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# **Journal of US-China Public Administration**

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## Digital governance in Rajasthan Secretariat: A trajectory

*Sangeeta Sharma, Poonam Shekhawat*

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**Abstract:** The concept of digital governance has renovated the basic premise of administration. Digitalization has not only made it more responsive but also enhanced its accountability to deliver the better services to people by initiating direct participation of common person in the process of governance. The dynamic nature of administration makes it change orientation thus responding to the demands in particular time frame. Though the core issue of rendering services acquires the center-stage, recently there has been intermixing of principles of public management giving effective resource management, the special leverage to frame policies. In countries which are less prone to the adaptations of advanced technologies are also taking e-initiative to activate the process of implementation. The present article explores the status of e-governance in Rajasthan, the biggest state of Indian Union. After the enactment of Information Technology Act 2000 by the union government, different states have also taken corresponding initiatives pertaining to the e-governance. This study which was carried out in Rajasthan in 2009 focuses on various dimensions of its application in state secretariat, which epitomizes the epithet of administrative activities undertaken by the Government of Rajasthan. The study results are evaluated on the basis of the data collected at different levels by instituting the questionnaire and survey. It establishes the fact that Rajasthan has responded very well in some areas of administration, but there are certain areas where it has to implement the e-initiative at par with the other states. Therefore this particular study examines the present status of the e-governance followed by the suggestive trajectory on what other efforts are needed to involve this state. The interpretations are subject to the data collected. The secretariat is the domain of governmental functioning to fulfill the expectations of common person in the state. This research works has focused on the various e-programs, and data collected thereafter have been analyzed to understand the intricacies of e-governance in the state. It is a less explored arena where the study is conducted to find out the status of various programs and the impact of e-governance on the implementation of programs.

**Key words:** digital governance; Rajasthan State Secretariat; data interpretation; e-projects in Rajasthan

### 1. Introduction

In India, state governments have secretariats of their own, which is the nerve center of state administration. A chief secretary heads the state secretariat under whose direction many departments function. Many generalists and specialists both in secretariat and in field establishments assist him. The business rules of the state define the jurisdiction of various functionaries. For the purpose of effective administration, Rajasthan is divided into 33 districts, which are further divided into 237 blocks and 41353 villages.

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In recent times, Rajasthan has emerged as one of the frontrunner states in the country in the application of information technology (IT) in government. Keeping in pace with the era of information technological revolution settled in India, the state government has established a department of computers, headed by an officer from the Indian Administration Service Cadre, with the key objectives ranging from formulating the policies, creating awareness, providing technical consultancy to the state government departments for recruitment and cadre management. A separate cadre, comprising computer professionals, system analysts-cum-programmers, programmers, computer operations and data entry operators was created specially to implement computerization projects. The Department of Information Technology (DIT) is the nodal agency for computerization in government.

Subsequently, with the increasing scope of application of IT, the state government also established a consultancy and project implementation agency Rajasthan State Agency for Computer Services (Rajcomp) in 1989. IT was made the managing director of Rajcomp. It has now become a leading consultancy organization in the field of IT.

The departments are created and disbanded as the volume of work demands. Usually however, a secretariat in a state has departments of general administration, home, revenue, food and agriculture, planning, education, cooperation, animal husbandry, finance, health, forests, panchayat raj, law, industries, irrigation and power, transport, local self-government, jails, labor and employment, police and, excise and taxation, etc.. The departmentalization in India is state-specific, thus states having considerable scheduled castes and scheduled tribe's population have departments, which deal with the problems, connected with their welfare. Similarly, states with seashores have departments of fisheries and so on. The creation of a new department is within the purview of state government and so that it is difficult to enumerate the departments a state government can or should have.

An integrated e-governance project that aims to provide all possible government information and services to rural and urban masses through e-enabled centers and kiosk project being implemented on PPP model—back office is owned and managed by govt-front offices—e-Mitra kiosks—are owned, operated and managed by private partners (LSPs). The role players in e-Mitra projects are citizens. Six LSPs (private partners) are operating 425 kiosks in 30 out of total 33 districts. Approximately 4.25 million citizens are served in a month. Total government revenue collected is approximately Rupees 55 crores per month. Citizens are increasingly willing to pay service charges for availing e-gov services, e.g., a service charge of Rupees 200 is charged from citizens for rendering services through IT enabled systems of Sarathi (registration & stamp department). State secretariat network and state data center are operational for instance in registration & stamps, district collectorates, e-procurement system, police, tourism, agriculture, urban governance, rural development and revenue earning departments, etc. which are at various stages of execution, Rajasthan State Wide Area Network (RSWAN). More than 1000 nodes are operationalized by Secretariat Local Area Network (SecLAN). Computer systems, printers and IP phones have been made available to ministers and senior functionaries. Metropolitan Area Network (M. A. N.) of over 30 government buildings in Jaipur city has been set up and made operational. A central repository of information and application for major departments of the state government has been operationalized at state head quarter. The chief minister information system is being developed with an aim to keep chief minister (CM) and senior officers abreast with the latest information and current status of all the matters pertaining to CM office. The volume of information of the CM office is increasing steadily with time. It was felt that retrieval of this information in the present system was very tedious and time consuming. In order to accelerate the pace of matter disposal of key importance and ensure proper monitoring of the same, an integrated network enabled

computerized system has been developed and implemented. To bring about transparency and reduce time constraint in procurement procedures in government departments, e-procurement system is under implementation. The pilot project was tested successfully in RUIDP and DIT and e-procurement has been made mandatory since April 1, 2007 for five public dealing government departments in the current financial year (2007-2008). These departments are: public work department, irrigation, medical and health and forest.

