in Table 2.

Country	Ratio (%)
Qatar	53%
Kuwait	52%
UAE	51%
Bahrain	45%
Oman	35%
Tunisia	35%
Morocco	35%
Lebanon	33%
Egypt	32%
KSA	26%
Algeria	21%
Syria	19%

Table 2: Ratio of Female to Male Labor Force Participation Rate in Arab Countries, 2014 (**Source**): International Labor Organization, key indicators of the labor market database, 2014.

The cultural restrictions, which are likely to be faced by women in most of the Arab countries are although changing, women are still less free in contrast with men to participate in the formal economy. In the labor market, the participation of women can be enhanced by focusing on the barriers and constraints, adapted by them in accessing their work. Some other issues must be taken into account because if the knowledge economy provides more job opportunities for Arab women, this may have a small impact on their participation in the labor market.

The concepts of culture and social norms, which are likely to encourage or discourage the employment of women can be divided into two types of values, which seem to be of significant value in

this respect, and both exist at the individual as well as the societal level. The first category comprises of the concept regarding the conventional role of women. These attitudes and principles may restrict the women substantially, even if the jobs like a teacher of kindergarten, or nurse could be still in correspondence with the concept of women as a caretaker. The second category contains the concept concerning the position of a woman in public domain. The societies where women are presumed to live isolated from men, and where the females are being limited to the private domain, the concept that the women should be active in the labor market may not be considered as desirable.

On the contrary, the women having internalized conventional roles of gender or the concept of gender discrimination being preferable may feel less retrained to enter the labor market. These decisions are generally made at the domestic level, and their husbands and other members of the family have an important voice in that (Joseph and Slyomovics, 2011). If their family or partner does not support to enter them to labor market, they have to resist from doing so (Glass and Nath, 2006). Subsequently, women can decide to stay at home under the pressure of the values and norms of the larger community in which they live (Kandiyoti, 2001). The idea is that in the circumstances with more conditional values, the job opportunities which would be generated by the knowledge economy can relatively make a minor difference for the participation of women in a labor market. Similarly, in non-Arab countries, KE could not increase the job opportunities for women, neither it can modify the way they contribute to the labor market as shown in tables 3 and 4.

Top 5 Scores in KEI		Lowest 5 Scores in KEI	
Country	KEI	Country	KEI
Sweden	9.38	Sierra-leone	0.84
Finland& Netherland	9.22	Angola	0.95
Taiwan & China	9.10	Mozambique	0.99
Denmark	9.00	Burkina-faso	1.06
Norway	8.99	Rwanda	1.14

Table 3: Knowledge Economy in some Non-Arab Countries, 2012 (Source): World Bank, Knowledge Economy Index (KEI), 2012

Country	In Top 5 Scores in KEI (%)					Country	In Lowest 5 Scores in KEI (%)				
	2009	2010	2011	2012	2013		2009	2010	2011	2012	2013
Sweden	47.4	47.4	47.2	46.9	47.4	Sierra-leone	49.9	49.9	49.8	47.7	47.7
Finland	48.2	47.8	47.5	47.7	47.8	Angola	45.9	45.6	46.0	46.0	46.0
China	40.1	44.0	44.0	44.0	43.9	Mozambiqu	53.8	53.6	53.6	53.3	53.3
Denmar	47.1	47.1	47.2	47.3	47.6	e	47.7	47.6	47.6	47.4	47.4
k	47.3	47.0	47.0	47.0	47.1	Burkina-	54.2	54.2	54.1	54.1	54.0
Norway						faso					
						Rwanda					

Table 4: Labor Force, Female (Ratio of Total Labor Force) in the same Countries (Source): World Bank, <http://databank.worldbank.org/>

Tables 3 & 4 shows that women’s participation in the labor market in the above-mentioned countries was still almost the same during the period of 2009-2013, whether in the highest KEI or lowest KEI countries. That means that KE had no effect on women’s job opportunities in these countries. Table 5 reveals that the rate of female employees, as a ratio of female employment in different sectors, remains almost the same during the period 2009-2013.

Country	Main Sectors	2009	2010	2011	2012	2013
Sweden	Services	90.5	91.1	91.2	91.1	90.8
	Agriculture	0.9	1.0	1.0	0.9	1.0
	Industry	8.2	7.7	7.6	7.5	7.7
Finland	Services	86.4	86.8	86.8	87.8	88.1
	Agriculture	2.7	2.8	2.8	2.4	2.3
	Industry	10.4	9.9	9.9	9.3	9.0
Denmark	Services	86.7	88.7	89.8	89.6	89.3
	Agriculture	1.1	1.1	0.9	0.9	1.1
	Industry	12.2	10.1	9.2	9.4	9.5
Norway	Services	87.6	91.7	91.9	91.6	91.5
	Agriculture	1.2	1.2	1.0	0.9	0.8
	Industry	7.6	7.1	7.0	7.4	7.5

Table 5: Employees Female Rate in Main Sectors (Percentage of Female Employment) (Source): World Bank, <http://databank.worldbank.org/>

Even though the Computer and Information Technology constitutes one of the main pillars of the knowledge economy, women's participation in CIT based job did not increase during the above-mentioned period. As shown in table 6, women's participation ratio in CIT careers as an annual international average is still inconsiderable.

Career	Women's Participation Ratio (%)
Computer and information research scientists	26.1
Computer and information systems managers	28.6
Computer network architects	7.5
Computer occupations, all other	22.8
Computer programmers	23
Computer support specialists	29
Computer systems analysts	34.9
Database Administrators	37.4
Network and computer systems administrators	17.3
Software developers, applications and systems software	19.7
Web developers	39.5

Table 6: Computer and Information Technology Occupations (2013 Annual Averages) (Source): Women's Bureau (WB) Occupations -Gender shares of employment; Computer and Information Technology Occupations (2013 annual averages)

It has been indicated through the data analysis, that the Knowledge Economy had no effect whether on women participation in the labor market or on women's distribution in the different sectors within the same country. During the time span of 2012, it has been determined by the Department for Business, Innovation and Skills (2012) that women or a management team were running almost 19% of small and medium-sized enterprises, in which the ratio of women was observed to be more than 50%. Through the survey of ONS Quarterly Labor Force (2013), it has been determined that a higher ratio of women is reported by the industry section, in which the primary jobs of women were social work and health. This section of the industry comprised of 22.8% of the total female workforce. However, in the public sector, an approximate of 33% of women work was found in contrast with the 15% of men. In the second quarter of 2013, 88.4% of men were employed in full-time jobs, while 11.6% had part-time jobs. In the same period, 58.2% of women were employed in full-time jobs, while 41.8% had part-time jobs (Orient Planet, 2014).

Women are less likely to work in the formal employment as compared to men. Women can work in vulnerable, low-paid, or undervalued jobs when compared with men. As of 2013, 49.1% of working women throughout the world were in vulnerable employment without any protection by labor legislation, compared to 46.9% of men (UN Women, 2015). As an annual average, the jobs related to the Computer and Information Technology for women are fewer than men, and women participate in labor markets on an unequal basis with men. For instance, the male employment-to-population ratio in 2013 was 72.2%, while the ratio for females was only 47.1%.

The tools of computer and communication along with more information and communication technologies replace the labor force, which causes the latter to decrease. The employment rate

may also enhance with the emergence of new business opportunities (Arslan et al., 2012) for instance, increased investments in the Hi-Tech industries in China resulted in decreasing the investments in traditional industries; that seems to be conventionally occupied by the women. On the other hand, the innovations of technology have provided new categories of knowledge-based-employment, and also redefined the requirements of the old ones.

The regression analysis has been applied by considering three different sectors, such as industry, services, and agricultural sector to evaluate the impact of knowledge economy on the participation of women. Considering the services as a dependent variable and industry and agricultural sectors as independent variables, it has been examined that the p-value is less than the level of significance (p-value < 0.05). Table 7 shows the regression analysis on employee's female rate in an agricultural and industrial sector.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	60.483	2	30.241	49.209	.000 ^b
	Residual	10.447	17	.615		
	Total	70.930	19			
a. Dependent Variable: Services						
b. Predictors: (Constant), Industry, Agricultural						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	98.560	1.160		84.936	.000
	Agricultural	-1.256	.279	-.472	-4.501	.000
	Industry	-.844	.146	-.605	-5.773	.000
a. Dependent Variable: Services						

Table 7: Regression Analysis on Employees Female Rate in Agricultural and Industrial Sectors

These findings being are consistent with (Gaddis and Klasen, 2014), it has been determined that higher rates of women's participation in the agricultural sector reflect the expansion of the global economy. Moreover, the rising demand of labor within the industrial and agricultural sector is found to be associated with increasing levels of women's participation.

Taking into consideration, the agricultural sector as dependent and services and industry as independent variables, it has been revealed through outcomes that service sector has a significance; whereas, industrial sector has an insignificant impact on women's participation. The value of services sector is less than 0/05, but the industrial sector shows a value of 0.074, i.e. has a greater than the level of significance. Table 8 shows the regression analysis on employee's female rate in industry and services sectors.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.418	2	3.209	15.148	.000 ^b
	Residual	3.602	17	.212		
	Total	10.020	19			
a. Dependent Variable: Agricultural						
b. Predictors: (Constant), Services, Industry.						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	42.351	9.589		4.417	.000
	Industry	-.255	.134	-.487	-1.904	.074
	Services	-.433	.096	-1.152	-4.501	.000
a. Dependent Variable: Agricultural						

Table 8: Regression Analysis on Employees Female Rate in Industry and Service Sectors

Majority of women labor force has been observed to participate in full-time employment opportunities. Women labor force is found to present in all sectors in a relatively even pattern, while they tend to be over-presented in some particular sectors of industry, such as construction and mining due to physically demanding nature of these jobs. Throughout the world, many trade regimes

and competitive industries rely on women labor contribution (Moghadam, 2015). Those women employees who did not have the required abilities and working skills and the academic degree were observed not to have the possibility of getting the most appropriate jobs in the knowledge-based economies. The advantages to make investments within the industries of science and high-technology, which includes the industry of Information & Technology, telecommunications, and so on, are never the innovations that would provide or create more appropriate jobs for unqualified women. It has been evidenced that being a part of moving towards the KE, the technological advancement sometimes observed to have a negative influence on the employment opportunities of women.

Men in contrast with women, deals with the complicated processes, which include the financial arrangements as well as very limited knowledge regarding the sources of help, women entrepreneurs often have less experience. It has been observed through the surveys of financial literacy that women have less understanding and confidence in making financial decisions than do men (OECD, 2005). In order to obtain the resources and financial information, women were observed to be underprivileged, due to the reason that they are less likely capable of affording these services and are not linked to mainstream business networks. The range of education and labor market policies are required, which provides a direction for a better reflection of the higher educational attainment of female school graduates in their later careers.

5. Discussion and Conclusion

Globally and specifically across the Arab countries, some of the formal and informal constraints have been faced by the women, which are more than those faced by the men in accessing the decent jobs. Around two-thirds of the working women in the Arab countries are in vulnerable jobs, as an own account (self-employed) or unpaid family workers, casual or seasonal agricultural laborers, workers in the urban factories and workshops, or as domestic servants. As evidence, women require the knowledge, confidence, and skills to take advantage of the economic and financial opportunities (OECD, 2015). The different components associated with the Knowledge Economy enhance the participation of women in the labor market by addressing the constraints and barriers they face in almost every aspect of work.

In the developing countries, most of the women entrepreneurs usually face inconsistent obstacles to access and compete in the markets. In comparison with men, it comprises of the women's relative deficiency of capability, mobility, and technical skills (World Bank, 2009). In the Arab countries peculiarly, the hiring and training of female extension workers, where the interaction between males and females has been limited by certain values of culture, can be resulted in enhancement of the participation of women in extension activities, as well as their acceptance of technological innovations.

In the knowledge-based economies of today's era, women workers with the background of Science & Technology (S&T) serve as a fundamental resource, with reference to the dimension of education. Nevertheless, in the studies of S&T, women immensely remain underrepresented at the secondary as well as tertiary educational levels, and in the overall technical workforce (OECD, 2007). Knowledge Economy, which places an emphasis on the significance of the market economy and knowledge capital, brings about the competition, ambiguity, and risks which may be inconsistent with the intrinsic personal preferences of most laid-off females, who favor routine work and job security over career risks.

KE can diminish the costs to the economy of losing the skills and talents of majority of the women from working life by changing the culture of workplace, as well as to improve the good practice in working arrangements to give better management of the talent pipeline, specifically within the domains, where the values of culture restrict the communication of males and females, where men dominate the community-level. It is usually believed that men are more appropriate for important work tasks. It sets discriminatory expectations regarding the appropriate sex roles as well as their

professional capability. On the contrary, in the fields of women they were considered to be less creative in science and technology, and their actual performance is evaluated in the darker light of the negative expectations of people. Thus, there is an increasing need for fighting this kind of culture.

An investment in the futures of young women and girls through KE results in maximizing their economic potential, providing the greatest return and increasing the country's competitiveness in a global market. Hence, the females should be encouraged to end up by placing an emphasis on the traditional sectors, which require limited qualifications and offer narrower scope for reward and benefit from the areas of high skills and high potential, such as Science, Technology, Engineering and Mathematics (STEM). KE must relate with encouraging girls joining STEM subjects and STEM careers.

6. Research Limitations and Future Research

The productivity of women, their power of making economic decisions is likely to be enhanced by the Knowledge Economy. Furthermore, being a pillar of KE, the institutional regime must encourage more women to establish their personal business and to be essential in generating a strong entrepreneurial economy and supporting growth still further. The diversity of people brings a diversification of the experience, skills and abilities, which in turn can deliver richer creativity, better problem solving and greater flexibility to environmental changes.

The programs, which facilitate the accessibility of women towards the formal and informal education, are required to be designed. Moreover, the policies regarding labor market should be developed to bring an improvement in job-related circumstances. Equivalently, making an investment in infrastructure and labor-saving technologies, peculiarly in rural areas, can be helpful to bring a reduction in the time-consuming aspects of women's and girls' unpaid domestic work. Thus, it has been determined that this investment enables the girls to attend school and women to participate in the labor market, or take up the opportunities of self-employment. Besides this, the governments should assist in the advancement of micro-enterprise and self-employment by making continuous improvements in the productivity and working conditions. Woman workers with Science and Technology (S&T) background are the primary resource in the knowledge-based economies of today's era. An enhanced participation of females in the jobs of computer science, engineering and technology, would stimulate the advancements of economy and innovation in all countries. The governments are likely to provide monetary as well as non-monetary incentives to motivate the females to choose the domains of Science and Technology as their careers. In almost all countries, it is very challenging to attract young women towards the domain of Science and Technology. The female teachers, who belong to the field of Science & Technology, should be hired at the secondary level to serve as role models, as they were observed to be much underrepresented on school faculties. Therefore, it can be concluded that the knowledge economy has a positive impact on the participation of women in the labor market.

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Emergence of the North American center of excellence for transportation equipment

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Abstract

Following the closure of Plattsburgh Air Force Base in 1995, the northeastern region of New York State faced a unique economic development challenge. In addition to the loss of the air base, the rural area suffers from urbanization and automation in manufacturing trends. While the quality of life is highly rated, population and job growth stagnate. Isolated geographically by Lake Champlain to the East, the Adirondack Mountains to the South and West, and long distances to southern economic centers in the state, the region has looked north of the Canadian border and positioned itself as "Montreal's US suburb". Economic developers have crafted bi-national agreements between regional organizations, improved cross-border infrastructure, and enhanced educational institutions for the purpose of attracting Canadian and international manufacturers to the region. In 2015, the North American Center of Excellence in Transportation Equipment was launched and six new companies joined the cluster, doubling its size and perhaps providing a base for further growth. Manufacturing jobs are likely to grow for the first time in more than 20-years. We use cluster theory to argue that this formation of companies may still be insufficient to catalyze cluster emergence and the desired goal of regional competitiveness. Moving forward in the crafting of regional economic development policy, we emphasize the importance of viewing the North American Center of Excellence for Transportation Equipment as a pre-emergent cluster in need of further support to reach its potential.

1. Introduction

Following the end of the Cold War, Plattsburgh Air Force Base ceased operations in 1995 and became a primary focus of regional economic development in Northeastern New York (PARC, 2006). Lying on the shore of Lake Champlain, with the Adirondack Mountains to the West and the Canadian border to its North, the region's rich geographical resources are isolating. The area was, and remains, one of the less prosperous regions of New York State (NYS DOL, 2015). The closure of the air base and the region's geography have given shape to a persistent economic development strategy of positioning the region to participate in the global economy (NCCoC, 2016). An emerging transportation equipment manufacturing cluster spanning the US and Canadian border has promise to positively impact the level of productivity and prosperity in the region (Heath, 2016). Recent increases in manufacturing establishments are poised to provide the first increase in manufacturing jobs in over 20 years. Given these developments, it may be an appropriate time to evaluate the developmental stage of the region's transportation cluster and consider implications for its future development.

Regional clusters are at the core of the regional economic development strategy in northeastern New York (Collins and Douglas, 2015). Beyond integrated supply chains, clusters may include educational, financial, and governmental institutions (Porter, 1998). The emergence of a cluster can be difficult to discern as independent firms and institutions come together to compete, collaborate, and create competitive products (Menzel and Fornahl, 2009). Some interactions between companies

are formal and more easily identified, but others may occur at informal functions or even chance encounters in the community. Competitive clusters emerge as they foster knowledge spillovers, innovation, and entrepreneurship (Tallman et al., 2004). From a knowledge generation, innovation, and entrepreneurship perspective, cluster emergence is challenging to measure qualitatively or quantitatively.

In this paper, we used publicly available information and interviewed four economic development professionals to analyze the three pillars of the regional economic development strategy, which are business attraction/job creation, proximity to Montreal/Quebec, and the cluster approach (Collins and Douglas, 2015). After more than 20 years of persistent redevelopment efforts, an institutional environment has formed that is aligned with the area's unique resources. Through this period, employment and population loss have stabilized as the regional economy has changed. With the recent attraction of six transportation equipment manufacturing firms, the cluster has doubled in establishments. With the opening of a new titanium parts manufacturer in 2016, manufacturing employment in the region is poised to grow more than 10% in 2017, the first increase in over 20 years.

2. Cluster theory in economic development

Economic development professionals seek to positively influence community members' living standards and often rely on cluster concepts to guide their efforts (Desrochers & Sautet, 2004). The cluster approach adds to previous understandings of industrial districts and complexes by focusing on the processes of knowledge exchange (Bronson, Doyle, O'Connor, 2016) and shifting the focus from economies of scale to flexible networks of organizations that are capable of adaptation and innovation. Successful firms continually springing up in Silicon Valley are explained by an agglomeration of firms, educational and governmental institutions, supporting infrastructure, and knowledgeable policy making.

To further understand clusters, researchers have considered their process of development from a life-cycle perspective, clusters may emerge, grow, and fade away (Menzel and Fornahl, 2009). Clusters vary greatly from community to community and in their stage of development, which can be a source of confusion for researchers and policy makers. Speaking of clusters, Desrochers and Sautet (2004), observe "this concept turns out to be so fuzzy that it is now commonly used in a variety of ways by a wide array of academics, consultants and policy makers". While perhaps unclear, the cluster concept has become a cornerstone of economic development practice and is an active area for researchers to explore theory as it is applied.

3. Data collection

Based upon the above perspectives on cluster development processes, we gathered data on the agglomeration of private firms, institutions, and infrastructure in northeastern NY over a 22-year period. Primary and secondary data were collected and analyzed for this study. Board minutes from meetings of the Plattsburgh Airbase Redevelopment Corporation, web sites from regional economic development agencies and regional chamber of commerce, and documents from the regional economic development council were used to provide both a historical context for the economic development efforts and data on the specific companies in the transportation equipment manufacturing cluster. Four interviews lasting 1 to 1.5 hours were conducted with personnel from the Small Business Development Center, The Development Corporation, and the regional chamber of commerce. Interviewees provided guidance on secondary sources of information and discussed their and our interpretation of the events. Finally, the draft of this article was reviewed by several of the interviewees and their written feedback is represented in the analysis and findings.

4. Challenging times for the regional economy

Closure of the Plattsburgh Air Force Base was a singular and highly visible change in the regional economy, which coincided with the less-acute forces of urbanization and automation that have challenged rural economies (Flora and Flora, 2014). The airbase's 4,400 personnel and their fam-

ilies accounted for approximately 5% of Clinton county's population in 1995 (LoTemplio, 2015). These factors have contributed to a generally shrinking population and employment base in the region as shown in Table 1. Population and manufacturing dropped precipitously after the base closure between 1995 and 2000, but stabilized at the lower levels between 2000 and 2015. It is against this backdrop of population and employment trends that we evaluate the emergence of the transportation equipment manufacturing cluster and the related policy making implications for regional economic development.

Table 1.

Demography/Year	1995	2000	2005	2010	2015
Clinton County population	86,444	79,882	81,803	82,280	81,251
Clinton County manufacturing establishments		103	86	82	80
Clinton County manufacturing jobs		5,455	5,052	3,578	3,322
Clinton Country Total Establishments	2,050	2,023	2,008	2,062	2,029
Clinton Country Total Jobs	32,662	33,923	34,725	32,910	32,981

Table 1. Demographic and economic data between 1995 and 2015

5. Regional geography, resources and constraints

Much of the economic development strategy is based on regional resources and constraints. In the map below, the Northeastern New York region is surrounded by natural resources that also isolate it from the East and West. There is national border 20 miles to the north that represents a barrier to, and opportunity for trade. Albany, 150 miles to the south, and New York City, 300 miles to the south, are not oriented north.

Lake to the east - Lake Champlain is the 6th largest fresh water lake in the US at 120 miles (193 kilometers) long and twelve miles (19 kilometers) wide. Of the 571,000 inhabitants living around the lake, about 68% live in Vermont, 27% in New York, and 5% in Quebec. Two bridges connect New York and Vermont at the very ends and only one year-round ferry crossing connects the sparse populations on both sides (LCBP, 2016).

Mountains to the west - The Adirondack Mountains have been home to two Winter Olympic Games in Lake Placid, New York. The Adirondack Park Agency restricts development in its six million acres and much of the private economic activity is in forestry, agriculture, and recreation/tourism. About 130,000 people live in the park's 103 towns and villages, which have experienced a population decline of 1.3% over the last 20 years, compared to growth of 2.2% in New York state (APA, 2016).