Business process re-engineering and change management are the medium to ensure effective and efficient implementation of e-governance and IT enablement of back-office operations in the government sector. The entire task of process re-engineering and change management would be done over a period of three years. In pursuance of the budget declaration of honorable CM, the study in 4 departments namely: medical and health; district collectorates, Jaipur; food and civil supplies and women and child development has been initiated. Complete IT enabling of 6 municipal corporations at divisional HQs has been completed. 19 municipal councils/boards are being covered in phased manner. Remaining 158 municipal councils/boards are also to be covered in phased manner. The program covers complete automation of back offices and service delivery systems like house tax accounting system, issue of birth and death certification, public grievance redressal, etc..

Two mobile V-SAT vans have been made operational with an aim to provide better communication medium to the rural and remote areas of the state. This infra could be used for data/voice/video communication between any two remote locations within state. The vans would be deployed for disaster management, interaction with members of public as well as for IEC purpose. The vans have been deployed for a month, beginning December 1, 2006 for Swasthya Chetna Yatra of the medical and health department (IEC). At least one Panchayat Samiti of each district was covered on daily basis. The vans were also used for the Gram Sampark Yatra.

## **2. Review of literature**

Plethora of literatures are available on digital governance. In the context of present study, only relevant literature has been produced. Kettl emphasized that the transformation of governance is very successful in presenting an interesting, well written discussion of contemporary challenges and recent developments in the field of public administration, including globalization, devolution and hyper pluralism (Kettl, 2002). The first international encyclopedia on digital governance has extensively examined the multidimensionality of this concept varying from abstraction to the practical aspects (Ari-Veikko Anttiroiko & Matti Malkia, 2006).

The pioneer visionary to take India to new heights Abdul Kalam, the former president of India, has collected voices on different dimensions of e-governance containing text of the lectures delivered by him in Singapore (Avul Pakir Jainulabdeen Abdul Kalam, Institute of Southeast Asian Studies, 2006). Gupta exploring the impact of information age governing presents an entirely new set of challenges for decision-maker, public sector professionals and citizens. Technological advances driving e-government are fundamentally altering how individual business interacts with government. Developing an effective on-line public administration means balancing the needs of two constituent groups, namely external (the citizens or customers) and internal (the staff and management or administrative back office). E-governance is the public sectors' use of the most innovative information and communication technologies, like the Internet, to deliver improved services, reliable information and greater knowledge to all citizens, in order to facilitate access to the governing process and encourage deeper citizen participation. Digital government has the potential to connect every citizen with elected officials and decision makers. The select essays contained herein portraying the entire elaborate picture. The information is



drawn from diverse authority sources (Gupta, 2004). Mapping the multi-dimensional relationships between people, local and national governments, international organizations, global corporation natural resources and the world market, this encyclopedia volume is both a primer and a guide for researchers, academics and policy-makers both public and private (Farazmand & Pinkowaski, 2006). Borins and others offer the reader a detailed understanding of the use, management and input of IT in the public sector, trying together the worlds of e-democracy, e-government and the evolving workplace. The territory covered by this study is immense and the manner in which the authors have brought it all together in an insightful way is truly impressive (Borins, Kemaghan & David Brown, 2007).

However, the present study is different from the above-cited literatures at two aspects. First, this is a unique contribution to the literatures cited above, as it highlights the importance of digital governance in Rajasthan State Secretariat especially in the information age. And second, this study assesses the impact of digital governance on the variables, i.e. efficiency, economy, ethics included in our study in the context of Rajasthan State Secretariat. This article presents the analysis of the study results collected basically through questionnaire and self-research survey instituted at various levels of functionaries in the Rajasthan Secretariat. In the modern era when technology is an important instrument to transform the system, Rajasthan is the state which has responded to this urgency.

### **3. Discussion and interpretations**

A set of questionnaires containing 20 questions related to different dimensions of e-governance were given to the deputy secretaries who had been designated as nodal officers of various departments and in some cases to the computer programming head. The research sample included 40 departments taking initial initiative to respond to the changing need of e-governance. All nodal officers were included in the sample whereas a sample of 200 users on the random basis was included for the study to observe the general awareness about various e-programmes implemented by the state government. The basic issues highlighted in the questionnaire included:

- (1) Computer literacy and online connectivity;
- (2) Web-content;
- (3) Government's orientation towards citizen;
- (4) Citizen's interaction with government.

#### **3.1 Computer literacy and online connectivity**

Five questions were asked for the nodal officers about the computer literacy of the government employees and online connectivity within different departments. The responses were represented in the form of bar diagram depicting AL= Always, VO= Very often, O= Often, NSO= Not so often and N= Never.

- (1) How often do you find your officers/officials are computer literate?
- (2) How often do you find your department organizes training programmes to literate people in computer technology?
- (3) How often do you appoint people to e-literate your officers/officials?
- (4) How often do you find computer illiteracy is a hurdle in conducting your programme?
- (5) How often does your department organize e-fairs in rural and semi-urban to e-literate people?

It is clear from Figure 1 that to Q.1, 20% officers responded in the category of AL, 20% in VO, 10% in O, 40% in NSO and 10% in N; for Q.2, 10% in AL, 30% in VO, 40% in O, 20% in NSO and 10% in N; for Q.3, 10% in AL, 30% in VO, 40% in O, 10% in NSO and 10% in N; for Q.4, 10% in AL, 10% in VO, 50% in O, 10% in

NSO and 20% in N; for Q.5, 10% in AL, 20% in VO, 10% in O, 10% in NSO, 50% in N.

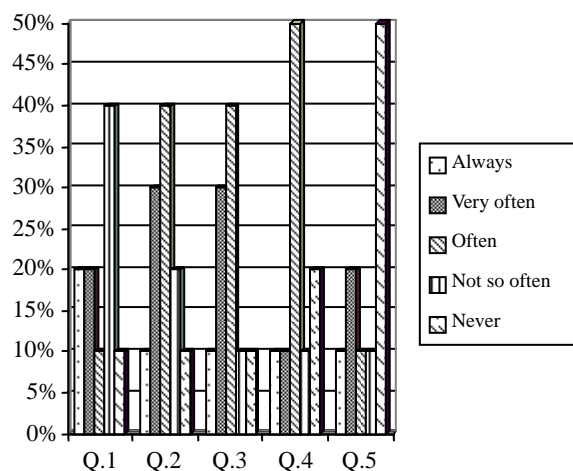


Figure 1 Computer literacy and online connectivity

Source: Study results.

Interpretation and analysis: The 40% response to Q.1 in the category of NSO reflects that the personnel of secretariat comparatively have a lower rate of computer literacy. This supports the fact that there is under-utilization of technology. The 40% respond to Q.2 in the category of O indicates that people holding positions are not serious about conducting the training program. Similarly, 40% respond to Q.3 in the category of O shows the lack of appropriate trainers to train people in e-technology. The 50% respond to Q.4 in the category of O finds illiteracy to be the hurdle in implementing the e-governance. However, the 50% respond to Q.5 in the category of N highlights that the objectives mentioned in the road map of the e-governance have not been fully complied with. Though study results indicate indifference to computer learning, development is an ongoing process, which needs consistency in efforts and is building up in Rajasthan.

The responses showed a lesser commitment to the concept of e-governance in the highest premises of administration.

### 3.2 Web-content

The web-content is crucial in connecting different people with the government. Hence the five questions were framed to see the facilitation of communication. These were:

- (1) How often do you find formal IT policy of your department is examined?
- (2) How often is the information about e-programmes in website of your department updated?
- (3) How often do you find the web-content is impressive and simple?
- (4) How often do you find the web-content is understandable by the users of your programmes?
- (5) How often do you find extra information is available in your web-content for the convenience of the users?

The maximum responses from Figure 2 are as follows: The 50% responses to Q.1 are in the category of N; 50% to Q.2 are in the category of AL; 50% to Q.3 are in the category of AL; 50% to Q.4 are in the category of VO and 40% to Q.5 are in the category of VO.

Interpretation and analysis: The 50% respond in the category of N reveals that there is no individual departmental IT policy. The 50% respond in the category of AL shows websites are updated from time to time.

Supporting the web-content, 50% respond in the category of AL reflects that the web-content is very impressive. Similarly, the 50% respond in the category of VO indicates that the web-content is user friendly. However, the 40% respond in the category of VO reflects that extra information is also available in the web-content for the users. The results are encouraging as finding indicates that web contents posted are user friendly and in coming times it will become an important tool of disseminating information.

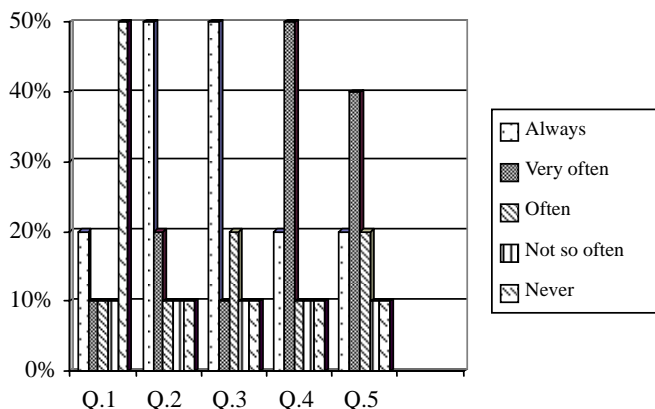


Figure 2 Web-content

Source: Study results.