Border to the north - The US-Canadian border is the longest unprotected border in the world and separates the globe's two largest trading partners (U.S.D.O.S., 2015). Montréal's population in 1995 was 3,324,000 and has grown to 4,060,700 in 2015 (STATCAN, 2016). Since the 1920's, aircraft have been produced in Montreal, one of the only cities in the world where an entire aircraft can be designed and built (Niosi and Zhegu, 2005). The aerospace industry alone employs over 40,000 people in Montreal, which is greater than the entire workforce of Clinton County (MTLINT, 2016). While NAFTA has made trade easier, crossing the border for business is still a daunting task for most small businesses (Rundh, 2015, Winch and Bianchi, 2006).

Figure 1

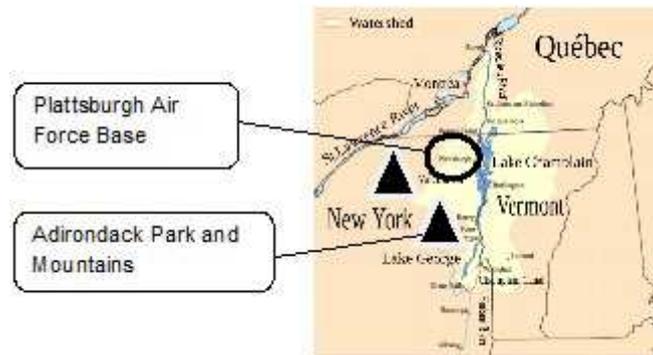


Figure 1, Map of region (Lake Champlain Basin Program)

6. Robust economic development institutions

The Northeastern region of New York State has developed a strong institutional environment where local, regional, state, and federal agencies collaborate to provide a range of programs that support private sector development. The depth and sophistication of these institutions are evidence of strong support from policy makers (Desrochers and Sautet, 2004), which is largely justified by job creation and retention (Collins and Douglas, 2015). Since 1997, the city of Plattsburgh has been highly ranked by "Site Selection" magazine as an excellent small town to locate your business (PARC, 2006). In 2014, "FDI" magazine ranked Plattsburgh the number two small US city to invest in (Heath, 2015). The strong institutional environment in the region is essential for supporting cluster development.

7. Regional economic development strategy

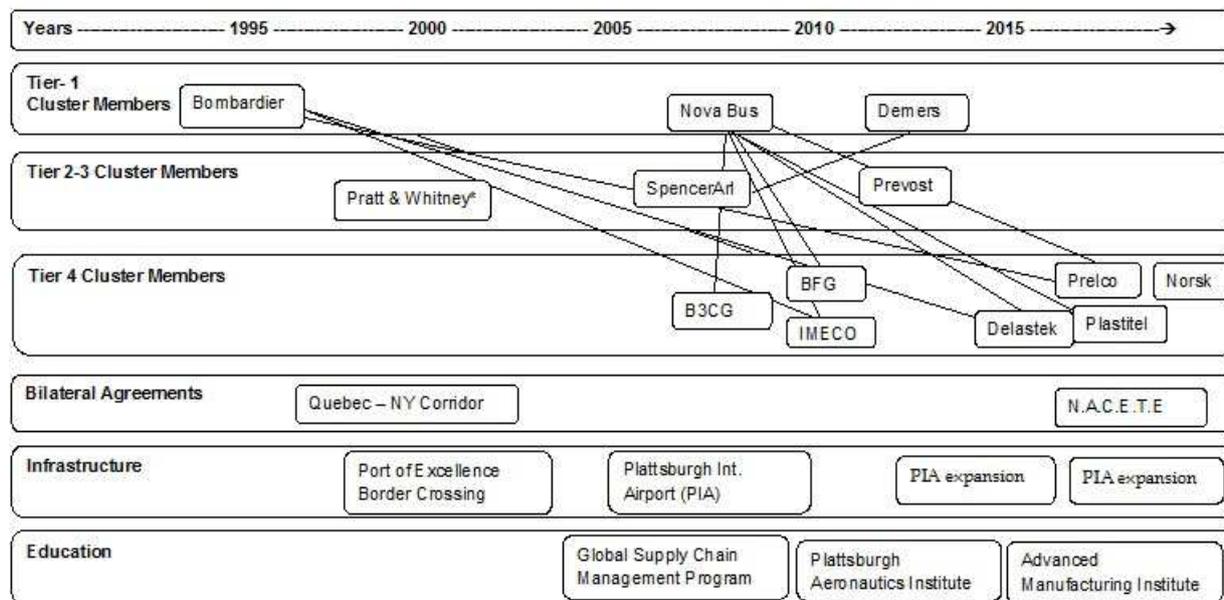
The comprehensive 2015 regional economic development strategy begins with a few phrases that help explain the active development of the NACETE, including: (1) "Builds on growth in the aerospace, transit equipment, ... and manufacturing industries, (2) will leverage our gateway to Canada, (3) attract and nurture entrepreneurs, and (4) invest in community development infrastructure" (Collins and Douglas, 2015). These pillars of the strategy can be traced to initiatives dating back to the closure of the base. In 2001, the regional chamber of commerce exclaimed that "To achieve great things, small areas must determine what it is that is bigger than themselves that they can make themselves a contributing part of;" and branded the region as "Montréal's US suburb" (NCCoC, 2001) The development strategy includes the development of bi-national agreements, infrastructure enhancements, and education and workforce development. The execution of the strategy over the 20-plus years is described below and depicted in Figure 2.

Bi-national institution development- The Québec - New York Corridor agreement was signed in 2001 to facilitate economic relations (NCCoC, 2001), giving Northeastern New York a role in the multi-billion-dollar annual trade between Québec and New York State. In 2013, Québec's Delegate General to New York, Mr. Boisclair, explained that the relationship "helps Québec companies export to the United States but also helps create more jobs in this region ...the two sides are not fighting for a larger share of the economic pie, but looking for ways to make a larger pie" (Heath, 2013). The North American Center for Excellence in Transportation Equipment was announced in June 2015 (NCCoC, 2015). About one dozen transportation companies meet monthly to identify and fill gaps in the regional supply chain (NCCoC, 2015).

Infrastructure - At the first summit, priorities were placed upon continued summits, rail enhancements, border crossing improvements, expansion of the airport in Plattsburgh, and further down the road, a high-speed rail link between Montréal in New York City (NCCoC, 2001). To date, these projects have been completed except for the high-speed rail line.

Educational institutions -A feature of innovative clusters is knowledge creation and spillovers, where firms get knowledge from other firms and institutions (Tallman et al., 2004). There are many secondary and two post-secondary education institutions in Plattsburgh. To date, there have been three major institutional educational initiatives, in addition to a variety of smaller training and workforce development initiatives. First, at SUNY Plattsburgh the Supply Chain Management program began in 2006, then Plattsburgh Aeronautics Institute was founded at CV-Tech, and most recently a Center for Advanced Manufacturing has been launched at Clinton Community College (NCCoC, 2015).

Figure 2. Formation of the North American Center of Excellence for Transportation Equipment



8. Analysis of manufacturing tiers in the transportation cluster

In Figure 2, we identify 13 firms in the transportation equipment cluster and classify them by their roles in the manufacturing process. Most large equipment manufacturing clusters consist of tiers of firms that perform the functions of design, sales/marketing, assembly, and parts production (Niosi and Zhegu, 2005). Using aerospace as an example (cf. Niosi and Zhegu, 2005), top tier firms design, market, and finalize assembly of aircraft. Second-tier firms supply Tier-1 firms with larger subassemblies, such as jet engines or landing gear. Third-tier firms supply smaller subassemblies like fuel supplies for engines or braking systems for landing gear. Tiers 1-3 are highly specialized, are few in number but global in scale. In the Fourth-tier, there are 100’s of firms that supply parts for subassemblies and often serve diverse industries. Tier-1 drives the cluster’s overall activity. Figure 2 shows that most of the firms in Tiers 2-4 are tied to either Bombardier and/or Nova Bus.

Figure 2 displays formation of the cluster over time and its recent dramatic growth that is largely related to tier-1 firms, Bombardier and Nova Bus. While some tier-2 companies followed Nova Bus simultaneously, most of the lower-tier companies took a few years to start operations. Nova Bus has initiated more lower-tier activity than Bombardier. Pratt and Whitney’s testing facility was not associated with other firms in the cluster and moved to Montreal in 2008. Norsk, which is a Tier-4 parts producer, will be looking to develop relationships higher in the cluster and may not attract other manufacturers (cf. Giblin, 2011). The development of specialized institutional support, industry focused bi-lateral agreements, improvements in infrastructure, new education programs, and the attraction of a growing number of related manufacturers provide the foundation for the early stages of cluster formation (Menzel and Fornahl, 2009).

9. Cluster emergence analysis

One implication from figure 2 is that further growth of the cluster (beyond Norsk) may be related to additional Tier-1 entrants, related to Demer's recent start, and/or growth generated by Bombardier and Nova. A potent mix of world class manufacturers, specialized supply chain members, and now an entrepreneurial start-up are active in the region. For the sake of regional competitiveness, further development of this cluster may be driven by cluster-specific knowledge creation, leading to innovation in products, services, process, new sources of supply, and new markets (Tallman et al., 2004). Entrepreneurship may be seen in the creation of spin-offs and new ventures that are tied to the cluster (Tallman et al., 2004). To date, intra-cluster innovation and entrepreneurship have not manifested in a publicly discernible way (Interview, 2016).

10. Catalyzing cluster emergence

Supporting the further development and emergence of a competitive manufacturing cluster may include continued efforts to attract more tier-1 firms and/or fill gaps in the supply chain with additional lower-tier firms. However, to develop regionally-based competitiveness facilitation of knowledge creation, innovation, and entrepreneurship are necessary (Tallman et al., 2004). An important aspect of competitive cluster development, innovation, and entrepreneurship is randomness or serendipity, such as when an entrepreneur emerges in a specific location and time (Steenhuis and Kiefer, 2016). Entrepreneurship and innovation can be encouraged by educational institutions like MIT in Boston or Stanford in Silicon Valley. To date, the leveraging of existing educational institutions has focused primarily on skilled labor development and supply chain management, which are likely to produce incremental improvements in processes that, over time, can significantly enhance competitiveness (Tushman and O'Reilly-III, 1996). SUNY Polytech, in Albany, NY and Clarkson University in Postdam, NY, are working closely with Norsk Titanium and may bring more advanced technologies and product innovation capabilities to the cluster. Moving forward, the further development of educational programs and their integration with the transportation equipment manufacturing cluster may provide the best opportunities for the development of cluster-specific knowledge and regionally-based competitiveness that is self-sustaining.

11. Challenges in the global travel equipment industry

Given the recent successes in developing the cluster, it may be overlooked how challenging it may be to maintain a position in this competitive and fast-paced global manufacturing system. The transportation equipment manufacturing industry is mature, technologically advanced, highly concentrated, globally scaled, and competitive. Agglomeration of manufactures in Northeastern New York may reflect a dispersion of activity at the global level, just as automobile manufacturing has become less centralized in Detroit in the US (Niosi and Zhegu, 2005). Well-developed technologies are now delivered electronically and reduce the benefits of physical proximity, allowing companies to perform activities in proximity to strategic suppliers or customers. Currently, much of the regional-cluster's activities are driven by global forces.

Clusters and supply chains may be adversely affected by weaknesses/problems experienced by key members (Chopra and Sodhi, 2004). Bombardier has experienced production problems at their Plattsburgh facility and have failed to deliver on a major contract with the Mass Transit Authority in New York City (Rivoli, 2015). Bombardier is also struggling with development of the C-series jet and has received billions of dollars in investment from different Canadian and Quebec-provincial agencies (McNish and Vieira, 2015).

While the NAFTA agreement has been associated with growth in trade that is beneficial to both countries, it allows state and municipal government's leeway to favor US made content in their procurement processes. These provisions at the local-level are contrary to the spirit of the free trade areas (Hufbauer and Schott, 2013) and may be the subject of review in future agreements between the US and Canada. Under President Trump, the US has negotiated for more US-favored international trade deals, been willing to withdraw from the Trans Pacific Partnership agreement, and

threatened to withdraw from NAFTA as part of the negotiating process (Worstell, 2017). It remains unclear how changes to NAFTA might impact economic development in the north-eastern region of New York State, but revisions may be likely in the near future.

12. Conclusion

The potentially devastating impact of the base closure, that was closely followed by a precipitous drop in population and the total number of jobs, has been substantially avoided (see Table 1). The recent attraction of manufacturing establishments may help reverse these downward trends and produce the first growth in manufacturing employment in over 20 years. The anticipated employment of 400 people at Norsk Titanium may increase total manufacturing employment by more than 10%, barring layoffs at other manufacturers. We view the current successes in firm and job growth to have been strategically driven in the policy making process, not the result of an internally-driven cluster emergence and development phenomena. This cluster may require considerable more growth in many areas and a continued or increased level of policy making support before a critical mass is achieved for internally-driven regional competitiveness.

Cluster theory may be “a fuzzy concept,” but it seems reflective of the current complexity and dynamism evident in the field of economic development. At present, a cluster development approach to economic development is unwieldy for researchers and professionals, but we do not argue here for more parsimonious or generalizable theory of cluster development. We propose that bridging the gap between theory and practice may be best done at the local level by addressing the unique features of a specific cluster. Romme (2016) calls on researchers of management to contribute to “a science-based professional activity that serves the greater good.” Cluster development in pursuit of regional economic development seems to be a worthy area for additional research that has immediate importance in our own communities. This paper may be useful for local economic development professionals and help bridge the gap between cluster theory and practice at the local level.

13. Limitations and future research

This research focuses on the ongoing phenomenon of economic development over a period of more than 20 years. Only major events in public documents were taken into consideration to cover such a broad swath of activity over an extended period of time. Economic development experts who were and are actively involved in the above activities corroborated the general sweep of the above narrative and interpretation of the data. The inferences from the data are applied to this specific case study.

Local economic development professionals played an important part in the development of this paper and by their active participation may have already incorporated some of these findings in their approach to cluster development. Research methods for engaging with economic development professionals may be developed for the purpose of bridging local gaps between researchers and practitioners. The importance of economic development to so many communities may justify a more applied methodological approach to cluster theory development.

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The Impact of the Shadow Economy on Small and Medium Sized Companies in Poland. A Barrier or an Opportunity for Growth?

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Key words

Transition economy, small and medium-sized enterprises, SMEs, shadow economy, barrier, opportunity

Abstract

In this article, I argue that it is difficult to arrange the development of small and medium sized companies in Poland ignoring the role of the shadow economy. The shadow economy exists in every country. The differences are related to its scale and its category. It can be regarded as a phenomenon found in a transition economy especially. All efforts to abolish the shadow economy have proven to be ineffective. During the era of the planned economy in Poland, the shadow economy was operating at a high level, mainly due to the fact that such a planned economic model proved to be very unsuccessful. The communist era was known as the economy of shortage, and this made a considerable impact on the development of the shadow economy. The shadow economy affects many aspects of the economy, including small and medium sized-enterprises (SMEs). These companies play a fundamental role in market oriented countries. The aim of this study is to examine the relationship among the factors fostering the activity of small and medium-sized enterprises. The study is concerned with companies operating in the legal economy in Poland. The study shows that the shadow economy is regarded as a chance for further development for many SMEs.

Introduction

Based upon the literature review, there are many definitions related to the shadow economy. It can be coined as the grey zone, informal activity, not registered, unreported, undeclared activity, hidden, parallel, irregular, and black and even the criminal economy (Henry, Sills, 2006). Schneider (2005) describes the 'shadow economy' as currently unregistered economic activities that contribute to the officially calculated (or observed) Gross National Product. According to Williams (2005), the informal economy consists of goods and services which are perfectly legal in and of themselves, but whose production is hidden from the state and can involve systematic and serial law violation. This definition distinguishes the informal economy not only from mainstream conventional activities on the one hand, but also from criminal activities on the other hand (Jones, et al. 2017). Ditton defined the hidden economy as the sub-commercial movement of materials and finance, together with the systematic concealment of that process for illegal gain (Ditton, 1977). Different definitions create various economic categories, and this creates various methods of attempting to measure the shadow economy and its level.

For this reason, the level of the same shadow economy in the research literature quite often varies when presented by different investigators (Schneider, Williams, 2013, Teobaldelli, 2011, Lacko', 2000, Gerxhani, 2004). In this article, the shadow economy is defined as such activity that avoids budget revenues and affects the GDP calculation. The benefits and threats of the shadow economy are not unambiguous. Generally, it is stated that the shadow economy has a negative impact on the general economy. One of the most important causes of the increase of the shadow economy is the rise of tax and social security burdens (Isachsen, Steinar, 1980). Houston concludes that the shadow economy could lead to overstatement of the inflationary effects of fiscal or monetary stimuli (Houston, 1987).

Together with the shadow economy, corruption exists. Mauro (1995) finds a significant negative correlation between a corruption index and the investment rate or the rate of GDP growth (Mauro, 1995). Corruption can hamper innovativeness and competitiveness (Baumol, 2002). Also, it often mallets entrepreneurs (Avnimelech, Zelekha, Sarabi 2011). Corruption stifles economic growth, undermines the rule of law, and squanders talent and precious resources (World Economic Forum, 2008). Interesting view on shadow economy was presented by Mukherjee. He states that informal economy especially in emerging economies is not a substitute but a complement. It cannot be excluded from general business activity (Mukherjee D., 2016). But coming to the definition case Mukherjee identify shadow economy with informal one. This is interesting point of view but arguable approach, since informal economy is just a part of the shadow economy.

Referring to the proposed definition of the shadow economy, activities related to criminal behavior (such as robbery, drug dealing, smuggling, trading in stolen goods, tax evasion, tax avoidance, fraud, prostitution, slave labor, and so forth) have a negative impact on the economy as well. However, on the other hand there are opinions that the shadow economy could provide some benefits. As early as in 1958 during the annual meeting of the American Sociological Association, Ferman mentioned that some activity within the framework of the shadow economy was deviant, but some was not since it provided work opportunities. The advantages are related to the possibility of work which may be prohibited in the legal structure. Secondly, this may provide the worker a sense of accomplishment and competence, thirdly such work is not strictly accountable to legal authority for earnings since no record is kept of this work for public scrutiny (Henry, 1993). The third argument is discussable, since all business activity should be transparent. The shadow economy provides an opportunity for the unemployed. Not all of the shadow economy workforce chose the criminal way, quite often they chose the legal option but did not register such projects like home repair (plumbing, painting, etc.), gardening, or the distribution of low-priced goods and services (Bakke, 1940). From an economic perspective, the shadow economy can be diagnosed as a mechanism which helps people to survive in industrialism, especially during tough capitalistic competitiveness and times of transformation. People begin to produce, trade, and barter goods and services. From this domestic and neighborly help, the shadow economy was born. Such activities are widely spread among local communities, neighborhoods, and families and are based upon specific rules and conditions (Hart, 1973, Ferman, Berndt, 1981). The shadow economy gives the chance to move away from poverty. This is especially important in less developed countries. The regular market does not offer enough opportunities for work, so the only chances for many appear in the shadow economy.

In a way, the shadow economy absorbs the labor force and provides a higher possibility to work in the official economy. Even in well developed countries, the shadow economy is regarded as being an opportunity to earn more money working part time during the holidays or days off for legally employed workers. Such activity is not registered, since the worker is officially not on duty and should be resting. In this way, he/she earns extra money, which can be transferred into legal transactions. This is supported by Alden, who found that irregular, and unregistered jobs are typically done by those who are already highly active in the legal economy (Alden, 1981). Roberts described the transition from the shadow economy to legal activity of young men in Mexico.

In the low-income regions of this country, young men started their unregistered jobs first, and after some time they created micro and small (but official) companies (Roberts, 1989). The shadow economy backs the growth of the official economy by providing low cost consumer goods, native capital goods and a more labor-intensive form of manufacturing (Bremen, 1976). Gutmann explained the rise of the shadow economy by the growing state bureaucracy and government expenditures (Gutmann, 1977). Due to the bureaucracy, the government inspired the shadow economy, especially with a high rate of taxation. The shadow economy can be seen as the discipline factor having an influence on the official economy. If the official economy performs unfairly or immorally, the shadow economy expands. A growing shadow economy may attract (domestic and foreign) workers away

from the official labor market and create competition for official firms. On the other hand, at least two-thirds of the income earned in the shadow economy is spent in the official economy, thereby having a positive and stimulating effect on the official economy (Schneider, Enste 2000). This article is organized in the following manner: After the introduction, two theoretical chapters emerge. The first chapter is related to the roots of small and medium-sized enterprises (SMEs) in Poland, the second chapter is devoted to the shadow economy. The fourth section focuses on the methodological approach. The fifth section is dedicated to the results. The study is then completed by the conclusions.

1. The Genesis of Small and Medium-Sized Enterprises (SMEs) in the Polish economy

In Poland, as in the European Union, the category of small and medium-sized enterprises (SMEs) is applied to enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro. The small and medium-sized companies have had a relatively long tradition in the Polish economy. They did not disappear, even during the communist regime, even though the state and cooperative companies were given priority.

This is because the model of the planned economy was artificial. This model proved to be very ineffective. The private sector did not have any chance to grow, but was more market oriented, manufacturing products and services which met market demand. On 3rd January 1945, the nationalization act was issued. Based upon this legislation, all agricultural farms exceeding 50 hectares were transferred to state ownership, together with factories employing more than 50 workers. Some branches such as mining, the food processing industry, steel, and the textile industry were totally nationalized. This is the only way that small and medium-sized private companies could operate under the communist regime. Furthermore, they were under strict control. They had problems with attaining raw materials, taxation, employment, and access to bank credit. With these methods, the government attempted to limit the number of private companies and their development.