### 3.3 Government’s orientation towards citizen

The efficiency is the key to effective administration. Hence five questions were set in this section to find out the prevailing connectivity of government to citizen. These were:

- (1) How often do you find the objectives mentioned in e-programmes are clearly understood by the users of your e-programmes?
- (2) How often do you find all related information is delivered on your website?
- (3) How often do you respond to the queries of the users electronically?
- (4) How often does your web-content deliver adequate information?
- (5) How often is your department monitoring e-programmes?

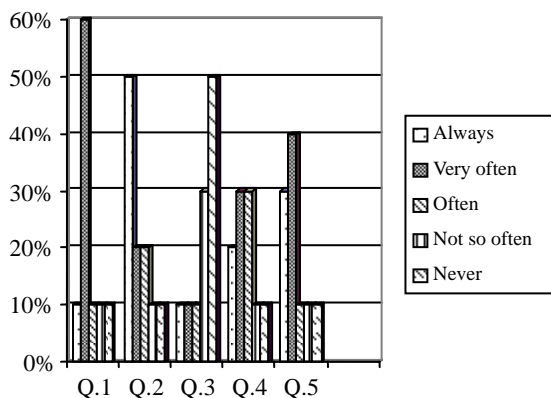


Figure 3 Government’s orientation towards citizens

Source: Study results.

In Figure 3, the maximum responses are as follows: The 60% responses to the Q.1 are in the category of VO;

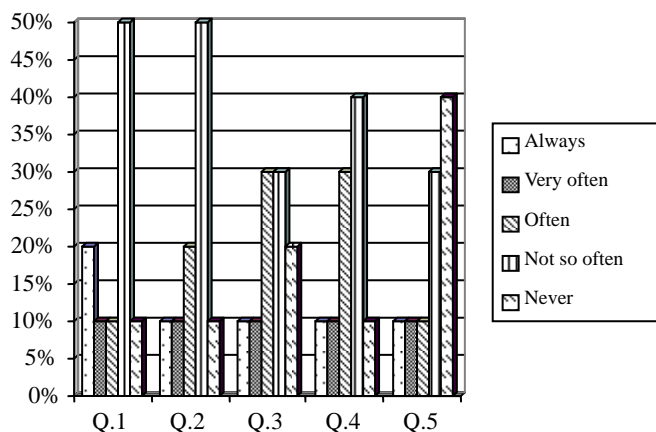
50% to the Q.2 are in the category AL; 50% to the Q.3 are in the category of N; 30% to the Q.4 are in the each category of VO and O, and 40% to the Q.5 are in the category of VO.

Interpretation and analysis: The above figure reveals very interesting track of the road map of e-governance in Rajasthan Secretariat. The 60% respond that objectives are understandable by the users. This shows that the government is able to communicate on e-programmes with its users. Similarly, 50% agree that related information is delivered to the users. This is a positive sign in the direction of fulfilling the SMART objectives of e-governance. The 50% agree that they are not responding to the queries of the users electronically. The 30% respond to three categories of the questionnaire reveal that web-content is not delivering adequate information. The 40% said that the department monitors the e-programmes. Thus a link between users and government is established.

**3.4 Citizen’s interaction with government**

The citizen’s interaction with government provides greater opportunities to the citizens to participate in democratic institutions and processes. It is an important instrument for the empowerment of the citizen hence. Five questions were framed to check the online democracy. These were:

- (1) How often is the structured and unstructured feedback of citizens and e-government employees obtained by your department?
- (2) How often do you find the users of your programmes are registering suggestions to improve the web-content?
- (3) How often do you find users share their views regarding your programmes?
- (4) How often do you receive complaints by the user related e-programmes?
- (5) How often do you find the users raise voice against corruption through e-networks?



**Figure 4 Citizen’s interaction with government**

Source: Study results.

In Figure 4, the maximum responses are as follows: The 50% responses to Q.1 are in the category of NSO; 50% responses to Q.2 are in the category of NSO; 30% responses to Q.3 are in each category of O and NSO; 40% responses to Q.4 are in the category of NSO and 40% responses are in the category of N.

Interpretation and analysis: The above figure reveals that the 50% responses are in the category of NSO depicts that people are not aware about the importance of their feedback. Similarly, 50% responses are in the category of NSO show that people do not give suggestions to improvise the web-content. This can be interpreted

in positive and negative senses as, in positive sense they are satisfied by the web-content and in negative sense they have feeble attitude. 30% responses are in each category O and NSO full fledged participation of people is still lacking. The 40% response is in the category of NSO shows that people are moderately satisfied by the results of e-programmes. Similarly, the 40% responses are in the category of N shows that people are not using e-networks as an important instrument of online democracy to save their rights.

The secretariat epitomizes the administrative responsiveness towards fulfilling the changing expectations of its people. The administrative efficiency is the key to sustainable development. No developmental effort can succeed until it is supported by effective system of governance. The effective governance is corollary to the information technological based inputs, which are provided to the system to respond to the emerging needs. The secretariat as the major stakeholder of administration, which comprises of various departments and boards is service provider as well. The common man now directly has interface with various functionaries of government to seek related information and also to give feedback to the system. This research study has explored the less highlighted dimension by focusing on the status of e-governance in state secretariat. The penultimate chapter has presented the interpretation of the collected data on various aspects of computer-based communication. However, the results have been individually presented and a more comprehensive analysis is followed in this chapter to subsequently infer concrete suggestions.

The technological proliferation is inevitable, hence the necessity of upgrading the procedural mechanism is continuously felt. There are many instances where e-governance has successfully led to the improvement. To name few Delhi, Karnataka, Andhra Pradesh, Himachal Pradesh and other states are of experimentation with e-governance. This experiment is further facilitated by incorporation of private partnership; also many NGOs are extending their support. The data analysis helps in drawing some concrete inferences in relation to the improvement of the level of efficiency through digital governance.

#### **4. Inferences**

The empirical study conducted on status of e-governance in Rajasthan State Secretariat is suggestive of very interesting trends that are indicative of pointers towards interventional options, therefore it is a good research input for the state government in the area of enhancing the level of efficiency in delivering the services. The prudence of policy making and implementing with commitment is the precondition for administration in general. This study however slightly reveals different foci. There are many anomalies in policies on paper and in practice. It is pertinent to summarize the study results in more comprehensive manner.

(1) The computer indifference of the officers/officials to utilize computers for effective communication has resulted in the underutilization of Internet facility;

(2) The government is conducting training programmes, but the response is in favor of its not being effective tool of changing mindsets;

(3) The government though is inviting private professional to design their web portals, but the heads of the departments were found ignorant of the web-content. This further has resulted in the failure in providing relevant information to the common man;

(4) The e-governance in state secretariat is limited to uploading material only, not much effort has been made in the realm of using it as the tool of simplifying the procedures of governance. Hence there is complete lack of transparency and hesitant in sharing the primary information;

(5) The cosmetic value of the portals has been there but people do not find any connectivity with the governmental functionaries. As an exception to this conclusion, there are few departments which are at least providing the feedback mechanism;

(6) The objectives mentioned in the road map of e-governance in Rajasthan categorically stated that one of the purposes of introducing ICT is to reduce the number of visits of common man to the offices to establish a direct link with the government in order to curb corruption. But the apathy to computers has defied this purpose;

(7) The old mindset of files is prevalent in the secretariat, and their unwillingness to adapt themselves to the modern approach is not only holding the system at random but also putting state on the track of underdevelopment.

It is encouraging to see the acceptability of e-governance cognitively. Some positive signs have already started manifesting and many more may be on its way in near future, but this needs a consistent effort. The state has the history of holding back to orthodoxy, the only worry would be how long the system of governance will continue to remain in this mode of functioning. This study is also pointing to this inference.

### **5. A suggestive trajectory for change**

In modern era, digitalization is one of the essential needs. The gaps identified in this research study provide the needed direction to make Rajasthan a smart oriented state. A trajectory can be prepared to mould future in the expected way. This means radical changes in the following areas are essential:

(1) In having a proper and complete plan of using funds, skills, technologies and their orientations in a more connected manner;

(2) In having a more vigilant mechanism to check the misappropriation of funds on the one side, and on the other keeping an eye on individual productivity;

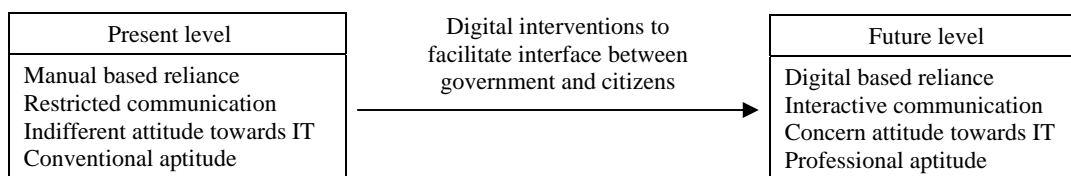
(3) In having a more interactive interdepartmental/intradepartmental communication through digital devices;

(4) In having reinforcement from the society to develop a localized system of governance. Such initiatives like e-samadhan introduced in panchayats to interact with chief minister in reporting their problems in Rajasthan if can be popularized might set a tone of development in right direction at the grass root level;

(5) In registering more cases under RTI Act to force bureaucrats to open their minds. This in turn would mean the willingness of bureaucrats to shed away the policy of concealment under the name of secrecy;

(6) In introducing action based accountability per decision taken per week per person by putting it online;

(7) In sensitizing the public officials by imbuing the ethics through e-connectivity.



**Figure 5 Metamorphosis**

The Figure 5 depicts the metamorphosis of existent governance system of Rajasthan Secretariat to the future level of governance. The comparatively slower-paced state has to come at par with the developed system of governance. This metamorphosis is quintessence of the results analyzed in earlier section.

The “future” demands a proper maneuvering of ethical-based actions imbued in morality. Additionally, the

technological interventions are also required to make governance system sensitive and accountable. This means formulating a more progressive and inclusive policy to ensure justice and equality to common person. If state secretariat cannot do it, then which Institution will do it? The ultimate responsibility of providing good governance lies in the highest domain of administration. It is high time that government must pause and think what necessary inputs can be fed to the system to move from the path of orthodoxy to modernity. To be modern is not to be anti-Indian values, but it means an amiable combination of both belief systems. The empirical studies are the keys of improvement, therefore research inferences must be incorporated in the policy statements. Let us try to evolve a system, which is inhibition free, and create a world of collaborative coexistence. The restoration of dignity of human being in the state is the primary duty of government, which cannot be ascertained until new approach to work with full commitment is induced.