Additionally, the children of private entrepreneurs could not enter University and gain higher education, and sons were sent to the army. Other citizens had the green light to study and were given permission to postpone their military service. The duration of military service was reduced to one year for those who graduated University studies. The conditions of service were far better than the normal two or three years of military duty. A special supervision body was set up, known as "The Central Price Office". This office was responsible for setting the price level of private companies and trying to avoid the earning of higher profits. Two crucial acts of law were established. One was related to overpricing policy and the second one a so-called citizen's control of business activity. Based upon the second law, a delegation consisting of workers could come to private companies and judge their activity. If their opinion was not favorable of the private company, they firm could be closed down and the owner even sent to prison. Such harsh business circumstances did not stop the activity of small and medium-sized companies; however, their numbers decreased. In 1947 there were 147 thousand private shops in Poland, 87 thousand construction companies, 92 thousand manufactories, and 78 thousand service companies. In 1951 there were 73 thousand private shops, 33 thousand construction companies, 44 thousand manufactories and 27 thousand service companies (Statistical Yearbook, 1954).

On the other hand, the small and medium-sized companies created a specific strategy, quite well adjusted to the planned economy. First, it must be remembered that the planned economy is quite often called an economy of shortage. There was a permanent lack of basic consumer products, and the quality of them was very poor. Therefore, even the smallest product or service could generate extremely good profits. Secondly, government officers were not paid enough money. In the 50ties, the average salary was on the level of 1000 PLN (Polish zloty - PLN), but the owner of a private shop could earn monthly ca. 20 000 PLN (Archiwum Akt Norwich, 1962). Similar earnings could be made at other private companies.

However, this only related to the owners. Managers and employees were paid not nearly as much, but at least twice more than in state owned companies. This was a temptation and risk-taking activity. Such a business environment created a base for corruption and the shadow economy. A popular strategy for private small and medium-sized companies was to hide revenues and profits. On the other hand, corruption was a way to protect the business and get access to the market as well as a supply of raw materials. During the planned economy, corruption and shadow economic activity were common. Corruption was widely spread even among workers, managers, and presidents of state owned companies as well. This was mainly due to the shortage of goods. Having access to goods was even more important than the possession of money.

The barter trade of goods (which was officially prohibited) was very popular in Poland. Protection and access to the possibility of buying products (based upon corruption) was a popular way of improving living standards (Prywaciarze, 2006). However, such practices were supposed to be regarded as shadow economy activities. During the 60ties and 70ties, the number of small and medium-sized companies slowly but steadily grew. Their total number has been calculated at 250 thousand (Statistical Yearbook, 1982). In March 1972, a new legal act regulating private companies was set up (Ustawa 8 March 1972).

Based upon this regulation, the procedure for setting up a company was made more transparent. Anybody who met the requirements could theoretically create a company. From a practical point of view, the procedure was long (nearly 6 months in duration) and the Municipality could reject the registration based upon any "important government reason" – which was simply an ambiguous excuse. Such a possible negative outcome could be easily avoided by paying bribes. Small and Medium-sized private companies in Poland conducted sales through their own Distribution Channels. It was a special economic model where state owned companies were engaged in fundamental industries and private small and medium-sized companies were focused on service and support industries. Whenever riots erupted (1970, 1976), it was mainly because of a shortage of food and other basic products.

In response, the government would loosen the regulations concerning private companies. Even though the economic situation was very difficult in 1988, the government introduced a new legal act regulating the activity of private companies. It was interesting that the main architect of the act was Wliczek, who acted as the minister and was a successful private entrepreneur (Ustawa 1988). This act gave a real green light for private business, but it was too late for the communist regime to keep power and supervise the reforms. Since the beginning of the transition in 1990 from a centrally planned economy to a market oriented economy, the performance of Poland's economy has been outstanding if we take GDP growth as our measure. It is not specific reforms that can explain this performance but the radical ("big bang") reforms at the beginning of the transition in conjunction with persistent efforts during the subsequent two decades by all governments to keep on a reform path, no matter what their political orientation. Reforming a centrally planned economy that has very serious macroeconomic disequilibria requires reforms that can be done immediately, but also structural or systemic reforms that require years to implement (Lehman, 2012). This had a great impact on the development of small and medium-sized companies. In 2015, nearly 1.9 million businesses were operating in Poland.

The vast majority of them - as many as 99.8% - are small and medium-sized enterprises (SMEs). Polish SMEs operate primarily in the sector of services and trade (76%), less often in construction (13.4%) and industry (10.6%) (Statistical Yearbook, 2016). When compared to the EU average, the SME sector in Poland is increasingly dominated by microenterprises and the share of small firms represent about half of the share of small enterprises in the EU. In terms of the structure of the sector's contribution to GDP, SMEs generate every other zloty (47.3%); whereas the smallest companies account for nearly every third zloty (29.4%) generated. The share of medium-sized enterprises is three times smaller (10.1%) as compared to microenterprises and the contribution of small enterpris-

es is nearly four times lower (7.8%). Over the years, a significant upward trend has been observed among Polish companies, confirmed primarily by the increasing share of large enterprises in GDP generation. In the case of small and medium-sized enterprises, their share of GDP varies and the identification of clear trends is difficult (PARP, 2013). Criticism of the transformation period in countries with a planned economic model should refer to the term originally coined by Burawoy called "involution". Involution in this context means the opposite of the term "evolution" (Burawoy, 1977).

This definition applies well to the Russian case. However, in Poland the period of time that led to the reform from a central planned economy to a market oriented economy should be termed "transmission". In fact, the reform to a market oriented model kept nearly all shadow economic activity from the previous system. The reforms gave a chance for informal business activity as well, which finally became the shadow economy. The initial period of reforms transmitted the shadow economy into the market oriented environment. This situation affects the performance of small and medium-sized companies.

2. The performance of the shadow economy in Poland

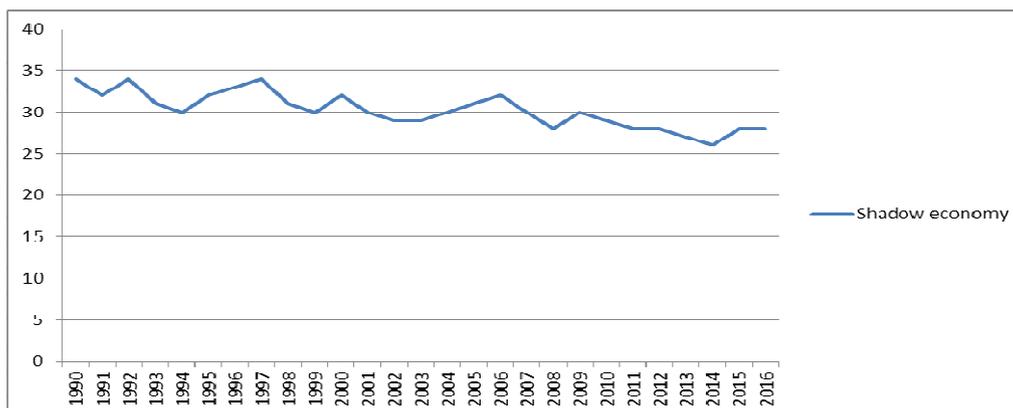
The roots of the shadow economy in market oriented economies are more or less the same. The difference is related to the impact and the category of the roots only. But generally, they are related to the level of taxation and social security contributions (Buehn, Dell'Anno, Schneider, 2012), inefficient labor markets, a high unemployment rate (Maloney, Mendez, 2004), a high level of organized crime (Fletcher, 2015), a complicated legal system and the level of development. Estimates for the shadow economy in OECD countries range from 5% of official GDP to 27%; while developing economies have a much higher estimate, ranging from 25% of official GDP to around 70% (Gomis-Porqueras, et.al.,2014). Especially in the context of Poland, one must take into consideration three additional important factors fostering the shadow economy.

First, it is related to history and especially to the times of the communist regime. During 1945-1989, the planned economic model was created. This model was quite often named "the shortage economy". This is because of a permanent lack of basic goods in the markets. State owned and cooperative companies proved to be very inefficient. The market demand was supplied by shadow economic activity. The second factor is based on cultural dimensions. Culture is commonly understood in Weberian sociology as the shared set of beliefs that influence what we consider to be meaningful and valuable (Harvey, 1997).

Based upon cultural dimensions originally coined by Hofstede (1980), they support the creation of the shadow economy in Poland. G. Hofstede's work is the most popular, and originally includes four dimensions of national culture: power distance, uncertainty avoidance, individualism vs collectivism, and masculinity vs femininity. Poles do not trust the government and its institutional organizations, so the power distance is relatively high. They are more self-focused and not willing to cooperate, so social and relational capital is relatively low.

Additionally, Poles are regarded to have a masculinity orientation and a high level of uncertainty avoidance (Hofstede, 1991). The third factor is connected with the time orientation (This factor was added to cultural dimensions later). After the communist era, Poles became short time oriented and tried to gain high material status rather quickly, by any means necessary. Due to this cultural tendency, the gate to the shadow economy was thrown wide open.

Figure 1
The level of the shadow economy in Poland between 1990-2016 (% GDP)



Source: own calculation based on DYMIMIC and the Currency Demand Method approach

Since 1990, the shadow economy has been decreasing slightly. In 1990 its level was estimated at 34% of GDP; in 2016 its level was estimated at 28% of GDP. The structure of the shadow economy changed. The decrease was noted in simple activities such as smuggling, trading in fake goods, even organized crime was lowered. The most important criminal groups which emerged during the first years of the transformation were liquidated or at least had decreased levels of performance. These included groups such as Pruszków Organized Crime Group (OCG), Wołomin OCG, Mokotów OCG, Łódź OCG called Octopus. They were mostly involved in extortion, criminal terror, drug, spirits, tobacco production and tariffing (Jasiński, Mądrzejowski, Wiciak ed., 2013). On the other hand, the current entities in the shadow economy in Poland are very active in:

- swindles and fraud linked to VAT,
- unpaid income tax,
- losses due to unpaid corporate taxes,
- losses due to unpaid excise.

According to Murphy (2012), the size of the Polish shadow economy is at the level of 27,2% of GDP, with a tax burden of 31,8% which can be estimated at 31 billion Euros in total. In this way, the taxation gap has been growing due to tax evasion and tax avoidance. The problem with the shadow economy in Poland is undeclared and unregistered work. The dominant part of undeclared and unregistered labor is performed by self-employed own-account workers. Such activities constitute ca. 12% GDP on a yearly basis (Statistical Yearbook, 2016). The problem in this respect is related to young people (aged 18-26). In 2013, less than 25% of them were employed legally (Rorat, 2014).

The complexity of tax regulations in Poland are the single biggest obstacle reported by businesses, so avoiding tax regulations can be an important benefit of staying in the shadow economy. The complex and unstable tax legislation mutually reinforce their negative impact on business and investment (Łaszek, Trzeciakowski, 2015). Poland faces a lack of innovation. This fact has slowed its productivity and eroded its international competitiveness. The distance between Poland and well-developed countries has been kept at the same level. Despite recent Polish reforms (which lead the country to a market oriented economy), it is still very difficult for small and medium-sized businesses to obtain the resources and required support they need to grow; even though Poland was placed 39th among 128 countries in the 2016 Global Innovation Index ranking published by Cornell University in cooperation, among others, with the World Intellectual Property Organization. Poland, having gained 44.2 points out of 100 points possible, has advanced in the ranking by seven places since 2015. Poland achieved a good position in the most innovative economies ranking thanks to the ease of starting a business, level of education, domestic gross outlays on R&D, number of scientific publications, and the creativity of the ICT sector (<http://www.pap.pl/en/news-/news,638509,poland-39th->

in-global-innovation-index-ranking.html,access 2017/02/19). Such a ranking is discussable; this is because the place in the ranking partly depends on Polish efforts and partly depends on the performance of other countries.

It can be that Poland did not increase innovation very much, but that other countries did less, and finally the Polish position improved. Polish small and medium-sized companies are recognized by IT software products (computer games), slow food production, furniture, and construction products. In spite of that, Poland is still regarded as an inefficient innovator. The chances for further development are dependent upon an increase in innovation.

3. Empirical Approach

The survey was conducted on a group of 249 managers. They represented 119 companies operating legally. The small and medium-sized companies were from the following sectors: 34 construction industry, 32 services, 27 trades, 26 manufacturing. The rate of correctly filled in questionnaires was 75% (n =187). 73 % of the survey participants were male and 27 % were female. The participants had a mean age of 33.5 years, a median of 32.24 % of participants had a bachelor's degree, and 76 % had a master's degree. Each answer was measured by a 9-point rating scale (1: Strongly Disagree - 9: Strongly Agree). The items in the questionnaires were related to the barriers of activity for small and medium-sized companies operating legally and opportunities for development, if it is assumed that the interviewed company operates in the shadow economy. A sample K-S test was used for testing normality in distribution. The Cronbach's alpha test was used to test the reliability of the survey. The Cronbach's alpha scores obtained were; $\alpha = 0,878$ for the barrier's scale, and $\alpha = 0,816$ - for the opportunity scale for development of small and medium sized companies. This indicates that the scales were reliable (since the scores were higher than 0,7; Nunnally, 1978).

Based upon the literature review related to the shadow economy and small and medium-sized companies, the following hypotheses were developed:

1. Hypothesis: The tax burden is negatively correlated with investment
2. Hypothesis: The tax burden is negatively correlated with innovation
3. Hypothesis: The social burden is positively correlated with unregistered work
4. Hypothesis: The complicated and contradictory legal system is positively correlated with tax avoidance.

The survey was performed in September 2016. The first factors are related to the barriers and the second factors are related to the opportunities for development. The questions mainly referred to taxation, the legal system, opportunities for investment and innovation. Based upon the investment factors analysis results and rendering the factor loadings of barriers for development, 10 items were deleted and 5 factors were found, but 6 opportunities for development were deleted and 6 factors were found. The found factors related to investment and Cronbach α result are presented in the table 1. Referring to the factors of innovation, the factor loading of 7 barrier items were deleted and 3 factors were found. With regards to opportunities for development (operating in the shadow economy), 5 were deleted and 4 were found. The results are shown in the table 2.

4. Results

Table 1
Results of Exploratory and Reliability Factor Analysis of the Investment Scale

Item	Factor 1	Factor 2	Cronbach alpha
Company pays high taxes	,811		
Company faces high costs of activity	,822		
There are often changes in the taxation system	,856		,866
The legal system is complicated and hard to understand	,889		
There are problems getting sources for investment	,890		

High rate of profitability		,834	
Adaptable activity		,802	
Meeting customer needs		,715	,801
Creating good relations with business partners		,726	
Sound financial standing		,784	
No problems hiring skilled workers		,790	

Table 2
Results of Exploratory and Reliability Factor Analysis of the Innovation Scale

Item	Factor 1	Factor 2	Cronbach alpha
Company cuts R&D spending	,799		
Company cannot afford to cooperate with Scientific Centers	,801		,811
Company has not started a new project for at least 3 years	,822		
High possibilities for new business venturing		,766	
High possibility to create an R&D department		,819	,843
Possible cooperation with Researchers		,812	
High possibility of introducing new patents, know-how		,827	

The correlation between variables has been displayed in table 3. There is a negative correlation between the tax burden and investment (-0,31). In this way, hypothesis 1 has been supported.

Table 3
Correlation between variables

Variable	1	2	3	4	5	6	7
Tax burden	1						
Social burden	0,33	1					
Unregistered work	0,45	0,56	1				
Tax avoidance	0,55	0,61	0,48	1			
Complicated and contradicted legal system	0,41	0,52	0,31	0,71	1		
Innovation	-0,23	-0,21	0,18	0,46	0,52	1	
Investment	-0,31	-0,43	0,22	0,07	0,16	0,33	1

Correlation is significant at the 0,05 level ($p < 0,05$)

In addition to this, there is a negative correlation between the tax burden and innovation (-0,23). The second hypothesis has been supported. The social burden is positively correlated with unregistered work. The score is relatively high at 0,56. The complicated and contradicted legal system is positively correlated with tax avoidance. The score is the highest among all variable correlations 0,71.

These results are not very optimistic for the further development of small and medium-sized companies in Poland. The shadow economy has been detected as a possible chance for development. The taxation and legal system is regarded to be one of the barriers. The legal system is complicated and contradicted. Taxation is at a high level.

Due to this, small and medium-sized companies face problems with investment. Whenever the idea of investment appears, the source of money must be considered. If the company relies on outside sources of financing (not only one's own sales), the future business should be profitable enough to cover debt spending. The business of SME companies in Poland is not profitable enough to search for sources of investment. The good news is that investment is connected with innovation. The way to improve is related to effective R&D spending, cooperation with research centers, and

employing skilled workers. At this moment, such activities are a barrier to SMEs. The legal system and a high taxation rate support tax avoidance and a high rate of unregistered work. SMEs state that they do not have sound financial standings.

5. Conclusion

All of the developed hypotheses were supported. The business environment is not very favorable for small and medium-sized companies in Poland. The companies see the option of operating in the shadow economy as a chance for further development. Based upon this research, shadow economic activity is familiar to legally operating SMEs. They should have close contacts with companies from the shadow economy. Further research is required, especially with regards to the tools to reduce the shadow economy and make the legal business environment friendlier. The first steps should be to improve innovation, simplify the legal regulations and increase financial profitability. The success of SMEs in Poland means the success of the entire economy. The shadow economy should be reduced naturally. For example, the option of operating in it should be treated as being unprofitable with little chance for development. Legal regulations and punishments for such activities should not be regarded as the only correct solution. An economic approach must be taken into an account as well.

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Life Insurance Contribution, Insurance Development and Economic Growth in China

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Key Words

L-type Economy\Life Insurance\Premium Scale\Development of the Insurance Industry\Total Factor Productivity\Economic Growth

Abstract

Under L-type economy, remodelling the growth power in the medium and long term is essential. The insurance industry during the 13th Five-year Plan period has been given a heavy expectation on promoting economic quality and upgrading economic efficiency, so it will try to accelerate its innovation and development process which serves national needs, market demand and people's requirements. Referring to the previous researches of Solow and Zhang and measuring Capital Stock and Total Factor Productivity independently, the paper analyses the inherent correlation between insurance (including life insurance and non-life insurance) and economic growth, reveals the contribution law of the insurance development in economic growth in the short and long term from both economic scale and quality respectively. It also shows enlightenments on policy decision for insurance industry, thus helps economic stability under the downturn periods.

1. Introduction

'Opinions of the State Council on Accelerating the Development of Modern Insurance Service Industry' gives re-position of accelerated development of the insurance industry from national governance level. Under its guidance, China's insurance industry during the 13th Five-year Plan period aims to serve national needs, market demand and requirements of the people, to more practically play the role of social 'stabilizer' and economic 'booster'. Unlike the past 30 years, macroeconomic environment of the insurance industry is undergoing a major transformation - from high-speed growth to medium-high speed growth, and from 'troika'-driven economic growth to innovation-driven economic growth. However, no matter what type of growth it is, economic growth is the foundation, and cultivation of growth momentum is the key, thus insurance industry is placed with high expectations of promoting L-type economy and contributing to economic growth.

For the two indicators most commonly used to measure development level of the insurance industry, one is insurance depth, that is, proportion of premium income in GDP; the other is insurance density, that is, per capita premium. The two indicators reach to 4.16% and RMB 2258 per capita respectively. The reality of development of China's insurance industry reflected by these two indicators shows that:(1) proportion of the insurance industry in GDP gradually increases, showing M-type curve segment climbing;(2) insurance density significantly increases since 2005, generally demonstrating J-shape growth trend;(3) personal insurance with life insurance as the main body follows suit with the entire insurance industry, or life insurance is the key force promoting change in insurance industry trends.

However, the above indicators and illustrations are far from being able to explain the relationship between China's insurance industry and economic growth, nor can it provide a strong empirical support for accelerating development of the insurance industry. In this paper, based on the domestic and international research results, the insurance industry is divided into life insurance and

non-life insurance, and the two and economic growth are placed in the same research framework for research. The main contributions of this paper are as follows: (1) The economic growth model with life insurance and non-life insurance as new endogenous variable is constructed by Solow Growth Model with technological progress. (2) China's sub-quarter capital stock and total factor productivity between 1999 and 2015 is measured according to Zhang et al. (2003, 2004) research results, and measurement is carried out on this basis; (3) Contribution law of life insurance, non-life insurance and insurance in economic growth is distinguished from the two perspectives of economic growth scale and quality, and relevant policy recommendations are put forward to promote insurance development.

2. Literature review

There are three different conclusions about the relationship between insurance development and economic growth: (1) there is a 'demand follow-up relationship' between the two, that is, economic growth drives insurance demand (Blum et al., 2002); (2) there is 'supply guide relationship' between the two, that is, insurance promotes economic growth (Webb et al., 2002; Boon, 2005; Han et al., 2010); (3) the two demonstrate 'two-way causal relationship', that is, economic growth promotes development of the insurance industry, and vice versa (Kugler et al., 2005). This paper combs the representative literature at home and abroad, and finds out that the research results cover the three research perspectives of industry nature, market subject and business category, and form two logical lines: (1) in the static aspect, modern service industry is essentially rooted in insurance industry, and its inherent link with economic growth naturally exists; (2) in the dynamic aspect, insurance company's operations and insurance business strengthen and deepen the above-mentioned internal relations.

A) Nature of the insurance and economic growth

Outreville (1990, 1996) successively used the property rights data of 55 developing countries and the life insurance data of 48 developing countries to reveal the natural close relationship between insurance industry and economic growth: elasticity of per capita insurance expenditure versus per capita GDP is greater than 1, per capita insurance demand is function of per capita GDP, financial development level and premium. Skipper (1997) argues that insurance contributes to economic growth in six areas: enhancing financial stability, facilitating business and trade, mobilizing domestic savings, effectively controlling risk, promoting effective allocation of capital and reducing losses. Not only that, insurance can invigorate market transactions and maintain financial stability through risk identification and risk transfer (Ward et al., 2000), and even replace and supplement government support programs (Skipper, 2001). To some extent, stimulus effect of the insurance on economic growth is an endogenous function (Regan et al., 2007), which promotes economic growth by means of risk transmission, asset allocation and influence in economic unit decision making (Das et al., 2003). For developing countries, the positive role of the insurance in infrastructure construction, foreign direct investment and job creation cannot be ignored (Rao et al., 2013).