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## Do FDI patterns differ between manufacturing and service sector in CEE countries

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**Abstract:** In the paper, we presented results of the research, realized with the goal to test main determinants influencing on FDI stock in manufacturing and services in transitional countries, precisely CEE countries. Some of the conceptual issues identified under possible differences of FDI determinants in manufacturing and services we started with were: (1) What are the most important determinants of FDI in manufacturing and services? (2) Are there significant differences between the main influencing determinants/factors between manufacturing and services? (3) Are there significant differences between FDI determinants for developing countries/transitional countries and industrial countries? (4) What are the implications for policies and strategies to attract FDI in different industries for developing countries? Dependent variable used in this paper is the FDI stock p/c (NACE 1-digit) into manufacturing and service sector for each observed CEE country, in the period 1999-2006. In case of our sample countries, a set of possible FDI determinants was selected from the pool of traditional and institutional-related determinants in the literature, and relevant indicators available. Empirical analysis was conducted by the regression assessment of panel data, using the set of data for CEE countries, studied over eight years. We estimated fixed effects model and OLS with panel-corrected standard errors (PCSEs) using Prais-Winsten to take into account the AR(1) process. Two out of four traditional variables showed differences between the manufacturing and service sector: (a) Inflation, as the indicator of macroeconomic instability, was not statistically significant for manufacturing sector but it was significant for service sector; (b) wages had statistically significant influences on the FDI in manufacturing sector, but had no influence on service sector. Looking at the results of testing indicators we had found significant differences between all indicators: (a) Privatization influenced on FDI attractions in manufacturing sector and it was significant for service sector, with negative influence; (b) wages had statistically significant influences on the FDI in manufacturing sector, but had no influence on service sector; and finally (c) other two traditional variables—market size indicated through GDP p/c and openness of economy had the same results for both, manufacturing and service sector.

**Key words:** FDI determinants; manufacturing; service sector; CEE countries; institutional framework

### 1. Introduction

Foreign direct investments (FDI) phenomena are crucial elements in the analyses and recording development of modern economy. Exploring FDI from theoretical and practical point of view is the main point of evaluating

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development of specific industrial and service area and analyses of development of transitional countries. This is specifically important if one takes into consideration the fact that economic development of transitional economy significantly depends on the foreign capital inflow, and at the same time it is one of the determinants of FDI attraction. That is the reason why the relation between FDI and the level of economic development is very complex and multifaceted.

On the other side, the growth of service sector in the global economy has been accompanied by a growth in its share in the world transactions, as well as FDI. Some of the studies have argued that the introduction of services does require a different approach while the other has opposite attitudes. But, as far as we know, there are no studies from or of a developing country, regarding FDI inflows and its influences on economic development, especially studies that compare FDI patterns between manufacturing and service sector.

Services characteristics have implications for incurrence of their trade or for their transfer between the countries. Their intangibility and non-storability imply that, in order to become tradable, services have to be applied to, or embodied in objects, or information flow, or persons. Thus, for trade to occur, the means of transporting services often have to be able/permitted to cross national frontiers. This makes international transaction in services conceptually more complex than international transaction in goods. These characteristics differentiate services from goods and have implications on the determinants of FDI in service sector.

Share of service sector in FDI inflow and outflow, specifically during last few decades is growing, together with the changing participation of the developing and transitional countries as the host ones. Consequently it is important to test differences between the most important determinants influencing FDI in manufacturing and service sector of transitional countries. These are the ones MNE use as the base for making decisions about sector and countries FDI would be invested in.

In manufacturing, the segmentation of production process could be done by splitting labor-intensive part and less labor-intensive part up and establishing them in different countries, so FDI value chain can be established. Because of low tradability in services, such segmentation is very difficult. The question is: How do FDI in services then become transnational?

Service affiliates have a lower propensity to engage in intra-firm trade than manufacturing affiliates (again because of problem with respect to splitting up), but at the same time they are more skill and capital intensive (precisely for the same reason) than manufacturing affiliates. The problem is, what are the implications of these characteristics on the direction of service FDI?

And finally regulations play a much more important role with respect to FDI and trade in services compared with FDI and trade in goods. This merits an exclusive exposition to FDI in services (Rashmi, 2005).

Taking into consideration the differences between the nature of manufacturing and service sector, as well as limited resources for FDI attraction hosts countries have, it is very important to test hypothesis that determinants for FDI inflow are different for manufacturing and service sector. That would be the only way to find out the most influential determinants of FDI in manufacturing and service sector, and to create policies for FDI attraction, based on the priorities the host country had chosen.

Decisions and policies to attract FDI have become standard in most countries, irrespective of their level of development, geographical location or industrial structure. As the consequence, one of the most important questions arises: What should be done in order to attract inward FDI? Or precisely: Which determinants of FDI are the ones that directly influence FDI inflow, especially in transitional countries? Some authors found differences between motives and forms of FDI in developing and industrial economies. In order to answer this

question, we isolated the economically and statistically most important determinants of FDI inward in manufacturing and service sector (or secondary and tertiary industry sector) in CEE countries.

Based on previously mentioned dimensions, the goal of the paper was to test possible differences of factors influencing on the FDI pattern in CEE countries' manufacturing and service sector and to make conclusion on what are the main important areas countries have to invest in and promote in order to attract investment in the form of FDI.

## **2. Theoretical background**

FDI is an investment involving a long-term relationship and reflecting a lasting interest and control of a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor (FDI enterprise or affiliate enterprise or foreign affiliate) (UNCTAD). FDI constitutes a long-term engagement of foreigners who make investment in fixed assets with the purpose of establishing a production capacity to make goods or produce services for sale at a profit. FDI implies that the investor exerts a significant degree or influence on the management of the enterprise resident in the other (host) economy. It is important to understand FDI for what it is, i.e., a private foreign capital flow with management participation and the modalities through which it takes place.

FDI has grown faster than the global output and trade over the last two decades. This has given rise to a number of theoretical and empirical studies that have investigated its determinants and impact on the host economies. However, many of the literatures have focused on FDI in manufacturing and very few studies exist for the service sector. This is an important lacuna in the literature since FDI in services has been found to grow even more rapidly than FDI in manufacturing.

Starting from these specific characteristics of services, some of the conceptual issues, identified under FDI in manufacturing and services are:

- (1) What are the most important determinants of FDI in manufacturing and services?
- (2) Are there significant differences between the main influencing determinants/factors between manufacturing and services?
- (3) Are there significant differences between FDI determinants for developing countries/transitional countries and industrial countries?
- (4) What are the implications for policies and strategies to attract FDI in different industries for developing countries?

Looking at the FDI development and its influence on globalization, the main purpose of most of the analyses is to outline those aspects and considerations which are relevant to any less developed economy in the promotion and attraction of FDI. The main concern is really with host-country characteristics as the relevant for influencing on the level of FDI and specifically: Are there differences between those influential factors for manufacturing and services area.

Of the various theories putting forward to explain FDI, Dunning's eclectic paradigm of international production (Dunning, 1981) has been used by many studies (e.g., Chanda, 1997). The theory combines the traditional theory of factor endowments with the theory of economic organization. According to this theory, the extent, pattern and growth of value added activities by transnational corporations (TNCs) depend on their competitive advantages relative to local firms. These advantages include ownership, locational and internalization

advantages (OLI), i.e., the propensity for a firm to invest in foreign locations depends on a combination or any one of the following three elements: (a) Its ownership of core competencies or specific intangible assets that enhance competitive advantage; (b) location advantages that would derive from a transfer of operations onto a new region; (c) internalization advantages that may accrue to such investing firms.

Dunning (1989) identified different ownership, location and internationalization advantages of transnational services corporations. Rugman and Verbeke (1992) proposed that a firm could successfully undertake direct investment abroad if it possessed some asset advantages, which might be location bound or non-location bound. In case of service corporations, such advantages consisted of property rights of management, marketing and product innovation, exclusive or favored access to input and product markets, access to technology and information, economies of joint supply in production, marketing, etc..

Engagement in foreign production would be motivated by the perception of companies about their best interest for combining transferable advantages with some less immobile factor or some of location advantages. This could be presented in the form of tariff barriers, large markets, availability of resources at low cost, etc., in the case of goods, or in the form of input costs, infrastructural provisions, government regulation, size and character of local market, customers, competitors, etc. in the case of services.

In order to undertake FDI successfully, firms must be able to internalize their ownership advantages, since the need to internalize arose from transaction costs, which were the result of imperfect nature of product and technology market (Hymer, 1976; Buckley & Casson, 1976; Vernon, 1966) and/or imperfections in financial markets (Rugman, 1982). Without the advantages of internalization, FDI might be replaced by exports or licensing.

The other groups of theories, which apply trade theory to FDI in services, insist on the fact that theory of FDI follows in many respects the theory of international trade. There are two distinct patterns of FDI: The “vertical” or inter-industry pattern, often found in FDI from developed countries (Helpman, 1984) and “horizontal” or intra-industry, where relatively specific advantages within given industries between developed countries are exchanged. Most FDI is of the latter type.

Markusen, et al. (1996) showed the different types of the relation between size of countries and type of FDI: (a) Vertical multinationals dominated in production when countries differed significantly in relative factor endowments, but were similar in size; (b) horizontal multinationals dominated between similar countries, both in size and available factors.

At the same time, very few empirical studies exist on the determinants of FDI into services. Among them are UNCTC (1993), Fukao and Ito (2000), Buch (2000), Chanda (2000) and Raff and Ruhr (2001). But, most of these studies are mainly undertaken for some of the prominent producer services, e.g., banking and insurance.

Studies differ with respect to the framework used for service FDI. Some studies have applied theories that are applicable for FDI in goods (Chanda, 1997; Schorath & Korth, 1988; Gray J. M. & Gray H., 1981) while others have applied trade theories on service FDI (Helpman, 1984; Markusen, et al., 1996).