More research is focused on the impact of the insurance on economic unit behaviour decisions. Insurance has reduced the risk of family purchases of cars or investment in real estate, thus stimulating consumption (Ward et al., 2000). If the rate design is attractive, insurance will effectively encourage families to convert savings into premium payments, not only driving competition between banks and insurance companies, but also stimulating consumer demand and market efficiency (Zou et al., 2006; Adams et al., 2009). For businesses, insurance encourages them to develop new technologies and test new products, encouraging investment, innovation and competition (Han et al., 2000). In terms of cultivation of entrepreneurial spirit, the role of the insurance is irreplaceable. As insurance creates a safer business environment, entrepreneurs will take more initiative to adopt innovative initiatives and develop high-return projects (CEA, 2006). In this way, insurance enters production area in the form of enterprise production and consumption,

encouraging investment and guaranteeing production; on the other hand, it enters consumption area in the form of family and government services consumption, improving consumption willingness and becoming a strong guarantee for economic development (Pu et al., 2012).

Many empirical analyses support the judgement about relationship between the two. Ćurak et al. (2009) adopted fixed effect panel model analysis for 10 EU countries. Chang et al. (2013) conducted a Granger causality test of 10 OECD countries, Hotta (2015) applied endogenous economic growth model analysis for 10 Asian countries, Olayungbo (2015) conducted a VECM analysis of South Africa, and the research results jointly show that insurance development has a positive and significant impact on economic growth of most countries. Zhou (2008) used endogenous economic growth model to confirm that role of development of the insurance industry is limited in promotion of economic growth from the national perspective, Wu et al. (2010) Cobb-Douglas production function measurement results found that insurance industry plays a more significant role in promoting economy in medium and poor economic areas. Hu et al. (2010) adopted simulation verification to prove the two-way causal relationship between the two in China; Shao (2015) used nonlinear dynamical system model to reveal the long-term equilibrium nonlinear relationship between the two.

B) Insurance companies and economic growth

The important carrier of development of the insurance industry is insurance companies. Insurance companies raise and allocate funds from decentralized economic units to create liquidity (Jappelli et al., 1994); achieving economies of scale and increasing the likelihood of long and high return investments (Devereux et al., 1994). To accurately assess the level of risk, insurance companies will actively collect large amounts of information from businesses and individuals (Antzoulatos et al., 2007), reducing information asymmetry in financial markets (Wood et al., 1990). Bo et al. (2012) found that improving market share of small and medium-sized insurance companies in the insurance market can effectively promote economic growth.

Since the 1990s, the role of the insurance companies as institutional investors has become increasingly prominent in international capital markets (IMF, 2002). For example, in 2009, US life insurance companies accounted for 6% and 10% of the equity and commercial mortgage markets respectively (Ernst et al., 2014), and the total global management asset of the insurance companies reached \$ 24.1 trillion in 2012 and will exceed \$ 35 trillion in 2020 (PwC, 2014). The identity of the insurance companies as institutional investors enjoys advantages different from other companies: it often participates in various company practices of improving governance structure (Catalan et al., 2000), actively integrates into various company processes of reducing management, operational and financial risk (Hoyt et al., 2000). The investment of the insurance companies has stimulated healthy competition among financial institutions, reduced transaction costs and improved contribution of the financial sector to economic growth (Bosworth et al., 2004), and life insurance companies contribute to capital optimization through investment in special reserve fund (Millo et al., 2014). To achieve Pareto's optimal asset allocation under the second-generation regulatory regime, insurance companies need to reduce their allocation costs through contract signing or institutional arrangements (Filipovic et al., 2014).

C) Insurance business and economic growth

Webb et al. (2005), using 16-year time series data of 55 countries, calculated that higher level of banking and higher life insurance depth means higher economic growth rate. A study conducted by Arena (2008) with 56 countries as sample shows that life insurance is a positive incentive for economic growth in high-income countries, but not in developing countries. Haiss et al. (2008) pointed out that only life insurance in "mature economies" can play a stimulating role in economic growth. Studies in recent years break the above judgments: for example, empirical analysis of 93 countries by Nguyen et al. (2010) found that a country's rule of law and property rights protection

are important force to promote development of the insurance, including life insurance, which has not much relationship with national development degree; another example is that Han et al. (2010) used 77 countries' panel data to conclude that role of life insurance in developing countries is far higher than that in developed countries. Lee et al. (2013) selected 41 countries' data and found that every increase of 1 unit of premium in life insurance can bring 0.06 units of GDP growth from the long term. Since 1990, life insurance premiums have doubled in 10 transition countries in the EU, ensuring that businesses and families can engage in riskier investment, and contributing to long-term economic growth (Feyen et al., 2011). In India, life insurance has a significant positive effect on economic growth both in long and short terms (Verma et al., 2013), and Malaysia is no exception (Wong et al., 2013).

Domestic research focuses on property and endowment insurances. Pang's (2009) modified Solow model, Cao (2015) VAR model analysis results show that property insurance has a long positive effect on China's economic growth. Liao (2015) found that introduction of property loss insurance will reverse the long-term economic output reduction, but cannot make long-term economic growth restore risk-free situation. Wang (2012) pointed out that it's conducive to economic growth if endowment insurance system is converted to mixed model of individual and pooling accounts. Li et al. (2014) introduced annuity insurance into household expenditure decision model, demonstrating the direct effect of annuity on savings and capital and its indirect effect on economic growth. Gao et al. (2015) pointed out that increasing allocation of state-owned capital income to endowment insurance can improve personal welfare, increase investment in children's education, and thus promote economic growth.

From the above literature, we find that: different from long and rich studies on relationship between financial industry and economic growth, docking analysis of the insurance industry separated from financial industry and economic growth lasts only two or three decades, and developing countries have an even later start. Seen from the domestic research results, we not only lack consistent analysis framework, but also lack variable selection considering insurance business category, and moreover, lack economic growth model building with technological progress. And most of the research used public data, had to use other variables to replace the initial variables, for instance, replacing capital stock with fixed assets investment, replacing technological progress variables with education population and age limit, thus affecting the measurement results. In this paper, referring to the previous research results, we will first measure sub-quarter capital stock and total factor productivity in China, and then carry out some useful attempts and explorations into empirical analysis of the insurance industry and economic growth from the two dimensions of scale and quality.

3. Theoretical model and empirical analysis

Based on the economic growth model of Solow (1956), this paper represents capital with capital stock, represents labour with employed population, represents technological progress with total factor productivity, represents opening to the outside world with total import-export volume, and takes insurance industry development as new endogenous variable. It selects GDP to measure the scale of economic growth, life insurance premium income to measure life insurance industry scale, non-life premium income to measure scale of the insurance industry except life insurance. The model is constructed as follows:

$$GDP_t = f(K_{t-1}, L_{t-1}, TFP_{t-1}, EM_{t-1}, NLI_{t-1}, LI_{t-1}, T, \epsilon_t) \quad (1)$$

Wherein, GDP: Economic growth (100 million yuan); K: Capital stock (100 million yuan);

L: Total population of employment (million); TFP: Total factor productivity; EM: Total import-export volume (100 million yuan); NLI: Non-life premium income (100 million yuan); LI: Life insurance premium income (100 million yuan); T: Time Trend; ϵ_t : Error term

A). Data description

The model data is derived from previous China Statistical Yearbook, previous China Insurance Yearbook, CSMAR Database and Wind Database. The sample range is quarterly data from 1999 to 2015, and Eviews is used for analysis. At present, there is no domestic official public data on capital stock K and total factor productivity TFP. In view of significant and far-reaching impact of the research by Zhang, et al. (2003, 2004), this paper follows their measurement methods.

According to research results of Zhang (2003), capital stock is calculated as follows:

$$K_t = K_{t-1} + I_t/P_t \tag{2}$$

Wherein, K_t is the capital stock of t-the year, I_t is the fixed capital investment of t-the year which is indicated by production accumulation, P_t is the fixed asset investment price index of t-the year which is replaced by Shanghai fixed asset investment price index. The capital stock with year 1952 as the base is 80 billion yuan. In the paper, the calculated capital stock data from 1999 to 2015 in China is shown in Figure 1.

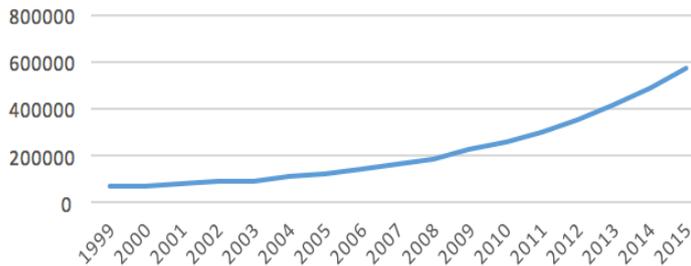


Figure 1: Sequence diagram of capital stock in China from 1999 to 2015

Total Factor Productivity (TFP), as an indicator of quality of a country's economic development, is often used by domestic and foreign academic circles to analyse potential of economic growth (Li & Zeng, 2009). According to research results of Zhang et al. (2003, 2004), total factor productivity is defined as:

$$TFP_t = \frac{Y_t}{K^{\alpha_K} L^{\alpha_L}} \tag{3}$$

In this paper, through regression of the data from 1952 to 2015, it is obtained that $\alpha_K = 0.606$, $\alpha_L = 0.394$.

B) Stationarity test

Before co-integration test of variables, stationarity test must be carried out, to ensure that the variables are of the same order integration. In this paper, ADF unit root test and PP test are adopted, and the test results are obtained by table look-up and statistical threshold, and judged according to the size of p value. When p value is less than the significance level, it is considered that the original hypothesis can be rejected, that is, the sequence is stable sequence. To obtain the relationship between variable growth rates and avoid multiple collinearity problems, the horizontal variable in this model uses post logarithmic data. Specific test results are shown in Table 1.

It can be seen from Table 1 that, p value of PP test of horizontal value series of life insurance after taking the logarithm at 1% significance level is $0.2590 > 0.01$, that is, PP test accepts the original hypothesis; p value of the ADF test is $0.2146 > 0.01$, which cannot accept the original hypothesis. In the stationarity test of the first order differential sequence of each variable, the first order differential

sequence of GDP and K after taking the logarithm are not stationary at the significance level of 5%. At the 5% and 1% significance levels, the second order differential sequences of the variables are stationary. Thus, at the 5% and 1% significance levels, the sequences are all the same order integration and can be cointegrated. In the Table 1, GI is the national premium income, the data is the sum of life insurance and non-life insurance premium income.

Variable	Level value		First order difference		Second order difference	
	ADF	PP	ADF	PP	ADF	PP
ln(GDP)	-1.024486 (0.7394)	-0.711536 (0.8363)	-2.490173 (0.1227)	-25.35818 (0.0001) ***	-4.312491 (0.0011) ***	-89.98375 (0.0001) ***
ln(K)	0.448339 (0.9834)	8.392808 (1.0000)	-1.846932 (0.3547)	-1.486985 (0.5340)	-4.603753 (0.0023) ***	-15.45153 (0.0000)
ln(L)	-2.389175 (0.3816)	-2.515451 (0.3200)	-7.488214 (0.0000) ***	-24.68686 (0.0001) ***	-6.912555 (0.0000) ***	-112.2299 (0.0001) ***
ln(EM)	-2.091680 (0.2487)	-2.442728 (0.1342)	-3.434829 (0.0555) *	-3.077428 (0.0332) **	-8.237103 (0.0000) ***	-8.239636 (0.0000) ***
ln(LI)	-2.768550 (0.2146)	-2.065651 (0.2590)	-2.746148 (0.0722) *	-23.49971 (0.0001) ***	-4.409810 (0.0045) ***	-54.16381 (0.0001) ***
ln(NLI)	-0.114728 (0.9429)	-0.857827 (0.7956)	-10.76956 (0.0000) ***	-23.97156 (0.0001) ***	-4.043704 (0.0025) ***	-39.33272 (0.0001) ***

Note: *** indicates 1% significance level; ** indicates 5% significance level; * indicates 10% significance level

Table 1: Results of stationarity test

C) Co-integration test

In multivariate co-integration analysis, the common method is Johansen co-integration analysis. Compared with another common EG co-integration test, the advantage is that it can test all the co-integration relationship and the test function is more stable, so this paper selected Johansen co-integration analysis. According to the requirements of this method, number of vector co-integration relations can be tested by both Trace statistics and Maximal Eigenvalue statistics. Table 2 shows the test results of the two methods.

Hypothesized No. of CE(s)	Eigenvalue	Trace statistics			Max-Eigenvalue statistics		
		Trace	5% threshold	P value	Max- Eigenvalue	5% threshold	P value
None*	0.723198	214.5256	111.7805	0.0000	83.48937	42.77219	0.0000
Up to one*	0.490061	131.0363	83.93712	0.0000	43.77517	36.63019	0.0062
Up to two*	0.451076	87.26110	60.06141	0.0001	38.98667	30.43961	0.0034
Up to three*	0.313885	48.27443	40.17493	0.0063	24.48611	24.15921	0.0452
Up to four	0.206363	23.78832	24.27596	0.0575	15.02339	17.79730	0.1246

Table 2: Johansen co-integration test results

In the two test results, the first column corresponds to the number of co-integration relations under the original hypothesis, and the second column corresponds to estimated value of eigenvalue of the test matrix from large to small, the third column is test statistics of the two statistics under the corresponding hypothesis, the fourth column corresponds to the threshold at the 5% significance level, and the fifth column is p value under the corresponding hypothesis.

Johansen co-integration test begins from the original hypothesis that there is no co-integration relation, until the original hypothesis cannot be rejected. As can be known from the test results, the p values of the fifth row in Table 2 are 0.0063 and 0.0452 at 5% significance level, both less than 5%, while p value of the sixth row is 0.1027, greater than 5%, indicating that the test rejects the original hypothesis that there are up to three co-integration relations, and cannot reject the original

hypothesis that there are up to four co-integration relations, so it is deemed that there are four co-integration relations. This shows that there is a long-term stable relationship among economic growth and life insurance, non-life insurance.

With $\ln GDP$ as explained variable, $\ln K$, $\ln L$, TFP , $\ln EM$, $\ln LI$, $\ln NLI$ as explanatory variable, co-integration (long-term) equation of the seven variables is estimated as:

$$\begin{aligned} \text{ecm}_{t-1} = & \ln GDP_{t-1} - 0.267 \ln K_{t-1} - 10.327 \ln L_{t-1} - 0.612 TFP_{t-1} - 0.175 \ln EM_{t-1} + 0.240 \ln LI_{t-1} - 0.151 \ln NLI_{t-1} + 109.720 \\ & (-3.55266) *** (-2.48734) ** (-1.80044) * (-1.21436) (4.25101) *** (-3.00026) *** \end{aligned}$$

The fitting coefficient of the model is $R^2 = 0.68$, the adjusted one is $R^2 = 0.64$, the model is

well fitted. Seen from the model obtained from the fitting, there is a long-term equilibrium relationship among life insurance, non-life insurance and economic growth at the 1% significance level.

Specifically, in view of GDP growth, life insurance has a significant negative impact on scale of economic growth, and non-life insurance has a significant positive effect on scale of economic growth. From the perspective of total factor productivity, life insurance has a significant positive long-term effect on quality of economic growth, and non-life insurance has a significant negative long-term effect on quality of economic growth. By comparing the coefficients, the promotion effect of life insurance on TFP is greater than the back action of non-life insurance when other conditions remain unchanged. Therefore, it is considered that insurance industry has a significant positive effect on quality of economic growth in the long run. In the long run, although life insurance plays a limited role in promoting scale of economic growth, it plays an active role in promoting quality of economic growth. Life insurance is closely related to each person's life and health, and to a certain extent, it reflects a key role in improving people's livelihood, quality of life, more conducive to healthy cycle of economic growth.

At the same time, there is long-term significant positive interaction between life insurance and non-life insurance. When other conditions remain unchanged, for every increase by one percentage point in non-life insurance, life insurance will rise $0.240 / 0.151 = 1.589$ percentage points. The positive interacting relationship between life insurance and non-life insurance shows development of non-life insurance can better promote a substantial increase in life insurance, serving scale and quality of economic growth together.

4. Vector Error Correction Model (VECM) Estimation

To further describe the short-term fluctuation and long-term equilibrium relationship among life insurance, non-life insurance and economic growth, this paper constructs the VECM model. The estimation results are as follows:

$$\begin{bmatrix} \Delta \ln GDP_t \\ \Delta \ln K_t \\ \Delta \ln L_t \\ \Delta TFP_t \\ \Delta \ln EM_t \\ \Delta \ln LI_t \\ \Delta \ln NLI_t \end{bmatrix} = \begin{bmatrix} -0.191 ** \\ 0.006 ** \\ 0.005 ** \\ -0.096 * \\ 0.044 * \\ 1.090 *** \\ 0.447 ** \end{bmatrix} + \begin{bmatrix} -2.523 *** \\ 0.061 *** \\ -0.002 \\ -1.014 ** \\ 0.209 \\ 8.966 *** \\ 3.798 ** \end{bmatrix} \text{ecm}_{t-1} + \begin{bmatrix} 1.582 *** & 5.694 *** & 7.248 * & -3.761 *** & 0.196 & -0.191 *** & -0.079 ** \\ -0.043 *** & 0.852 *** & -0.164 & 0.087 *** & 0.005 & 0.004 *** & 0.001 \\ 0.039 *** & -0.126 ** & -0.455 *** & -0.074 *** & -0.003 & -0.003 *** & 0.001 \\ 0.992 *** & 2.381 ** & 3.325 & -2.353 *** & 0.152 & -0.097 *** & -0.033 * \\ -0.088 & -0.971 * & -0.427 & 0.151 & 0.717 *** & 0.012 & 0.006 \\ -7.251 *** & -25.030 *** & -8.025 & 12.108 *** & -1.015 & -0.178 & -0.013 \\ -4.484 *** & -7.344 & -10.692 & 6.706 *** & -0.577 & 0.235 ** & -0.263 ** \end{bmatrix} \begin{bmatrix} \Delta \ln GDP_{t-1} \\ \Delta \ln K_{t-1} \\ \Delta \ln L_{t-1} \\ \Delta TFP_{t-1} \\ \Delta \ln EM_{t-1} \\ \Delta \ln LI_{t-1} \\ \Delta \ln NLI_{t-1} \end{bmatrix}$$

From the regression results, the error correction coefficient of GDP is -2.523, and it is significant at 1% significance level. It indicates that in the long term, error correction term has a negative regulatory effect on GDP. When GDP deviates from the long-term equilibrium relationship, error correction mechanism will reverse it with intensity of 2.523 in the next phase, so that it does not deviate from the long-term equilibrium.

The error correction coefficient of TFP is -1.104, and it is significant at 1% significance level. It indicates that in the long term, error correction term has a negative regulatory effect on TFP. When TFP deviates from long-term equilibrium relationship, error correction mechanism will reverse it with intensity of 0.612 in the next phase, so that it does not deviate from the long-term equilibrium.

Similarly, the error correction coefficients of life and non-life insurance are 8.966 and 3.789, respectively, which are significant at significance levels of 1% and 5%, respectively. It indicates that error correction term has a positive regulatory effect on life insurance and non-life insurance in the short term. When the two deviates from the long-term equilibrium, error correction mechanism will reverse the two with intensity of 8.966 and 3.789 respectively in the next phase, so that the two do not deviate from the long-term equilibrium.

5. Vector autoregressive model (VAR) estimation

VAR model uses all current variables to return many lagged variables of all variables and examine the effect of several lagged variables on a variable.

Based on this, this paper analyses lag phase I and lag phase II of each variable, and constructs the VAR (2) model. The estimation results are as follows:

$$\begin{bmatrix} \ln GDP_{t+2} \\ \ln K_{t+2} \\ \ln L_{t+2} \\ TFP_{t+2} \\ \ln EM_{t+2} \\ \ln LI_{t+2} \\ \ln NLI_{t+2} \end{bmatrix} = \begin{bmatrix} 52.226 \\ -2.490 \\ 2.530 \\ 58.988 \\ -95.138 \\ -697.542 \\ -217.004 \end{bmatrix} + \begin{bmatrix} 0.950 & 12.299 & 1.981 & -0.689 & 0.807 & -0.092 & 0.020 \\ 0.001 & 1.561 & 0.064 & 0.025 & -0.002 & -0.008 & -0.002 \\ 0.041 & -0.168 & 0.404 & -0.079 & 0.008 & -0.002 & 0.001 \\ 0.262 & 4.349 & -1.176 & -0.457 & 0.198 & -0.031 & 0.026 \\ 0.149 & 3.148 & 1.444 & -0.097 & 1.704 & -0.001 & -0.009 \\ -0.397 & -10.611 & 36.946 & 3.392 & -1.551 & 0.025 & -0.147 \\ -1.265 & 21.057 & 8.124 & 3.046 & 0.323 & 0.026 & 0.062 \end{bmatrix} \begin{bmatrix} \ln GDP_{t+1} \\ \ln K_{t+1} \\ \ln L_{t+1} \\ TFP_{t+1} \\ \ln EM_{t+1} \\ \ln LI_{t+1} \\ \ln NLI_{t+1} \end{bmatrix} \\
 + \begin{bmatrix} -0.756 & -11.677 & -5.800 & 2.032 & -0.061 & 0.126 & 0.173 \\ 0.003 & -0.562 & 0.162 & -0.004 & -0.003 & -0.002 & -0.004 \\ -0.027 & 0.162 & 0.360 & 0.055 & 0.001 & 0.002 & -0.003 \\ -0.182 & -4.464 & -3.767 & 0.693 & -0.019 & 0.056 & 0.097 \\ 0.033 & -3.259 & 1.794 & -0.104 & -0.852 & -0.009 & -0.004 \\ 1.406 & 9.514 & 27.383 & -0.273 & 0.146 & 0.227 & -0.174 \\ 1.283 & -20.090 & 11.958 & -1.152 & -0.977 & -0.003 & -0.244 \end{bmatrix} \begin{bmatrix} \ln GDP_{t+2} \\ \ln K_{t+2} \\ \ln L_{t+2} \\ TFP_{t+2} \\ \ln EM_{t+2} \\ \ln LI_{t+2} \\ \ln NLI_{t+2} \end{bmatrix} + \begin{bmatrix} \varepsilon_{2t} \\ \varepsilon_{2t} \\ \varepsilon_{2t} \\ \varepsilon_{2t} \\ \varepsilon_{2t} \\ \varepsilon_{2t} \\ \varepsilon_{2t} \end{bmatrix}$$

The fitting coefficient of the model is $R^2 = 0.99$, and the adjusted $R^2 = 0.98$. According to the

AR root chart, module of root of estimated VAR (2) model is less than 1, and within the unit circle, so the model is stable. Seen from VAR (2) model obtained from fitting of the quarterly data, life insurance has a negative pull effect on economic growth in lag phase 1, and has a positive pull effect on economic growth in lag phase 2, while non-life insurance has positive pull effect on economic growth in both lag phase 1 and 2. The results are like those obtained by Fan (2014) by establishing panel data model with simultaneous data in 30 provinces and cities in China.

It can be seen from the size of the coefficient that, in lag phase 1, the negative impact of life insurance on economic growth is greater than the positive pull effect of non-life insurance on economic growth; in lag phase 2, positive pull effect of non-life insurance is greater. Similarly, life insurance has a positive pull effect on non-life insurance in lag phase 1, and negative pull effect on non-life insurance in lag phase 2; while non-life insurance has negative pull effect on life insurance in both lag phase 1 and 2.

6. Granger causality test

The Granger causality test examines whether lag phase of a variable influences the current value of other variables. In this paper, Granger causality test is used to verify whether there is a significant causal relationship among life insurance, insurance and TFP and GDP. The original hypothesis is that there is no Granger causality. We get the following coupled results of the Granger causality test, as shown in Table 3.

Null hypothesis	Degree of freedom	Lag phase periods	F statistics	P value
Ln (GDP) is not Granger cause of Ln (LI)	60	8	2.21165	0.0453**
Ln (LI) is not Granger cause of Ln (GDP)	60	8	3.64783	0.0025***
Ln (GDP) is not Granger cause of Ln (GI)	60	8	3.07285	0.0079***
Ln (GI) is not Granger cause of Ln (GDP)	60	8	2.69228	0.0171**
TFP is not Granger cause of Ln (LI)	60	8	3.21084	0.0060***
Ln (LI) is not Granger cause of TFP	60	8	1.63493	0.1432
TFP is not Granger cause of Ln (GI)	60	8	3.10085	0.0075***
Ln (GI) is not Granger cause of TFP	60	8	1.27447	0.2819

Table 3: Granger causality test results

It can be seen from the above results that in the Granger causality test of ln (GDP) and ln (LI), ln (GDP) and ln (GI), when the lag phase periods are 8, p value is less than 5%. That is, it can be considered as a rejection of the original hypothesis that there is no Granger causality, indicating that at 5% significance level, there is direct two-way Granger causality relation among life insurance, insurance and economic growth. That is, the lagged variable can marginally predict another variable. In the Granger causality test of TFP and ln (LI), TFP and ln (GI), when the lag phase periods are 8, total factor productivity is Granger cause of life insurance and insurance growth at the 5% significance level, while life insurance and insurance industry development help little to promote quality of economic growth.

7. Impulse response function

As the model of this paper has stability, the impulse response function can be used to further analyse the impact of life insurance and non-life insurance on economic growth. Impulse response function and impact effect of output delay phase 10 are shown in Figures 2-7.

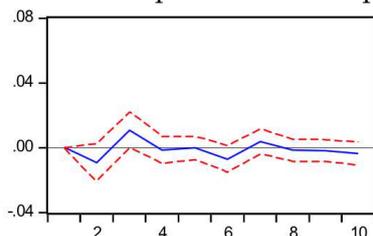


Figure 2 GDP fluctuation response function caused by the the impact of life insurance structure

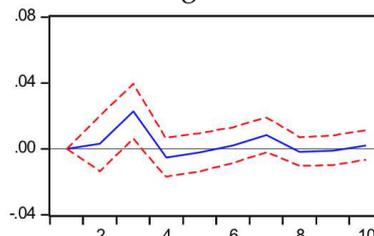


Figure 3 GDP fluctuation response function caused by impact of non- life insurance structure

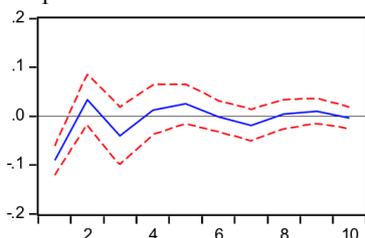


Figure 4 TFP fluctuation response function caused by the impact of life insurance structure

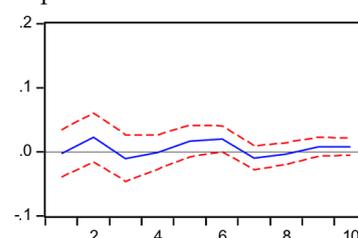


Figure 5 TFP fluctuation response function caused by the impact of non- life insurance structure

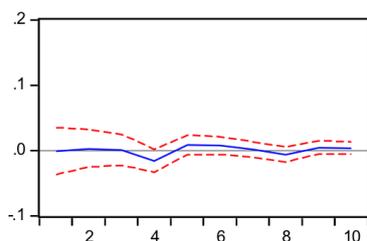


Figure 6 Fluctuation response function of non-life insurance structure caused by the impact of life insurance structure

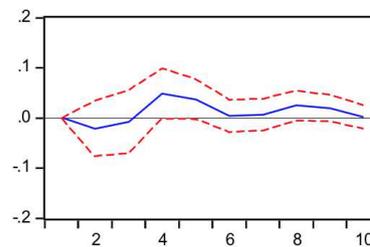


Figure 7 Fluctuation response function of life insurance structure caused by the impact of non-life insurance structure

Figure 2 and 3 shows that a positive impact on life and non-life insurance has a certain effect on scale of economic growth, and the effect shifts between positive and negative impact, but gradually weakens at about tenth period. Figure 4 and 5 shows that life insurance and non-life insurance have a negative effect on quality of economic growth in short-term, which gradually changes to positive effect after fifth or sixth period. Figure 6 and 7 shows that: a positive impact on non-life insurance does not cause obvious impact on life insurance; similarly, a positive impact on life insurance causes significant impact on non-life insurance, it has negative pull effect on non-life insurance in initial periods, which shifts to positive impact after third period, but gradually weakens.

8. Limitations and Future Research

In this paper, we use the quarterly data of the insurance industry from 1999 to 2015 to analyse, and we are trying to get more monthly data for analysis, which will help improve the accuracy of our conclusions and help us better understand the relationship between the development of China's insurance industry and economic growth.

In the future research, we will consider adding the breakpoint detection in the analysis process. China's insurance industry and economy are undergoing reform and development, through the technology of breakpoint detection, we can further analyse whether the relationship between the two changes, but also can test the effectiveness of Chinese policy.

9. Basic conclusions and policy recommendations

This paper uses the quarterly data from 1999 to 2015 to confirm the important role of the insurance industry in China's economic development under the premise of independent measurement of national capital stock and total factor productivity. The concrete conclusions are as follows:

First, there is a two-way causal relationship among life insurance, non-life insurance and economic growth from the perspective of economic growth scale (GDP). In the short term, life insurance has a negative effect on economic growth, and non-life insurance has a positive effect on economic growth. In the long run, the negative effect of life insurance will be changed to positive. When other conditions remain unchanged, the positive effect of non-life insurance on economic growth will soon surpass the negative effect of life insurance on economic growth, which makes insurance industry have a significant positive impact on scale of economic growth in the long term.

Second, there is a two-way causal relationship among life insurance, non-life insurance and economic growth from the perspective of economic growth quality (TFP). In the short term, life insurance and non-life insurance have a significant negative effect on quality of economic growth. In the long run, life insurance has a significant positive long-term effect on quality of economic growth, while non-life insurance has a significant negative long-term effect on quality of economic growth. When other conditions remain unchanged, promotion effect of life insurance on TFP is greater than the back action of non-life insurance, so the insurance industry can be considered to have significant positive effect on economic growth quality in the long term.

Third, there is a two-way causal relationship between life insurance and non-life insurance, that is long-term significant positive interaction between life insurance and non-life insurance, and the effect of life insurance on non-life insurance is greater than the effect of non-life insurance on life insurance. The positive interacting relationship between life insurance and non-life insurance shows development of non-life insurance can better promote a substantial increase in life insurance, serving scale and quality of economic growth together.

Under the long-term trend of L-type economy, the above conclusions will help us to regain confidence in economic growth. In view of the fact that insurance industry can change family and business consumption and investment behaviour from micro perspective, bring financial stability and industrial efficiency from intermediate perspective, and promote economic growth and economic quality from macro perspective, the government should take macro and micro multi-policy measures to accelerate development of the insurance industry and contribute to steady growth during the economic downturn.

In this way, this paper suggests that under the premise of reshaping importance of economic growth, on the one hand, we should encourage insurance industry to change its own development mode and enhance contribution of the insurance industry to scale and quality of economic growth. On the other hand, we should promote intensive efforts of the insurance industry in the following four areas: First, more proactively support economic restructuring and upgrading. Take "replacing sales tax with value-added tax" in insurance industry as an opportunity, encourage insurance companies to actively implement "Made in China 2025", and provide comprehensive protection for R & D and production of high-end manufacturing equipment in large and key industrial enterprises, independent innovation and financing merger in science and technology enterprises. Second, more actively support modern agricultural development. Gradually improve policy-oriented agricultural insurance system, appropriately increase agricultural insurance premium subsidies and financial support for local special agricultural products insurance. Third, more forcibly stimulate consumer demand. Leveraging income distribution system reform, guide families and enterprises to make better use of the insurance tools; deepen management mechanism system reform, expand innovation space of the insurance products and services, dock with consumption hot spots to meet consumer demand. Fourth, more effectively serve protection of people's livelihood. Give play to the leverage role of land and tax policy, and achieve integration development of the insurance industry and pension services industry, health care industry; make full use of government procurement services, etc. to make commercial insurance more promising, so that it gradually becomes an important pillar of the social security system.

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The relationship between Corporate Social Responsibility and Corporate Financial Performance in developing countries. Case of Egypt

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Keywords

Corporate financial performance, CFP, corporate social responsibility

Abstract

This study explores and tests the relationship between corporate social responsibility (CSR) and corporate financial performance (CFP) in developing countries, focusing mainly to examine the financial aspects of high vs low-ranked firms in the CSR Index in Egypt for eight consecutive years (excluding 2011 because of its special situation due to instability caused by the revolution). Moreover, this study empirically examines different financial ratios for 18 firms listed in Egyptian Stock Exchange EGX 30 for eight years, 2007 – 2015. Using the Standard and Poor's index (S&P/EGX ESG Index) to measure the CSR, and using accounting based measures (from Egypt for information Dissemination (EGID) database and the Cairo and Alexandria Stock Exchange Disclosure book). This study's purpose is to find the suitable measures of the CFP along with CSR, as well as, the relationship between them, to conclude whether CSR is beneficial for companies or not. The main question here is: What is the type and significance of the relationship between CSR and the CFP in Egypt? the ANOVA analysis was chosen and used on both company's CSR and CFP variables, also constructed a Pearson Correlation between CSR and CFP variables and examined the multiple regression model to discriminate between the CFP of high and low-ranked firms in the CSR Index and recognize the type and significance of the relationship between CSR and CFP. The results show that CSR has a positive significant relation with the CFP. The paper has implications for enhancing the understanding of performance management by understanding the relationship between CSR and CFP.

1.Introduction

The unprecedented increase in expenditure to enhance the CSR in the past decade suggests managers find an economic benefit from CSR programs, especially considering the financial objective of a corporation is to maximize shareholder's wealth. The numerous factors affecting the organizational profitability, one of the most important factors is CSR. Where CSR can help a company be more profitable (by the creation of reputational capital that may help the company obtain more favorable terms of trade in negotiations with stakeholders, customer satisfaction and retention, as well as, Providing access to new investment and funding opportunities) or help in cost saving opportunities (through decreasing risk and positively affecting the workers' productivity and retention). Now that the CSR is vital to the sustainable operations of corporations; similarly, financial performance is undoubtedly fundamental to continue the effective operating of any corporation. This paper tries to examine the type and strength of the relationship between CSR and CFP in Egypt. Many tools are used to measure the CFP (ex: profitability ratios), while those of the CSR used to be relationship unreliable or insufficient, until recently. There are three possible results for the between CSR and CFP: negative association, no relation and positive association.

A particular definition of CSR was presented at the World Business Council for Sustainable Development: 'CSR is the continuing commitment by business to behave ethically and contribute to economic development, while improving the quality of life of the workforce and their families as of the local community at large' (Holme &Watts, 1999).CSR concerns everyone such as customers, em-

employees, suppliers, community groups, governments, and even some stockholders as stated by (McWilliams & Siegel, 2001).

As for corporate financial performance, the definition of CFP is not debated in the literature, nevertheless there is a disagreement with respect of the best way to measure CFP (Cochran & Wood, 1984). According to (Orlitzky, et al., 2003) there are three broad subdivisions of CFP consist of market-based (investor returns, reflects the degree of satisfaction of the shareholders), accounting-based (accounting returns, captures an idea of the internal efficiency of the company, as well as, a descriptive outline for its financial performance), and perceptual (survey, provides a subjective estimation of its financial performance) measures. Accounting-based indicators, such as the firm's return on assets (ROA), return on equity (ROE), or earnings per share (EPS), capture a firm's internal efficiency in some way (Cochran & Wood, 1984).

In empirical studies of CSR and CFP, with the goal of measuring CFP, researchers have resorted to the use of various types of variables. Examples of the variables employed for this purpose are the following: return on assets (ROA) (Berman, et al., 1999) & (Choi & Wang, 2009), return on equity (ROE) (Preston & O'Bannon, 1997) & (Agle, et al., 1999), return on sales (ROS) (Graves & Waddock, 1999) & (Callan & Thomas, 2009) and EPS (Simionescu & Gherghina, 2014) & (Ahmed, et al., 2012). In order to capture corporate financial performance, we used accounting based measures, specifically profitability ratios such as ROE, ROA and EPS.

2. Theoretical Framework

Financial Performance is probably the most important matter that the stakeholders in developing/emerging economies are concerned about. In the past, investors were easily able to get excess returns in emerging markets, so they didn't consider long-term sustainability and CSR in these markets. Now investors, even in the developing economies, are concerned with sustainability and CSR to reach a satisfying or even the targeted return. Thus, it is critical to identify how to measure the CFP, along with, CSR. The second critical argument is concerned with the existence and type of the relationship between CSR and CFP. The following section explores the existing theoretical framework of CSR and CFP, by identifying and analyzing the most remarkable theories and the results of previously related empirical studies. Through understanding these theories, we can have a better perspective and a clearer view for choosing which theories to use in this study in order to measure, analysis and achieve accurate results.

2.1. Corporate Social Responsibility (CSR)

The shareholder theory (proposed by Milton Friedman in 1970), where it states that only the owners or shareholders of the company are important, and the company has a binding duty to put their needs first, to increase value for them. Relatively, comes a problem, the agency theory. Agency theory is concerned with resolving problems that can exist in agency relationships due to unaligned goals or different aversion levels to risk. The most common agency relationship in finance occurs between shareholders (principal) and company executives (agents). Shifting away from the old profit only mentality, the stakeholder's theory presented by (Freeman, 1988) states that a company owes a responsibility to a wider group called the stakeholders, other than just shareholders. A stakeholder is defined as any person/group which can affect/be affected by the actions of a business. It includes employees, customers, suppliers, creditors, wider community, governmental bodies, political groups and even the competitors are sometimes counted as stakeholders, where their status being derived from their capacity to affect the firm and its stakeholders.

Some dimensions are attributed to stakeholder theory. According to (Donaldson & Preston, 1995) this theory exhibits three dimensions: a normative (this dimension was based on (Clarkson, 1988), who indicated that the purpose of a company is creating and distributing wealth to the primary stakeholders.), a descriptive (this dimension is revealed when the company uses the model to represent and understand its relationships and roles in external and internal environments) and an instrumental dimension (This dimension states that better financial performance can be achieved

from implementing good stakeholder management.). (Waddock & Graves, 1997) & (Dean, 1999) who support a causal relationship between CSR and CFP, put forward two theories for CSR. The slack resource theory (According to this theory, financial performance comes first) and the good management theory (According to this theory holds that social performance comes first.).

Further comes two new approaches, the Enlightened Shareholder Value (ESV) Theory and the Instrumental Stakeholders Theory (IST). The ESV (Williams, 2010) states that "corporations should pursue shareholder wealth with a long-run orientation that seeks sustainable growth and profits based on responsible attention to the full range of relevant stakeholder interests". This theory is broader than the shareholder theory. The IST (Donaldson & Preston, 1995) is formed from two theories, and suggests there is a positive relationship between CSR and CFP. First, the instrumental theory is an economic theory that predicts what results will occur because of management decisions. The second theory, the stakeholder theory, is an ethical theory that proposes managers have a duty to put stakeholders' needs first to increase the value of the firm. This makes managers use CSR as a management tool for achieving good financial performance

2.2. Corporate Financial Performance (CFP)

The researches on CFP use a wide variety of measures of firm financial performance. The greater portion of the measures is the firm's performance is either from the accounting or market based measures. Among 95 studies that (Margolis & Walsh, 2001) reviewed, 49 used accounting based measures, 12 used market based measures and the rest used a mixed set. Studies that used both the accounting based measures and market based measures to measure financial performance include (Simionescu & Gherghina, 2014) & (Ahmed, et al., 2012). In terms of accounting based measures: return on assets (ROA), return on equity (ROE), return on sales (ROS) and earnings per share (EPS) are the most used.

3. Literature review

Corporations do not operate in isolation, but as part of a broader ecosystem consisting of the society as a whole and the environment. The larger a company is, the more diverse of the range of stakeholders that are affected by its operations and the more pressure they will apply to satisfy their needs. With the rapid expansion of access to information in the last years, it is increasingly difficult for corporations to indulge in activities that could harm people, communities or the environment without attracting negative attention. This negative attention could damage a company's reputation and brand name, in addition to, decreasing its social capital. Now that most companies' market capitalizations are more than double the value of their tangible assets, a loss of reputational or brand value could prove to be damaging to its financial performance.

3.1. Corporate Social Responsibility (CSR)

According to (Porter & Kramer, 2006), four issues for organization to be engaged in CSR, which are: moral obligation, sustainability, license to operate, and reputation. They described the Moral appeal as doing the right thing which appears more in the non-profitable business. Sustainable Development is defined as "Meeting the needs of the present without compromising the ability of future generations to meet their own needs". While the license to operate can be represented in the governments and the communities' regulations and other stakeholders to do business. Finally, reputation is used by many companies to improve a company's image, and gain customer's loyalty, build a strong brand and have a higher value of its stock.

3.1.1. CSR in Egypt

Until recently, CSR was the term used to define and refer to corporate engagement in society. Within the Egyptian context, CSR was widely used to refer exclusively to a company's community engagement in the form of charitable donations to non-profit or public-sector organizations (sayeh, 2016). It is important to note that there have been international shifts in how CSR is defined and practiced.

Moreover, The Egyptian Institute of Directors (EIOD), Egyptian Corporate Responsibility Center (ECRC), Standard & Poor's (S&P) and the Credit Rating Information Services of India Limited (CRISIL) created an Environment, Social and Governance Index for Egypt, called the S&P/EGX ESG Index. The S&P/EGX ESG Index that was launched on March 22nd, 2010 is the first of its kind in the MENA region and the 2nd in the world. The purpose of S&P/EGX parameters of environmental, social and corporate governance, when compared to ESG index is to raise the profile of those companies that perform well along the three their market peers, together with, trying to redefine the CSR and shift away from its traditional definition. The Index was named "The Egyptian environmental, social and governance Index" and it measures and ranks the top performing companies on the volume of information companies make available concerning their corporate governance, environment and social responsibility.

Another approach to enhance the CSR perspective in Egypt is when Arab African International Bank (AAIB), in cooperation with the United Nations Development Program (UNDP) and the Egyptian Corporate Responsibility Center (ECRC), launched Mostadam in 2013. Its aim was to improve the banking sectors sustainable performance. Where Sustainable performance refers to inspiring the connection between economic, environmental, social and governance (EESG) aspects within the banking sector's core businesses, operations, policies and practices. It was a huge step and a unique proposal dedicated to the promotion of sustainable performance in Egypt and the MENA region.

In September 2014, Renewable Energy Law No 203 was enforced by the Egyptian Ministry of Electricity and Energy announced specific feed-in-tariffs for electricity generated by distributed solar and wind sources (Davies, et al., 2014). A new Electricity Law was also passed Electricity Law No. 87 of the year 2015, which completely reforms the electric utility. Generally, it establishes a competitive electricity market that encourages private sector involvement (through project companies set up in Egypt in the form of joint stock companies) in the generation and distribution of electricity, by creating an atmosphere which attracts investments to the clean energy sector. This gives the public an impression that both concepts CSR and sustainability are now highly demanded and supported, even by the government.

Metro and Kheir Zaman successfully adopt 100% biodegradable Plastic bags starting 2013. They began by looking at the use of plastic bags at all 97 Metro and Kheir Zaman stores. The stores, located in eleven governorates, use approximately 80 million plastic bags per year. Accordingly, work began to convert all plastic bags to recyclable plastic bags. In cooperation with Symphony Environmental Ltd., located in the UK, the D2W technology was adopted to convert old-fashioned plastic bags into 100% biodegradable plastic bags. The D2W was a mark on all plastic bags to encourage competitors to adopt the same technology to reduce the harmful effects that plastics have on the environment. The Egyptian weaving companies, led by Oriental Weavers, now resort to environmental awareness as a means of gaining competitive edge allowing them to compete on the international market with their environmentally friendly products. Egyptian Cement Company, which is a heavy user of natural gas because of its minimal pollution effects and costs, is constantly seeking newer sources of energy that are even more environmentally friendly. Etisalat the big telecommunication company is helping by delivering clean water to homes at urban areas in Egypt. Lean manufacturing deployed to reduce cost thus result in an increase of productivity and efficiency of operations in the engineering sector and safety initiatives in cement companies in Egypt. L'Oréal Egypt has been awarded by the Federation of Egyptian Industries 2016 "Top CSR Industrial Leaders Award". The Cairo factory is one of the first LEED (Leadership in Energy and Environment Design) certified factory in Egypt and has been built following LEED requirements. Their increasing efforts paid off with 29% reduction in energy consumption, 32% reduction on waste, 27% reduction in water versus 2015 consumption, and zero waste to landfill.

3.2. Corporate financial performance (CFP)

The CFP can be measured by either accounting based measures or market based measures. (Ullmann, 1985) used EPS growth, stock price change, price per share change, ROE, average ROE, ROA, P/E ratio, net income, net profit margin, operating earnings/assets, operating earnings/sales were all determined as some of the variables to measure CFP. (McGuire, et al., 1988) & (Ahmed, et al., 2012) used both accounting and market-based measures. The accounting based measures employed by these studies were ROA, ROE, EPS, total assets, sales growth, asset growth and operating income growth, where the market based measure PER (price to earnings ratio), and PBV (price to book value).

ROA was used as an accounting measure to be one of the measurements of CFP as we observed in the following literature: (Waddock & Graves, 1997), (D'Arcimoles & Trebucq, 2002), (Mahoney & Roberts, 2007), (Hull & Rothenberg, 2008), (Lee & A., 2009) & (Aras & Aybars, 2010). According to (Hull & Rothenberg, 2008) ROA "represents the profitability of the firm with respect to the total set of resources, or assets, under its control. While, ROE was used as an accounting measure for CFP in our examining literature, (Waddock & Graves, 1997), (D'Arcimoles & Trebucq, 2002), (Mahoney & Roberts, 2007), (Lee & A., 2009), and (Aras & Aybars, 2010). It is defined as is the amount of net income returned as a percentage of shareholders equity. ROE measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. The EPS is benchmark used to measure of firm profitability. (G, 2007). EPS is an accounting based measure where it represents a portion of a company's profit that is allocated to one share of stock. Therefore, if you were to multiply the EPS by the total number of shares a company has, you'd calculate the company's net income.

3.3. Relationship between corporate social responsibility and corporate financial performance

Over the last 40 years, the growing debate about the financial implications of CSR is far from being resolved. It is important to analyze the effect of CSR on organizations profitability and to determine whether CSR can have a positive impact on the CFP or not. A significant amount of research has already been completed on the linkage between them. The interest in this topic has exploded as the willingness of firms to engage in CSR activities has grown tremendously. Furthermore, there have been many theoretical and empirical debates about the relationship between CSR and CFP for example, (Aras & Crowther, 2007). (McWilliams & Siegel, 2000) Stated that a lot of empirical studies showed that CSR and CFP can be engaged in a positive, negative or even neutral relationship. (Margolis, et al., 2003) investigated the empirical evidence of the CSR-CFP relationship from 127 empirical articles with different measurement methods published between 1972 and 2002 only. Of these articles, 109 assume that CFP is dependent on CSR, and 54 of these reveal a positive relationship, 7 a negative relationship, 48 non-significant relationships.

3.3.1. Negative relationship

The first group has documented negative relationships between CSR and CFP. (Friedman, 1970), in the New York Times, ignited a robust debate with this quote "There is one and only one social responsibility of business to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud. "Several have argued for a negative relationship due to increased costs, which leads to decreasing the firm's performance and lowering its value, associated with high levels of CSR, which would put the firm at an economic disadvantage. These added costs could include things such as reduce firm's resources because of the unnecessary costs (Vance, 1975) and that CSR activities are a source of conflict between different stakeholders (Krüger, 2015).

3.3.2. Positive relationship

The second group has documented a positive relationship between CSR and CFP; due to increasing profitability through: the improved boosting of the Companies reputation, customer satis-

faction and being exposed to new investing opportunities, or by cost savings through: employee satisfaction & retention, reducing risk and Generating positive publicity and media opportunities. The common understanding is that CSR involves the firms' undertaking a set of actions that have the potential to increase costs, therefore to be economically sustainable, the sources of additional costs need to be offset by some potential benefits. However, there has been a major shift away from this profit-only mentality over the past two to three decades. (Allouche & Laroche, 2005) identified 82 studies, of which 75 showed a positive relationship, a trend that has since been confirmed (Waddock & Graves, 1997); (Griffin & Mahon, 1997); (Preston & O'Bannon, 1997); (Stanwick, 1998); (McWilliams & Siegel, 2001) and (Orlitzky et al., 2003)).

Examples of the benefits are represented by increasing profitability: first, the creation of reputational capital that may help the company obtain more favorable terms of trade in negotiations with stakeholders (Cornell & Shapiro, 1987), (Stroup & R.L., 1987) and (Cacioppe, et al., 2008). The second benefit, customer satisfaction and retention as supported by (Foote, et al., 2010), (Valenzuela, et al., 2010) & (Cacioppe, et al., 2008). The third benefit is providing access to new investment and funding opportunities (Orlitzky, et al., 2003), (Porter & Kramer, 2006), (Mathis, 2007) and (Peloza, 2006). The fourth benefit (cost saving) considers that CSR may positively affect workers' productivity (Agell & Lundberg, 2003), (Akerlof, 1982), (Bewley, 1999), (Fehr & Schmidt, 2006), (Fehr & Falk, 2002) and (Sobel, 2002). The fifth benefit (Cost saving) is decreasing risk, the study on the relationship between CSR and financial risk has been conducted by some researchers (Moore, 2001), (Itkonen, 2003), (Benjamin, 2001) and (Mathis, 2007).

The most comprehensive study with positive results was a meta-analysis conducted by (Orlitzky, et al., 2003). A meta-analysis is a strong method of research because it weighs the parameters of individual studies, as opposed to aggregating studies. This specific meta-analysis examined 52 studies with a 33,878-sample size over a 30-year span. (Orlitzky, et al., 2003) Concluded that not only does CSR have a positive influence on CFP, but vice versa as well, hinting that a bidirectional relationship exists between the two variables. This conclusion supports the instrumental stakeholder theory because managers reap financial benefits by meeting the needs of stakeholders. Due to reciprocal benefits of the relationship between stakeholders and the organization, this study supports the position that CSR programs are associated with multiple tangible financial benefits in the long-run.

3.3.3. Neutral/insignificant relationship

The third group has documented neutral relationships/no relationship between CSR and CFP, one question remains: how can no relationship exist between CSR and CFP? A theoretical study conducted by (Ullmann, 1985) attempts to answer this question. (Ullmann, 1985) Evaluated 13 empirical studies, including case and quantitative studies, published between 1970 and 1984, and did not find a trend in the results of the analyzed studies. According to (Ullmann, 1985), the reasons for this result were the following: the lack of a theoretical foundation, an inappropriate definition of terms, and deficiencies in the empirical data. Ten years later, (Wood & Jones, 1995) analyzed 50 empirical studies, including case and qualitative studies, published between 1970 and 1994. According to (Wood & Jones, 1995), many empirical studies lacked a theoretical foundation, with problems occurring with stakeholder mismatching (a mismatch between the relevant studied stakeholder and the respective measurement variable) and an apparently ambiguous relationship between CSR and CFP. (DeMaCarty, 2009) Pointed out that the CSR doesn't necessarily provide a stronger financial return nor does it produce weaker return, it depends on the techniques that are used to increase the financial.

3.4 Hypothesis

While there is plenty of research on CSR and CFP, no study has examined and looked specifically at CSR's impact on the different measures of net-income. Through profitability ratios generated

from net-income (ROE, ROA, EPS), we can measure the CFP. We choose accounting-based measure because it captures an idea of the internal efficiency of the company, as well as, offering a descriptive outline for its financial performance. Also taking into consideration for the measurement of CSR is the S&P/EGX ESG Index. Based on the analysis for each of the three possible associations in the Literature Review between the variables, there is a greater support for a positive association between CSR and CFP. Accordingly, I structure my hypothesis to support a positive association between CSR and CFP.

H1: when the firms CSR ranking increase, its ROE performance improves.

H2: when the firms CSR ranking increase, its ROA performance improves.

H3: when the firms CSR ranking increase, its EPS performance improves.

4. Data and Methodology

Before I can justifiably test my hypotheses, based on the literature previously revised, most studies on CSR made in developing countries use accounting based measures for CFP. Hence, I replicate my data with the methodology used by a previous study concerning CSR and CFP to ensure that CSR has a positive relation with CFP. As for the CSR measurement, we will use the S&P/EGX ESG Index to measure the CSR.

4.1 Measurement of CSR in Egypt

In our case, we use the S&P/EGX ESG Index. Where the EIOD conducts the ESG (Environmental, Social and Governance) research for scoring, under the guidance of Standard & Poor's and CRISIL, and with the assistance of the Egyptian Exchange, where they also test historical data for consistence. The index measures the volume of information companies make available concerning their corporate governance, environment and social responsibility. It also ensures a selection of securities which are representatives of the Egyptian equity markets based on size and liquidity.

Linking stock market performance to ESG is, perhaps, the most effective way to highlight the concept of corporate level in the Environmental, Social and Governance responsibilities. More and more indices are being used to create derivative products, exchange traded funds (ETFs), over the counter (OTC) products and structured products, all of which provide liquidity and inevitability to specific market segments. Investors, in turn, have access to an investable tool which matches their investment preferences. As investment in ESG products increases, it will become imperative for companies to investigate into their business practices and strive to improve them.

4.2 Corporate financial performance (CFP)

The three most used measurements for financial performance are ROA, EPS, and ROE. To parallel most of studies, this study will focus on accounting-based measures to measure CFP. Net income is directly related to profitability, whereas the higher the net income the higher the profitability, therefore better financial performance. Profitability is simply the capacity to make a profit, a profit is what is left over from income earned after you have deducted all costs and expenses related to earning of that income. This study chooses these three variables (ROA, ROE and EPS) because they are all net income based rules. The formulas below can be used to judge a company's financial performance and to compare its financial performance against other similarly-situated companies. As measures of financial performance, we include the accounting based measures of ROE, ROA and EPS. These variables are ways to measure the organizations profitability, ultimately to measure the CFP. Where the ROA is equal: $\text{Net Income} / \text{Total Assets}$, ROE is equal: $\text{Net Income} / \text{owners' equity}$, and the EPS is Equal: $\text{net income} / \text{Number of Common Shares Outstanding}$.

4.3 Variables and research design:

Variables: To measure our hypothesis; this paper choose the dependent variable as the CFP measured with accounting based measures, using the following ROA, ROE and EPS. Where the independent variable will be the CSR Ranking, and we measure it by using the S&P/EGX ESG Index.

CSR (S&P/EGX ESG Index)



CFP (ROE, ROA & EPS)

Research design and scope: A quantitative technique will be needed to measure the effect of CSR on CFP. We first collect the S&P/EGX ESG Index ratings, as our sample, of the largest 30 publicly traded companies from the database over 2007-2015, excluding 2011, in order to study the causal relationship between CSR and CFP. The research is planned to analyze data within eight years' period for each of the companies and, the period can be considered long, to be able to analysis the effect of CSR and compare it with the financial performance of the organizations. This study selects 2007 as a starting point for this research because it was the first year the S&P/EGX ESG index was issued. In the beginning, this study selected the top 30 enterprises with the most influence on the S&P/EGX ESG Index and Egypt's stock market during the years. Then continue till it totals up to 64 companies in 2015. Eliminating 46 companies, with 1, 2 or 3 years only of CSR ratings, only 18 companies were left that were the most active in CSR ranking during this time frame due to missing CSR or financial data. We preferred to include in our sample only the companies which disclosed CSR reports for more than half of the period (min. 5 years of CSR ranking) instead of companies which reported CSR information for one, two or three years only, although that in this case we would achieve a larger sample. A compound CSR score is also generated and constitutes our main independent variable. Concerning the financial performance, the analysis will check financial performance through financial documents; such documents may include financial statements, balance sheets, income statements, financial ratios and cash flow. Figures in accounting books should be analyzed to measure profitability. ROA, ROE and EPS will be used as measures of profitability, where it will be representing the CFP. ROA shows how efficient the management is as regards the usage of its assets in order to generate earnings, ROE underlines the firm's efficiency as regards the usage of shareholders' funds to generate profits, EPS determines how many dollars of net income have been earned by each share of common stock (Simionescu & Gherghina, 2014). The sources of financial data, for measuring the CFP, are from the Egypt for information Dissemination (EGID) database and the Cairo and Alexandria Stock Exchange Disclosure book from 2007 to 2015, excluding 2011 for the previously stated reasons. Companies used in this study as a sample are shown in the table 1 below.

Companies used in this study:	<u>Sidi Kerir</u> Petrochemicals	<u>Medinet</u> Nasr Housing	GB AUTO
Telecom Egypt	Alexandria mineral <u>Olis</u> company	Egyptian Kuwaiti Holding	T M G Holding
Egyptian company for mobile service (<u>Mobinil</u>)	Six of October Development & Investment (SODIC)	Raya Holding For Technology & Communications	Commercial International Bank (CIB)
Oriental weavers	Egyptian Transport (EGYTRANS)	El <u>Ezz</u> Steel	<u>lecico</u> Egypt
Egyptian Financial Group-Hermes holding company	Palm Hills development Company	<u>Grascom</u> Construction Industries (OCI)	

Table 1: companies sample

4.4 Model estimation

Dependent Variable	Source	df	Sum of Squares	Mean Square	F	Sig.
CSR ranking weights	Between companies	17	1005.45	59.14	2.49*	0.00
	Within companies	126	2996.88	23.78		
	Total	143	4002.33			
ROA	Between companies	17	1.96	0.12	7.83*	0.00
	Within companies	126	1.86	0.01		
	Total	143	3.82			
ROE	Between companies	17	13.16	0.77	4.67*	0.00
	Within companies	126	20.88	0.17		
	Total	143	34.03			
EPS	Between companies	17	1498.25	88.13	3.06*	0.00
	Within companies	126	3626.63	28.78		
	Total	143	5124.88			

*F significant at the 0.05 level =1.72

Table 2: ANOVA analysis for the companies between its variables.

The one-way analysis of variance (ANOVA) is used to determine whether there are any statistically significant differences between the means of three or more independent groups. this analysis was mainly done to examine and extract that significant change in CSR ranking in the companies through the years, will also result in significant changes in their CFP, therefore supporting the hypothesis (H1, H2 & H3) for this study. As seen from the table 2 above the (ANOVA) was conducted between the company’s variables, CSR ranking weights representing the CSR and ROA, ROE & EPS representing the CFP. the results implied that there are significant differences in all the variables between companies, as the value of (F) ranged between (2.49 to 7.83) and this is greater than the value of the significant value of F critical= 1.72, Structured at the 95% level, this shows that the overall model was positive and significant. This demonstrates that the changes made in CSR can have an impact on the performance of the CFP. Moreover, these results support the following theories: the stakeholder’s theory, the good management theory, the enlightened shareholder’s theory and the instrumental stakeholder’s theory supported by the following authors (Freeman, 1988), (Clarkson, 1988), (Evan & Freeman, 1993), (Donaldson & Preston, 1995), (Mitchell, et al., 1997), (Campbell, 1997), (Waddock & Graves, 1997) & (Dean, 1999).

Pearson Correlation	
Variables for CFP	CSR ranking weights
ROA	0.177*
ROE	0.167*
EPS	0.132*

Table 3: Pearson Correlation between CSR and CFP variables of the companies.

The Pearson correlation coefficient is a measure of the strength of a linear association between two variables. It attempts to draw a line that best fits through the data of two variables. According to Kumar (2005), the aim of a correlational research design is to establish or explore a relationship, association or interdependence between at least two variables in a situation or a phenomenon. In our case, the results imply that there is a significant positive relationship between CSR ranking weights and all the CFP variables as shown in table 3. CSR ranking weights affecting the CFP variables with significance of 17.7% in ROA, 16.7% in ROE and 13.2% EPS respectively at the 95% level, this supports all our hypothesis (H1, H2 & H3) where a significant positive relation exists between CSR and CFP (ROA, ROE & EPS). These results are paralleled with previous research like: (Simionescu & Gherghina, 2014), (Ahmed, et al., 2012), (Waddock & Graves, 1997), (Griffin & Mahon, 1997), (Preston & O’ Bannon, 1997), (Stanwick, 1998) ;(McWilliams & Siegel, 2001), (Orlitzky et al., 2003) & (Allouche & Laroche, 2005). Where these three variables were used to measure CFP, and resulted with a significant positive relationship with CSR. Moreover, our results show that it supports the stakeholder’s theory, the good management theory, the enlightened shareholder value theory and the instrumental stakeholder theory. Where CSR can increase profitability by the improving the Companies reputation, customer satisfaction and having new investing opportunities or through cost savings by achieving employee satisfaction & retention, reducing risk and Generating positive publicity and media opportunities.

Icon forecasting and regression variable	Multiple correlation coefficient R	Total contribution of the variables R2	The percentage of contribution	Partial regression coefficient	In addition to the value of t	ANOVA Value F	Standard error
CSR ranks weights	0.177*	0.031	3.133	0.005	2.370*	7.83*	0.034
Constant	0.047						

Correlation is significant at the 0.05

Table 4: Multiple regression model equation between CSR and ROA.

To test the relationship between corporate financial performance and corporate social responsibility, we also conducted regression analysis, where Regression estimates the significance of the impacts of the CSR on the CFP in Egyptian companies. Useful conclusions can be extracted from the Table 4 about our econometric model. The results illustrate that the multiple correlation coefficient between CSR and ROA is (R= 0.177) 17.7%, which implicates a positive relation between CSR and ROA, supporting our hypothesis. The model explains that CSR had only 3.1% contribution (R2 = 0.031) on the variation of ROA. Moreover, the Standard Error of the Estimate is 0.034 which is lower than the standard deviation of ROA, as it must be. The model appears to be statistically significant at the 95% level and so, the independent variables predict significantly the dependent variable, therefore supporting our first hypothesis H1. This is an equation to predict ROA taking CSR weights into consideration: $ROA = 0.047 + (0.005 \times \text{CSR ranking weight})$. This findings were backed up by the following authors (Hull & Rothenberg, 2008), (Mahoney & Roberts, 2007), (Waddock & Graves, 1997), (Lee & A., 2009), (D'Arcimoles & Trebucq, 2002), (Aras & Aybars, 2010), (Bhagat & Bolton, 2009) & (Sotorrió & Sánchez, 2008), where they used the ROA as an accounting based measure to represent the CFP, and concluded that CSR contributes positively to CFP, where it is financially beneficial for the company to invest in CSR. Our findings also support the following theories the stakeholder's theory, the good management theory, the enlightened shareholder value theory and the instrumental stakeholder theory.

Icon forecasting and regression Variable	Multiple correlation coefficient R	Total contribution of the variables R2	The percentage of contribution	Partial regression coefficient	In addition to the value of t	ANOVA Value F	Standard error
CSR ranking weights	0.167*	0.028	2.789	0.007	2.210*	4.67*	0.041
Constant	0.166						

Correlation is significant at the 0.05

Table 5: Multiple regression model equation between CSR and ROE

Further to test the relationship between ROE and CSR. Conclusions extracted from the Table 5 show that the multiple correlation coefficient between CSR and ROE is (R=0.167)16.7%, which implies a positive relation between CSR and ROE, supporting the theoretical framework, our literature review and past empirical studies. The model explains that CSR had only 2.8% of contribution (R2=0.028) on the variation of ROE. Moreover, the Standard Error of the Estimate is 0.041 which is lower than the standard deviation of ROE. The model appears to be statistically significant at the 95% level and so, the independent variables predict significantly the dependent variable, therefore supporting our second hypothesis H2. This is an equation to predict ROE taking CSR weights into consideration. $ROE = 0.166 + (0.007 \times \text{CSR ranking weight})$. this outcome was supported by the following authors (Waddock & Graves, 1997), (D'Arcimoles & Trebucq, 2002), (Mahoney & Roberts, 2007), (Lee & A., 2009) and (Aras & Aybars, 2010), where they used the ROE as an accounting based measure to represent the CFP, and concluded that CSR contributes positively to CFP, where it is financially beneficial for the company to invest in CSR. Our findings also support the following theories the stakeholder's theory, the good management theory, the enlightened shareholder value theory and the instrumental stakeholder theory, as they direct in the same ideology with these results.

Icon forecasting and regression Variable	Multiple correlation coefficient R	Total contribution of the variables R2	The percentage of contribution	Partial regression coefficient	In addition to the value of t	ANOVA Value F	Standard error
CSR ranking weights	0.132*	0.017	1.742	0.036	2.090*	3.066*	0.049
Constant	1.911						

Correlation is significant at the 0.05

Table 6: Multiple regression model equation between CSR and EPS

Moreover, testing the relationship between EPS and CSR, conclusions can be extracted from the Table 6, where the multiple correlation coefficient between CSR and EPS is $(R=0.132)13.2\%$, which implicates a positive relation between CSR and ROA, supporting the theoretical framework, our literature review of past empirical studies. The model explains that CSR contributes only 1.7% ($R^2=0.017$) on the variation of EPS. Moreover, the Standard Error of the Estimate is 0.049 which is lower than the standard deviation of EPS, as it must be. The model appears to be statistically significant at the 95% level and so, the independent variables predict significantly the dependent variable, therefore supporting our third hypothesis H3. An equation to predict EPS taking CSR weights into consideration. $EPS = 1.911 + (0.036 \times \text{CSR ranking weight})$. this outcome were supported by the following authors (Fiori, et al., 2009), (Muhammad.Z.J, et al., 2014), (Simionescu & Gherghina, 2014) & (Ahmed, et al., 2012), where they used the EPS as an accounting based measure to represent the CFP, and concluded that CSR adds positively to CFP, where it is financially beneficial for the company to invest in CSR. our findings also support the following theories the stakeholder's theory, the good management theory, the enlightened shareholder value theory and the instrumental stakeholder theory, as they are aligned perfectly with these results.

4.5. Limitations

It is necessarily to state that this paper is limited by the size of the sample and the difficulty to access and capture proper, accurate and genuine data about both the firms' CSR programs and CFP reporting. The study contributes to the literature in terms of providing practical insights on the CSR strategies that help support effective financial performance in Egypt.

5. Conclusions and recommendations

Conclusion

Corporate responsibility is a multifaceted, complex phenomenon that involves a set of actions that significantly affect several dimensions of financial performance. We found out that improvements can result on CFP from better CSR actions. The ultimate target is to emphasize on the financial determinants that reflect corporate aspects of environmental, social and good governance activities. Those three dimensions constitute the newly Corporate Responsibility Index in Egypt. This study supports the positive relationship of CSR on CFP as previous studies like: (Freeman, 1988), (Pava & Krausz, 1996), (Preston & O'Bannon, 1997), (Solomon & Hansen, 1985), (Stanwick, 1998)(Ruf, et al., 2001), (Simpson & Kohers, 2002), (Backhaus, et al., 2002), (El Ghoul, et al., 2011), (Harjoto & Jo, 2011), (Jo & Harjoto, 2012), (Bouslah, et al., 2010), (Choa, et al., 2012) and (Cheng, et al., 2014) as mentioned previously in the literature, also supporting the following theories: the stakeholder's theory, the good management theory, the enlightened shareholder value theory and the instrumental stakeholder theory as mentioned previously in the theoretical framework.

The CSR concept is rather new in the Egyptian business environment, compared to other developed countries, where the success for CSR programs takes time to show significant results. Moreover, it can be observed from the results in this research that companies CSR activities are mostly increasing in the years 2007-2015. Also, efficient CSR programs must be implemented in the right manner to get the ultimate results of these CSR programs. In the developed countries, companies choose to be socially responsible not only because of the CSR benefits, but also because of the social, political and consumer pressures where they demand responsible products and services delivered by the companies; pressures come also from NGOs, investors, industry codes of conduct, rankings of social performance. External pressures and CSR benefits push corporations to become socially responsible.

Reviewing the research result of investigating the relationship between CSR and financial performance in large Egyptian publicly traded companies, this study concludes that highly ranked firms in terms of environmental, social and governance aspects are characterized financially as follows: we can conclude that there exists a positive relationship that can be observed for the sample during the time period 2007-2015 between the CFP variables and CSR variable, with significance of

17.7% in ROA, 16.7% in ROE and 13.2% EPS respectively with CSR ranking weights at the 95% level, which implicates a positive relation between CSR and CFP, supporting the theoretical framework, our literature review, past empirical studies and our hypothesis. This can be the effect of the indirect relationship between the two variables (CSR and CFP), where the main outcome of CSR is establishing a good reputation, good management practices, lowering risk and cost and increasing customer satisfaction, which in turn improve financial performance on the long term

Recommendations

The results however are based on three different financial variables only and future research should utilize a larger number of financial parameters to test for significance in the relationship in publicly traded companies on the Egyptian market. This can be done by use of a more financial variable (like using a mixture of both accounting and market based measures) could also offer a wider scope of insight into how CSR performance affects different financial parameters. Another suggestion for future research is to utilize a larger sample than the one observed in this research. Due to the panel data study design, the sample was only able to include 18 companies that were scored in the S&P/EGX ESG Index due to missing or unreliable sources of both financial and CSR data.

Another suggestion for future research is companies should further finance the CSR departments to find better approaches and CSR programs, resulting in having effective programs that can directly generate profits or cost savings. Conducting CSR research, focusing the efforts of the various stakeholders on sustainable development and not charity, launching promotional campaign, and encouraging transparency and reporting on activity-focused CSR. Moreover, the improvement of the true definition and understanding of CSR must take place in the Egyptian community (moving away from the philanthropic ideology) as a whole to get better CSR action, consequently better CFP outcomes. This can be achieved by reaching the final stage of CSR, which is the instrumentality and sustainability, which shows the adoption of CSR as a strategic tool in achieving organizational objectives.

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On e-business strategy planning and performance evaluation: An adaptive algorithmic managerial approach

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Keywords

Adaptive algorithmic modelling, e-business, performance evaluation, strategy management methodologies, strategy planning, quantitative methods

Abstract

A new e-business strategy planning and performance evaluation scheme based on adaptive algorithmic modelling techniques is presented. The effect of financial and non-financial performance of organizations on e-business strategy planning is investigated. The relationships between the four strategic planning parameters are examined, the directions of these relationships are given and six additional basic components are also considered. The new conceptual model has been constructed for e-business strategic planning and performance evaluation and an adaptive algorithmic modelling approach is presented. The new adaptive algorithmic modelling scheme including eleven dynamic modules, can be optimized and used effectively in e-business strategic planning and strategic planning evaluation of various e-services in very large organizations and businesses. A synoptic statistical analysis and comparative numerical results for the case of UK and Greece are given.

The proposed e-business models indicate how e-business strategic planning may affect financial and non-financial performance in business and organizations by exploring whether models which are used for strategy planning can be applied to e-business planning and whether these models would be valid in different environments. A conceptual model has been constructed and qualitative research methods have been used for testing a predetermined number of considered hypotheses. The proposed models have been tested in the UK and Greece and the conclusions including numerical results and statistical analyses indicated existing relationships between considered dependent and independent variables. The proposed e-business models are expected to contribute to e-business strategy planning of businesses and organizations and managers should consider applying these models to their e-business strategy planning to improve their companies' performances. This research study brings together elements of e-business strategy planning, strategy planning and performance management. The proposed models can be used by practitioners who may use them for increasing their organization's performance and by theoreticians for academic purposes by developing e-business strategic management, strategic planning and performance evaluation.

1. Introduction

During the last decades traditional business modelling research, belonging to the organizational management field, has been gradually redirected to the e-business modelling research of e-business technologies and their applications. It has been noticed in the variety of used models there is a comparatively lack of theoretical understanding and knowledge of suitable tools in e-business modelling (Clark, 2010; Zillman, 2005-2012; Yunus et al., 2010; Brynjolfsson and Hitt, 2003; Rust and Kannan, 2003). The impact of e-business on traditional business practices, the exploitation of opportunities enabled by e-business technological innovations and related business modelling complex applications including Internet business models, business models on the Web, business models in e-commerce and generally business models for e-markets have been investigated (Zott et al., 2011; Koellinger, 2008). It has been reported that contemporary businesses, organizations and industries

may be able to increase their financial and non-financial performances by using the new proposed e-business strategies (Forrester Research, 2012; ONS, 2011; Mesenbourgh, 2004). E-business strategy, sourcing and governance are critical issues in modern private and public organizations, requiring efficient planning, use and control of information technology by managers (Gottschalk, 2006). Several research quality evaluation methodologies have been recently applied for the improvement of e-business performance evaluation methods (Lipitakis and Lipitakis, 2012-2013; Wirtz, 2011; Zeng and Luo 2011; Zhang et al., 2010).

This research work is aiming to establish whether exist relationships between e-business planning and organization's performance formalizing these relationships between the two. The effects of planning effectiveness parameters on e-business strategic planning and performance relationships are examined and the performance categories measures of both financial and non-financial dimensions of performance are considered. The proposed adaptive model can be used as benchmarking tool for measuring e-business strategy planning and performances, and businesses and organizations can assess their capabilities examining if any e-business strategy planning parameters need to be adjusted to optimize their performance. The proposed adaptive algorithmic modelling techniques are effectively used in e-business strategic planning and performance evaluation of selected e-services for solving e-business problems of large organizations and businesses in local, national and international levels.

2. Related E-Business Models

In recent years considerable research has been focused on the development, strategic planning and efficient use of e-business models on multidimensional applications by considering certain strategy planning aspects of businesses and organizations and related measure parameters (Demil and Lecocq, 2010; Caniato et al., 2009; Koellinger, 2008; Coltman et al., 2008; Sanders, 2007; Zhu et al., 2003; Hackbarth and Kettinger, 2000). Note that the adaptation of traditional business model for application to e-business follows an evolutionary process with the following stages: e-business, e-commerce, e-enterprise, external and internal communications, appropriate transformations (Demil and Lecocq, 2010; Petrovic et al., 2001).

Conceptual and evaluation e-business strategic planning models with key characteristics, such as design/methodology/approach, measures/variables, data sets, purposes, hypotheses, findings, Internet and performance, various research model methodologies have been recently presented. Several contributions on business model concepts, e-business strategy planning and performance concerning related fields such as e-business strategy, business models, strategy planning and performance have been also investigated (Lipitakis, 2013).

Various multidimensional approaches have been proposed and implemented by considering performance models with strategic planning variables and basic constructs improving the strategic performance of e-business strategic planning of selected organizations (Phillips, 2003-2010; Clark, 2010; Jarzabkowski and Balogun, 2009; Ocasio and Joseph, 2008; Coltman et al., 2008; Nordqvist and Melin, 2008; Rudd et al., 2008; Johnson et al., 2007).

3. Development of Conceptual Strategic Planning

Several pilot studies and statistical analyses including sampling, data handling, context, various variable definitions and principal component analyses have been presented supporting proposed e-business strategy planning and performance models in various countries and national regions (Lipitakis, 2013). Data collections, samples, correlations of various business sectors affected by different variables and corresponding analyses including related questionnaires, combinations of e-mail surveys, conferences relevant to chosen sectors through business and trade associations have been considered.

The proposed e-business models and corresponding hypotheses have been statistically tested by using explanatory and confirmatory factor analysis, correlation between independent and de-

pendent variables and regression analysis. In such cases the application of regression analysis it has been found that the independent variables of basic components can be used for predicting the dependent variables of financial and non-financial performance (Lipitakis, 2013).

A class of adaptive algorithms for solving e-business problems has been recently presented (Lipitakis and Lipitakis, 2013). The basic components for estimating the strategic planning parameters of Formality, Participation, Sophistication and Thoroughness can be defined as follows:

Formality: the explicit and systematic procedures, policies and goals.

Participation: the involvement of senior and middle management. Improvement of communication and development of a shared vision for the direction of the firm.

Thoroughness: the extent to which a firm uses internal and external experience, and ensures adequate time is devoted to the strategic planning process.

Sophistication: use of a wide range of managerial techniques. Having a short or long-term approach. Coordination of e-business across the organisation and having an appropriate budget for e-business.

These independent strategic planning variables are accompanied with the dependent variables of finance and non-finance. In this research work a new adaptive algorithmic modelling for e-business strategic planning and evaluation, based on an e-business performance model (Lipitakis, 2013), is presented.

The proposed e-business strategic planning model is based on a modified version of the LP e-business model, using a predetermined number of independent and dependent variables, and can be efficiently used for computing the best performance measurements and solving a wide class of e-business and strategic management problems under uncertainty conditions. Furthermore, a predetermined number of independent strategic planning variables and two dependent variables of financial and non-financial performance of organizations are also considered.

4. An Adaptive Algorithmic Scheme for Performance Evaluation

The adaptive algorithmic modelling (ADAM) scheme using a set of dependent and independent variables, given in eleven computational modules, can be described in the following pseudo algorithmic form:

Algorithm ADAM-1 (FNFP, FPST, ϵ_{ST} STR, ϵ_{LE} LEA, ϵ_{PC} PCU, ϵ_{CO} COH, ϵ_{KN} KNO, ϵ_{AL} ALL, ϵ_{AD} ADM, ϵ_{UN} ADAMS)

Purpose: describes an Adaptive Algorithmic Modeling Scheme, the so-called ADAM methodology, for computing the best performance measurements and solving a wide class of e-business and strategic management problems under uncertainty conditions.

Input: Formation FORM, Participation PART, Sophistication SOPH, Thoroughness THOR, Finance Performance FINP, Non-Finance Performance NFIP, Structure STR, Leadership LEA, People and Culture PCU, Coherence COH, Knowledge KNO, Alliances ALL, Agility & Decision-Making ADM, sp-parameters ϵ_{FO} , ϵ_{PA} , ϵ_{SO} , ϵ_{TH} , ϵ_{FP} , ϵ_{NF} and ϵ_{ST} , ϵ_{LE} , ϵ_{PC} , ϵ_{CO} , ϵ_{KN} , ϵ_{AL} , ϵ_{AD} , and uncertainty factor parameter ϵ_{UN}

Output: The (optimized) Adaptive Algorithmic Model Solution (ADAMS)

Computational Procedure:

Module 1-estimate the independent variables FPST (FORM, PART, SOPH, THOR)

Step 1.1: determine the input parameters ϵ_{FO} , ϵ_{PA} , ϵ_{SO} , ϵ_{TH}

Step 1.2: estimate the variable of Formality (ϵ_{FO} FORM)

Step 1.3: estimate the variable of Participation (ϵ_{PA} PART)

Step 1.4: estimate the variable of Sophistication (ϵ_{SO} SOPH)

Step 1.5: estimate the variable of Thoroughness (ϵ_{TH} THOR)

Module 2- estimate the dependent strategic planning variables FNFP (FINP, NFIP)

Step 2.1: determine the input parameters ϵ_{FP} , ϵ_{NF}

Step 2.2: estimate the variable of Finance Performance (ϵ_{FP} FINP)

Step 2.3: estimate the variable of Non-Finance Performance (ϵ_{NF} NFIP)

*Module 3-determine input sp-parameters**Step 3.1: determine input parameters $\varepsilon_{ST}, \varepsilon_{LE}, \varepsilon_{PC}, \varepsilon_{CO}, \varepsilon_{AL}, \varepsilon_{AD}$* *Module 4-Design Structure STR (MRE, POR, SAR, DBF)**Step 4.1: Managing Relationships (MRE)**Step 4.2: Process Orientation (POR)**Step 4.3: Strategic Architecture (SAR)**Step 4.4: Demand based Flexibility (DBF)**Module 5: Improve Leadership LEA (TCH, LAD, LAC, LEIS)**Step 5.1: Transformation Champion (TCH)**Step 5.2: Leadership Advocacy (LAD)**Step 5.3: Leadership Accountability (LAC)**Step 5.4: Leadership Empowerment & Idea Synthesis (LEIS)**Module 6: Focus on People and Culture PCU (REW, RCR, LRE, RTR, ICO)**Step 6.1: Rewards (REW)**Step 6.2: Rapid Customer Responsiveness (RCR)**Step 6.3: Learning & Renewal (LRE)**Step 6.4: Respect & Trust (RTR)**Step 6.5: Involvement & Commitment (ICO)**Module 7: Emphasize on Coherence COH (MPE, III, SIN, DDS, CCS)**Step 7.1: Measurements & Performance Evaluation (MPE)**Step 7.2: Integrated Information Infrastructure (III)**Step 7.3: Standardisation & Interoperability (SIN)**Step 7.4: Decentralised Differentiated Services (DDS)**Step 7.5: Common Centralised Services (CCS)**Module 8: Comment on Knowledge KNO (KDA, KFO, KEM, KAC, KSH)**Step 8.1: Knowledge Development Applications (KDA)**Step 8.2: Knowledge Focus (KFO)**Step 8.3: Knowledge Exchange Meetings (KEM)**Step 8.4: Knowledge Accessibility (KAC)**Step 8.5: Knowledge Sharing (KSH)**Module 9: Determine Alliances ALL (ART, APE, CRI)**Step 9.1: Alliance Respect & Trust (ART)**Step 9.2: Alliance Performance Expectations (APE)**Step 9.3: Complexity & Risk (CRI)**Module 10: Focus on Agility & Decision-Making ADM (IRE, MSR, TRTO, PMA, MSA, ADE)**Step 10.1: Intent Realisation (IRE)**Step 10.2: Matching and Speed & Risk (MSR)**Step 10.3: Tempo/Reliability Trade off (TRTO)**Step 10.4: Project Management (PMA)**Step 10.5: Market Space Awareness (MSA)**Step 10.6: Agility & Decision Edge (ADE)**Module 11: Form the e-business solution**Step 11.1: Determine the uncertainty parameter ε_{UN}* *Step 11.2: Form the solution (ε_{UN} ADAMS)*

The values of the sp-parameters affecting the corresponding input variables of the optimized algorithm ADAM-1 can be determined experimentally or approximately from corresponding appropriate mathematical model. In the special case that the sp-parameters take the values

$$\begin{aligned} \varepsilon_{FO} = \varepsilon_{PA} = \varepsilon_{SO} = \varepsilon_{TH} = \varepsilon_{FP} = \varepsilon_{NF} = 1 \text{ and} \\ \varepsilon_{ST} = \varepsilon_{LE} = \varepsilon_{PC} = \varepsilon_{CO} = \varepsilon_{AL} = \varepsilon_{AD} = 1 \end{aligned} \quad (4.1)$$

a simplified form of the algorithm, while the selection of the appropriate sp-parameters leading to (nearly) optimized solutions is dependent on the nature of the considered problem and often requires extensive experimentation. Multiple iterative applications of the proposed adaptive algorithm on a set of selected e-business strategic planning performance evaluation scheme, using multiple-point Likert scale measurement in every iterative step, can lead to comparable numerical results for evaluating the performance of the adaptive algorithmic application for the strategic planning performance of each organization/business at national/international region levels for comparative purposes.

The main advantage of the proposed algorithmic approach is twofold. Firstly, the adaptive algorithms can be efficiently used for solving a wide class of e-business and strategic management problems, and secondly the dynamical choice of the sp-parameter values, which can be related to both quantitative and qualitative nature of the input parameters (data) of the given problem, can lead to (near) optimum solutions. The evaluation of a firm e-business performance as a time-dependent problem the investigation of the performance stability over a certain period, seems to be a challenging future research problem (Coltman et al., 2008; European Commission, 2004).

5. On Comparative Studies of e-business strategy planning and performance in the UK and Greece

A case study on e-business strategy planning and performance with a comparative study of the UK and Greece has been recently presented (Lipitakis, 2013). In this research work the managerial implications in the UK and Greece are discussed and the proposed e-business model by considering four e-business strategy planning variables (formality, participation, thoroughness and sophistication) is examined as managerial tool investigating the relationships between e-business strategic planning and performance, the directions of these relationships and existing similarities/differences in the UK and Greece. The improved Lipitakis-Phillips (LP) model can be used as a benchmarking tool to measure e-business strategy planning and performance and to examine if any e-business strategy planning set of parameters need to be adjusted to optimize its performance. Similar investigations have been presented in related research work (Lipitakis, 2013; Caniato et al., 2009; Coltman et al., 2008; Johnston, 2007).

It should be noted that in other multidisciplinary fields, such as the applied computing science and adaptive algorithmic theory, where e-business performance may be evaluated using adaptive algorithms and perturbation techniques, e-business problems and strategy management methodologies may be algorithmically treated. The algorithmization of the model, or in part, allows it to be transferable and applied to wider theoretical areas. This opens a whole host of scientific fields and research topics to which the research may be applied. Indicatively, among them are: Digital Information Management, Computer Modelling and Simulation. The proposed model may also be adapted for Knowledge Management and e-Learning, by adaptive computational modelling for solving e-business and knowledge management problems as well as in business intelligence, financial engineering business intelligence and financial engineering applications.

The dependent variables of financial and non-financial performance of organizations can be influenced by e-business strategy planning and performance, and existing relationships between the independent variables and dependent variables as well the directions of these relationships have been investigated by using quantitative research methods in the case of UK and Greece for testing the considered hypotheses (Lipitakis, 2013). Related numerical results and statistical analysis have shown that in UK participation and formality had positive relationships with financial performance and non-financial performance respectively. Elements of e-business strategy planning, strategy planning and performance management have been considered and it has been shown that strategy planning components have positive relationship with e-business strategy and performance, while the proposed model is extendable, valid and easily adaptable in several national environments (Lipitakis, 2013).

In the following several numerical results and statistical analysis for e-business strategy planning and performance concerning the case of comparative studies of the UK and Greece are given. In the framework of comparison of UK and Greece management techniques many management techniques have been considered and the outcome is given in figure 5.1. Note that the four most used techniques were performance benchmarking, customer surveys, SWOT analysis and knowledge management (Lipitakis, 2013).

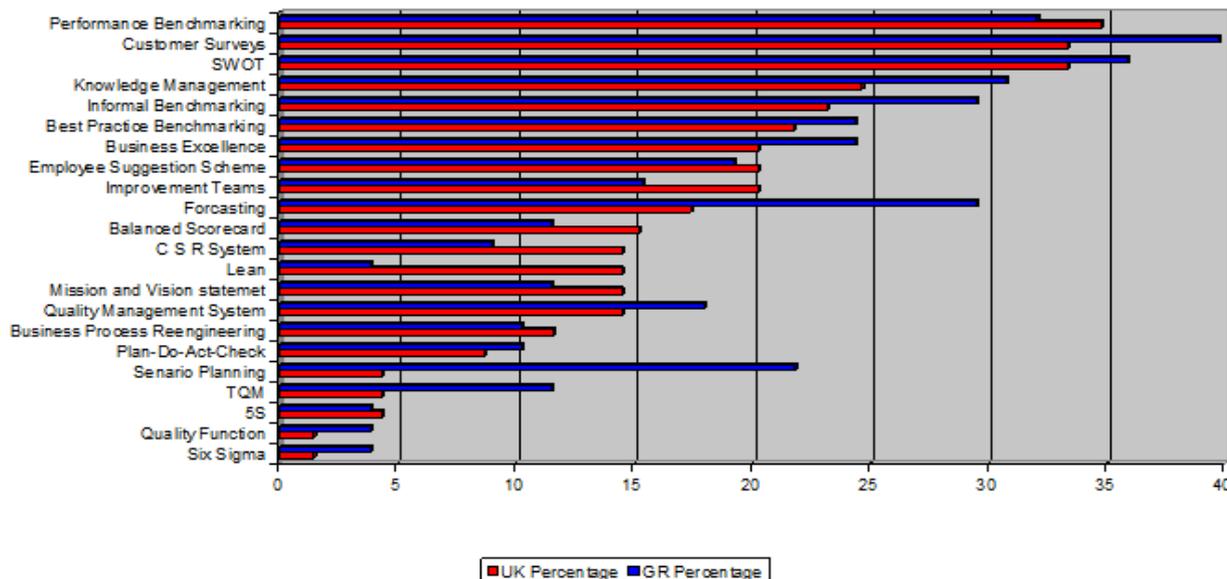


Figure 5.1: Comparison of Management Techniques used in the UK and Greece

The bivariate correlations of the independent and dependent variables in the UK and Greece (Nat. Stat. Service of Greece, 2012) are summarised in Table 5.1.

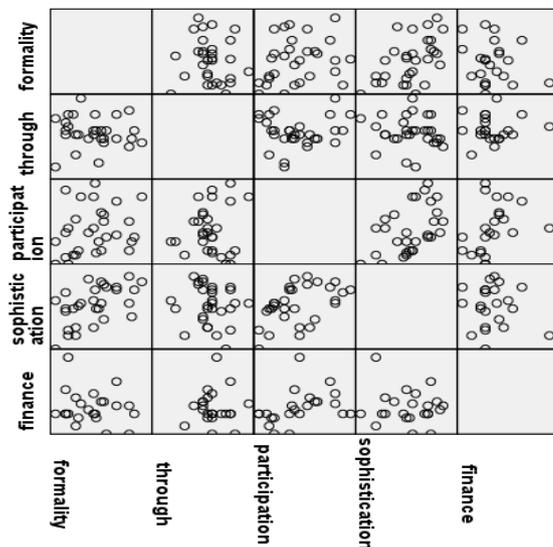
			Formality	Thoroughness	Participation	Sophistication
GR	Financial	Pearson's r	0.565**	0.409**	0.631**	0.679**
		R ²	0.319	0.167	0.398	0.461
		p-value	<0.001	<0.001	<0.001	<0.001
	Non-Financial	Pearson's r	0.469**	0.433**	0.524**	0.586**
		R ²	0.219	0.187	0.274	0.343
		p-value	<0.001	<0.001	<0.001	<0.001
UK	Financial	Pearson's r	.041	.093	.196*	.015
		R ²	.002	.009	.038	.0002
		p-value	.657	.310	.032	.867
	Non-financial	Pearson's r	.210*	.052	.103	.130
		R ²	.044	.0027	.010	.016
		p-value	.021	.571	.261	.158

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

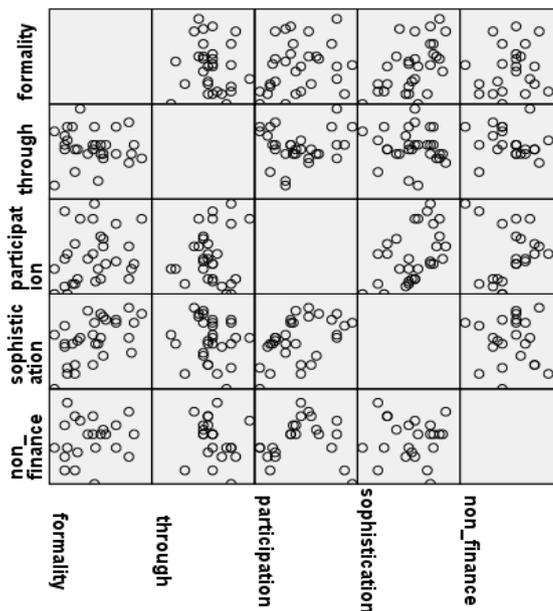
* . Correlation is significant at the 0.05 level (2-tailed).

Table 5.1: Results of the bivariate analysis for the dependent and independent variables of the GR

Indicative statistical results concerning the correlations between independent variables and financial/ non-financial performances are next given. Specifically, the existence or non-existence of correlations is depicted in the following graphs:



Graph 1: Correlations between independent variables and financial performance



Graph 2: Correlations between independent variables and non- financial performance

Further related numerical results and statistical analysis can be found in a recent research work (Lipitakis, 2013).

The proposed adaptive algorithmic schemes can be efficiently used for solving complex e-business and strategic management problems by using special parameters related to quantitative and qualitative nature of the input parameters (large data sets) leading to (near) optimum solutions, a performance analogue to that of the genetic algorithmic approach (McGrath, 2016; El Karoui, 2013; Vose, 1999; Holland, 1975). Furthermore, for comparison studies of strategic planning performance

evaluation of various large organizations and businesses by using a large scale iterative application of the proposed models a hierarchical evaluation table can be obtained and used for multipurpose tasks (financial services, stock market, stakeholders, commercial projects, leadership, management, public funding evaluation committees etc.)

The proposed e-business models for performance evaluation can be used by theoreticians for academic purpose and research and practitioners in commercial sphere for improving their large organization performance in complex e-strategic planning and various related e-services.

Limitations of the research work

Note that the obtained results may be affected by cultural differences between several countries, where the research models should be tested by using different samples. This research study used a single timeframe and many organizational factors related to e-business benefits could change over time and the time dependency may be of critical importance (Lee et al., 2007). The nature of empirical data used in such measure studies may be subject to random errors inherent in this type of data (Rudd et al., 2008) and to complexity of e-business strategy (Coltman et al., 2007). The organization performance is not always easily measurable and the efficient measurement of financial and operational dimensions can be achieved by using accurate e-business performance measurements. Note also that risk analysis and strategic risk, which would have significantly complicated this research work, have not be included in the financial performance part of the models.

6. Conclusions and Future Research Work

This research work was based on key-field concepts of four interrelated sciences, i.e. Computer Science (adaptive algorithmic theory), Applied Mathematics (singular perturbation theory and partial differential equations) and Management Science (strategic management and e-business). The proposed adaptive e-business model containing the adaptive dynamic algorithmic approach and singular perturbation concept have been applied for solving efficiently several e-business problems. A characteristic case study has been considered and its corresponding adaptive algorithmic scheme is given. Furthermore, the adaptability and compactness of the proposed algorithm through the choice of singular perturbation parameters can lead to an (near) optimum solution of the considered e-business performance case study.

The proposed e-business models indicate how e-business strategic planning may affect financial and non-financial performance in businesses and organizations, exploring whether models which were used for strategy planning can be applied to e-business planning and whether these models would be valid in different environments in various countries. A conceptual model was constructed and qualitative research methods were used for testing a predetermined number of the considered hypotheses. These models can be tested in several countries and national/international regions and the conclusions including numerical results and statistical analyses can show the existing relationships between the considered dependent and independent variables.

The appropriate choice of the singular perturbation parameters, leading to efficient solutions, is an interesting *open problem* of future research work. This choice is closely related to both quantitative and qualitative nature of the input parameters (data) of the given problems and their corresponding dynamical algorithms can lead to (near) optimum solutions of a wide area of e-business problems, e-services and related applications. The proposed e-business models are expected to contribute to future e-business strategy planning of businesses and organizations, and managers should consider applying these models to their e-business strategy planning to improve their companies' performances. It has not escaped our notice that the proposed e-business strategy planning methodologies can be applied in a wider spectrum of applications, such as enterprise information systems, computing information technology, financial engineering business intelligence, digital information management, knowledge management and e-learning services. It is envisaged that these will be interesting challenging research subjects of future research work.

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Assessing climate change awareness influence on Egyptian children

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Keywords

Climate change (CCH), children problem (CH P), climate change impact, (CCHI), country pressure (CP), climate change awareness (CCA)

Abstract

Climate change (CCH) is one of the important issues raised globally lately. Heat, humidity pollution could harm children, cause diseases and death, 85 % of the world's youth live in the developing countries, and Egypt as one of the developing countries its children face a great risk specially with the presence of weak climate change awareness impact. Our research will investigate Egypt climate change awareness (CCA) problem and how it affects Egyptian children, we will try to explore children problems (CHP), due to limited climate change awareness and conclude by emphasizing the importance of having appropriate solution; in term of avoiding negative climate change impact (CCHI) on children in the future.

Introduction

Egypt, a developing country with a growth rate of 1.6 percent in 2015, the population of Egypt will exceed 10 million by 2030. According to the World Health Organization 20.5 percent of children under 5, 22.5 percent of men and 46.3 percent of women are overweight, making Egypt one of the world's top 20 overweight nations. Egypt has exceeded the gender parity goal for the completion rate in secondary education (83.4 percent for girls and 74.8 percent for boys) (WHO, 2015). Climate change (CCH) is one of the important issues raised globally lately. Heat, humidity, pollution could harm children, cause diseases and death, 85 % of the world's youth live in the developing countries, and Egypt as one of the developing country, children face a great risk specially with the presence of weak climate change awareness impact. A lot of risks associated with climate change, starting from death rates increase to illness during heat periods. The International Agency for Research on Cancer (IARC) found that 3.7 million deaths each year due to outdoor air pollution, most of it in the developing countries. Earth temperature increased during the past century about 1.5F, global sea level, had been risen about 15-20 centimetres climate change influence seriously

Human wellbeing, global warming cause a lot of damages, according to the World Trade Organization (Oppenheimer and Antilla-Huges, 2016). The World Health Organization (WHO) estimated that about 7000.000 will be died in developing countries from air pollution, as climate changes is responsible to cause a death of 250.0000 per year from Malaria, heat, stresses and malnutrition, 48000 children dies from diarrhea diseases and 95000 from malnutrition (Tanqeer, 2015) between 2030 and 2050 children will be the most affected sector.

A contemporary study on the causes of climate change in Egypt

Located in the north-eastern corner of the African continent with an area about 1 million square kilometres. The Egyptian terrain consists of a desert plateau interrupted by the Nile valley and delta. It is located in an arid - to semi-arid zone. The coastal zone of Egypt extends for more than 3,500 km and 40% of the population lives there. Most of these people live in and around a number of major industrial and commercial cities such as Alexandria, Port Said, Damietta, Rosetta, and Suez. The Nile delta covers the area from Cairo to the shoreline of the Mediterranean Sea, between the

cities of Damietta in the east and Rashid in the west. Hot dry summers and mild winters prevail with relatively low, irregular, and unpredictable rainfall. (Elsharkawy H, Rashed H, and Reached I, 2009). The most serious problem of climate change in Egypt ; is the coastal problem, due to Aswan high dam construction , sea level was raised, agriculture land was lost due to saline intrusion, beside limited water resources, which caused an overlap of available agriculture land. The result climate change affects labor market in the country. Agriculture sector in Egypt is employing over 30% of its population a high percentage of them are children. Global warming refers to the rise in average surface temperatures on Earth. - As overwhelming scientific consensus, climate change is due primarily to the human use of fossil fuels, which releases CO₂ and other greenhouse gases into the air. -The gases trap heat within the atmosphere, which can have a range of effects on ecosystems, including rising sea levels, severe weather events, and droughts that render landscapes more susceptible to wildfires (ELNahry, 2016). Raising the Mediterranean Sea level by 0.5m by 2050. This will lead to flooding the coastal areas along the Nile Delta.

Exposure to flooding due to sea level rise

Under a high emissions scenario, and without large investments in adaptation, an annual average of about 2.4 million people is projected to be affected by flooding due to sea level rise between 2070 and 2100. If emissions decrease rapidly and there is a major scale up in protection (i.e. continued construction /raising of dikes) the annual affected population could be limited to about 700 people. Adaptation alone will not offer sufficient protection, as sea level rise is a long-term process, with high emissions scenarios bringing increasing impacts well beyond the end of the century (HDCC, UK, 2014).

Infectious and Vector-Borne Diseases

In the baseline year of 2008, there were an estimated 2,700 diarrhoeal deaths in children under 15 years old. Under a high emissions scenario, diarrhoeal deaths attributable to climate change in children under 15 years old is projected to be about 10.9% of about 1,000 diarrhoeal deaths projected in 2030. Although diarrhoeal deaths are projected to decline to about 300 deaths by 2050, the proportion of deaths attributable to climate change could rise to approximately 15.2%. (Source: Lloyd, S...2015)

Heat related Mortality

Under a high emissions scenario heat-related deaths in the elderly (65+ years) are projected to increase to approximately 47 deaths per 100,000 by 2080 compared to the estimated baseline of about one death per 100,000 annually between 1961 and 1990. A rapid reduction in emissions could limit heat-related deaths in the elderly to fewer than 9 deaths per 100,000 in 2080. (Source: Honda et.al...2015).

Child problem due to Climate Change

Increased temperatures could result in increased heat stress and higher rates of diseases such as skin cancers. Infectious and vector-borne diseases could also be exacerbated by changing weather and rainfall patterns. Specially, child life is more complicated with high temperature; they can't learn play or exercise outdoors, plus smog existence harm children's health. Agriculture sector in Egypt is employing over 30% of its population a high percentage of them are children. Children from poor and rural households are vulnerable to Climate change impacts, they live in unsafe settlements, they have lower access to basic services, air pollution, poor health care, high temperature, water scarcity, poor education, and all the mentioned factors exposed Egyptian children to climate change problems.

Egyptian Government Efforts Concerning Climate Change Effect:

1. Country has identified a national focal point for climate change with the Ministry of health.

2. The National Communication submitted to UNFCCC includes health implications of climate change mitigation policies .Country has implemented actions to build institutional and technical capacities to work on climate change impact and health(Climate and health Egypt country profile: 2015).
3. Country should apply new policies concerning climate change and apply renewable energy technologies by using solar and wind to reduce gas emissions.
4. Country should develop public policies in agriculture, sett mentoring and warning systems to predict disasters before accruing (climate change summit at Paris).

Objectives of the study

- To assess climate change awareness (CCA) level influence on Egyptian children
- To discover how climate change awareness information access could impact Egyptian children.
- Based on the outcome of the study, an attempt will be made to prescribe appropriate strategies.

Review of Literature

Climate change and human responsibility

The warming of the Earth has been changed due to human activities over the past half-century, human emit about 35 billion metric tons of carbon dioxide into the atmosphere per year , the carbon cycle balance changed, this cause air pollution and smog(Oppenheimer and Antilla-Huges,2016), due to a rapid population growth and immigration from rural areas to capital cities, pollution increase, temperature raise lead to water scarcity ; as a climate change result agriculture is under threat , it cause children malnutrition beside people have less drinking water; they have to spend more time and money to collect water from sources farther from their homes. Climate change impacts negatively air quality, 1.6 million people died annually from air pollution more than half of these deaths occur among children under age of five(Aron and Sumuel,2011). World Health Organization declared, in 2012 that violence caused by climate change was about 119,000 deaths, interpersonal violence caused 505,000 deaths, 804,000 people committed suicide. The annual global cost of weather-related disasters ranges from \$90 billion to \$130 billion. (Kousky, 2016).

Climate change problems affect Egyptian children

The most serious problem of climate change in Egypt ; is the coastal problem, due to Aswan high dam construction , sea level was raised, agriculture land was lost due to saline intrusion, beside limited water resources, which caused an overlap of available agriculture land. The result climate change affects labor market in the country. Agriculture sector in Egypt is employing over 30% of its population a high percentage of them are children. Children from poor and rural households are vulnerable to Climate change impacts, they live in unsafe settlements, and they have lower access to basic services, air pollution, poor health care, high temperature, water scarcity, poor education.

Climate change and children malnutrition:

In Egypt the levels of rainfall decrease and population increase, it lead us to land degradation; with less agricultural production, it means less food availability, children are impacted by malnutrition. Data indicate that about 25%of Egyptian children under age of five have chronic malnutrition, 7 % of Egyptian children under age of five suffer from acute malnutrition and the highest percentage appears in Upper Egypt due to insufficient household food security and high infection rates(country cooperation Strategy at a glance,2013)

Climate change and Egyptian children health:

Malaria, one of the biggest killers of children under the age of five, it is expected to be increased from 45 % to 60 % in the next 100 years due to climate change. Egypt has made significant

progress on under-five-year child mortality over the past twenty years; less than five child mortality was reduced by 70% (between 1990 to 2008).

In 2008, there were an estimated 2,700 children less than fifteen years died from diarrhea, about 1,000 diarrheal deaths projected in 2030 children less than 15 years old. Although diarrheal deaths are projected to decline to about 300 deaths by 2050, the proportion of deaths attributable to Climate change could rise to approximately 15.2% (WHO, 2015). Contaminated water is the major cause of malnutrition and diarrheal disease, which remain a leading cause of children under five deaths. High rates of sleep disturbance and sadness, and other mental health impairments among children accompanied with climate change.

Climate Change and Children Education:

Climate change affects economic outcomes, agricultural and industrial output, labor productivity, health and economic growth. Low economic productivity could affect children's ability to learn, Children who were placed in better physical environments, better sanitation running water and electricity perform better in school. Due to climate changes schooling could be affected. According to the central agency for public mobilization and statistics (compass) with coordination with Unicef Egypt, around 9.2 million less than seventeen years old of children in Egypt live in poverty, 7.5 million children were vulnerable to it, poverty could push parents to send children to work force and neglect education; highly income families escape from polluted areas; that mean poor families with their children remain in the polluted areas, where children suffer of inequality and climate change vulnerability, lack access to water, housing, food, education and health care and inadequate infrastructure. Children who were impacted by climate change were not able to complete their mandatory education according to previous researches (Akresh, 2016).

Research Methodology

In this research, the researcher has tended to highlight the positivist philosophical approach. Research technique used was survey. The data collection was done through questionnaires. As data collected is also influenced by its external environments and does not exist without individual bias.

Population and sampling

The study conducted in Cairo, Egypt, the population sample was random, targeted families from medium class, primary school teachers, and children physicians, the instrument used in the current study self-developed questionnaires, which contained 20 items and divided into sections, section (a) demographic variables, section (b) and (c), patterned on a 5 point rating scale, had 10 item each, section (B) measured the degree of climate change awareness and its impact on children health, section (C) measured how climate change awareness may affect Egyptian children educational and behavioral life. The main reasons for choosing this sample were to explore how climate change awareness could affect Egyptian children life, as Egypt one of the developing countries.

Hypothesis Formulation

H0: It is expected that will be a positive relation between climate change awareness level and awareness information accessibility on Egyptian children.

H1: It is expected that will be a negative relation between climate change awareness level and awareness information accessibility on Egyptian children.

Data Analysis and Major Findings

We used a factor analysis as a way to take the mass of data collected and we shrink it to a smaller manageable and understandable data to find the hidden patterns and to show how those patterns overlap as well what characteristics are seen in multiple pattern. Due to the factor analysis is a set of observed variables that have the similar response patterns because they are associated with a variable that isn't directly measured, it helped us to more understand how the climate change

information accessibility awareness could affect children we distract it the correlation between two factors.

- The first factor measures the awareness of climate effect on Egyptian children.
- The second factor measures the awareness of information accessibility effect on Egyptian children.

The component matrix revealed that the following questions

Land salinity as a result of climate change could impact children health Negatively	,525
Smog as a result of climate change could impact children health negatively	,540
Economic stress accompanied with climate change could affect children Health	,606
Climate change could affect negatively children academic level	,741
Children Stomachaches , vomiting , skin rashes , nausea could be result Of climate change	,671
Children respiratory problems is one of climate change effect	,577
Climate change and population growth could affect children living Level negatively	,704
Climate change could be a reason children heat stroke	,615
Climate change could be reason of children malnutrition	,852
Temperature change as one of climate change effect could raise violence against children	,632
Water contamination as a climate change result could affect children health	,565

- The above questions reduced to a factor that measure the effect of climate awareness on children

The following questions revealed

Children health could be affected negatively by air pollution	,483
Water scarcity could affect children health	,484
Climate change could affect negatively children behavior	,421
Climate change is not a reason for violence against children	,399

- The above questions reduced to a factor that measure awareness information accessibility effect on Egyptian children.
- The study tested the correlation between the two factors: the effect of climate awareness on children and information accessibility on Egyptian children using Chi- square test as chi square statistic is a measurement of how expectations compare to results. data used in calculating a chi square statistic was random

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5376.000 ^a	784	.000
Continuity Correction			
Likelihood Ratio	1284.090	784	.000
Linear-by-Linear Association	.000	1	1.000
N of Valid Cases	192		

a. 841 cells (100.0%) have expected count less than 5. The minimum expected count is .08.

The result revealed that our hypothesis is .000 less than .005

Which mean that the effect of climate awareness on children and information accessibility on Egyptian children positively significant.

Conclusion

A greater number of children live in poor households; they face challenges that increase their exposure to climate change impacts. Egypt is a semi desert climate, dry summer, moderate winter with a little rainfall; country temperature changes from 0 C to 4 C, this high temperature may raise violence as heat is one of the aggression reasons, children impacted by this violence. On the other hand The Lake of electricity in developing countries and the cost of using or owning air condition make difficult to reduce this heat which could lead to raise violence rate.

Climate change and urbanization are connected; people migrate from unusable land; seeking employment opportunities in cities, urbanization lead to city problems due to non-availability of infrastructure and services to cope with the population growth. Rising sea levels lead to land salinity, which might threaten groundwater sources. Once water is contaminated, people rely more on unsafe sources. This could have a particularly deleterious effect on health specially children's. Climate change could be accompanied with disasters; Egyptian government and community must collaborate to help reducing climate change effect specially its effects on children.

They should have an active approach in generating awareness, policies and plans concerning climate change impacts. Egyptian government and community should clarify the climate change impact on poverty, health, economic shocks, stresses, population growth, scarce resources and urbanization. In 1992 Egypt NGO's directed more than 60% of its grants to small climate change projects; this was contributed mainly to awareness and field training (Hegazy, 2005).

Climate change, through higher temperatures, land and water scarcity, flooding, drought and displacement, negatively impacts agricultural production and causes breakdown in food system. These disproportionately affect those most vulnerable to hunger and can lead to food insecurity. Vulnerable groups risk further deterioration into food and nutrition crises if exposed to extreme weather events. Without considerable efforts made to improve climate resilience, it has been estimated that the risk of hunger and malnutrition globally could increase by up to 20 percent by 2050 (Climate and Health Country Profile: 2015).

Strategies for Improvement

- Egyptian government should adopt effective awareness climate change campaign to minimize climate change effect specially on children (diarrhea and malnutrition) , all governmental sectors and communities should collaborates to apply the awareness programs
- Education institutions in Egypt should go green , and it should participate in national awareness strategies
- International climate change agreements implementation will help reduce climate change impact in Egypt.

Limitation of the study

- The research is limited due to lack of data in the country concerning this specific topic.
- The research is limited to segment of middle class in Cairo only. Sample size was very small due to shortage of time.
- Further researches recommend it, to measure the impact of climate change policies on Egyptian children as one of the developing countries.
- Further research should cover all Egypt provinces not Cairo only.
- The paper is more in a development stage.
- As data collected is also influenced by its external environments and does not exist without individual bias.

Direction for future research

1. A study can be made further to access the impact of climate change on the elderly population in Egypt.
2. A study can also be conducted to understand the impact of climate change on pregnant women.

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3.3. **Body of the manuscript**

From the second page the rest of manuscript should be included the introduction/background, main body of the paper which can be divided into section and sub-sections. Section and sub-section should be numbered and should be typed in BOLD. The manuscript should be organised as follows:

1. The Introduction
2. Main body of the paper with sections and sub-sections
3. Discussions and conclusions
4. Research limitations and direction for further research
5. References
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3.4. **Use of Table, Figures and Equations**

- (a) All tables are to be centered and numbered sequentially, with their title centered below the table.
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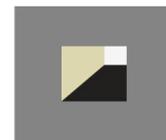
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