The available econometric studies of service industries are all of financial industries. Yamori (1998) analyzed Japanese finance industry FDI flows into 39 countries 1990-94. Miller and Parkhe (1998) studied the determinants of US banks’ asset in 32 countries. And finally, Moshirian (1997) examined the determinants of FDI stocks in the US insurance industry, using time series data.

Market size was suggested as an important determinant of finance sector FDI, by both Yamori (1998) and Moshirian (1997), using GNP per capita and wealth as proxies for market size. Miller and Parkhe (1998) found a

similar result for the banking sector, where host countries with a greater sum of deposits got more banking FDI. Market growth, however, appeared to have a negative impact on FDI, as judged by the negative relationship between GNP change and FDI found by Yamori (1998).

The determinants of service FDI that were identified in the literature can be categorised as follows (UNCTC, 1993; Rashmi, 2005): (a) Market size/local customer base; (b) home-country business presence; (c) host government policies; (d) local customer base; (e) cultural distance; (f) competitive advantages; (g) tradability of services; (h) global oligopolistic reaction; (i) industry concentration; (j) growth of the firm size.

The two groups of theories of FDI in services therefore differ with regards to their explanation as to why FDI rather than trade occur and what kind of FDI occurs. There are certain characteristics of FDI in services that merit exclusive attention, which are not covered in either of the two theories: How do FDI in services is possible transnationalise and what factors previously influence on FDI inflow and attractiveness of countries in the process of internationalisation of services?

Host country determinants	Type of FDI	Principal economic determinants in host countries
1. Policy framework for FDI <ul style="list-style-type: none"> <li>• Economic, political and social stability</li> <li>• Rules regarding entry and operations</li> <li>• Standards of treatment of foreign affiliates</li> <li>• Policies on functioning and structure of markets (especially competition and M &amp; A policies)</li> <li>• Bilateral international agreements on FDI</li> <li>• Privatization and price reform policies</li> <li>• Trade policy (tariffs and NTBs) and stable exchange rates</li> <li>• Taxation policy (including tax credits)</li> <li>• Industrial/regional policies</li> </ul>	A Market-seeking	<ul style="list-style-type: none"> <li>• Market size and per capita income</li> <li>• Market growth</li> <li>• Access to regional and global markets</li> <li>• Country specific consumer preferences</li> <li>• Structure of markets</li> <li>• Psychic/Institutional distance</li> </ul>
2. Economic determinants	B Resource-seeking	<ul style="list-style-type: none"> <li>• Land and building costs: rents and rates</li> <li>• Cost and quality of raw materials, components, parts</li> <li>• Low cost unskilled labour</li> <li>• Availability, quality &amp; cost of skilled labor</li> </ul>
3. Business facilitation <ul style="list-style-type: none"> <li>• Encouragement of entrepreneurship</li> <li>• Investment incentives and promotion schemes</li> <li>• Form and quality of legal property system</li> <li>• Protection of intellectual property rights</li> <li>• Social amenities (bilingual schools, housing, quality of life, etc.)</li> <li>• Pre- and post-investment services (e.g., one stop shopping)</li> <li>• Good institutional infrastructure and support, e.g., banking, legal, accountancy, services</li> <li>• Social capital</li> <li>• Region-based cluster and network enhancement</li> <li>• Legislation/policies designed to reduce corruption, corporate malfeasance etc.</li> </ul>	C Efficiency-seeking	<ul style="list-style-type: none"> <li>• Cost of resources and capabilities listed under B adjusted for productivity of labour inputs</li> <li>• Other input costs, e.g., transport and communication costs to, from and within, host economy</li> <li>• Membership of a regional integration agreement conducive to promoting a more cost-effective inter-country division of labour</li> <li>• Quality of market enabling institutions/enforcement mechanisms.</li> </ul>
	D Asset-seeking	<ul style="list-style-type: none"> <li>• Quality of technological, managerial, relational and other created assets</li> <li>• Physical infrastructure (ports, roads, power, telecommunications)</li> <li>• Contents of macro-innovatory, entrepreneurial &amp; competitive enhancing educational institutions</li> <li>• Mindsets, institutions and policies towards economic growth/development</li> </ul>

**Figure 1 Determinants of FDI in host country**

Source: Dunning, H. (2004), Institutional reform, FDI and European transition economies. In: R. Grosse (Ed.). International business and governments in the 21st Century. Cambridge University Press.

Dunning (1998, 2004b) also included factors related to institutions and institutional infrastructure in the existing eclectic paradigm, consequent to the impact of globalization and aims of the new paradigm development (NPD) (see Figure 1). He identified three generic groups of factors that could influence FDI inflow: Frameworks of policies and strategies for FDI, economic determinants and business exemptions. As classified, the institutionally related determinants are spread over each of the three groups. The group of FDI-related policies and strategies include policies for market functioning and structure, bilateral agreements on FDI, privatization, industrial policies, etc.. The economic determinants group was expanded with the availability, quality and cost of skilled labour, membership in regional integration agreements, market institutions' quality, quality of managerial and other creative resources, physical infrastructure, etc., while the business exemption group includes investment incentives and promotion, legislation quality and intellectual property protection, good institutional infrastructure and support (banking, accounting jobs and other services), social capital, regional clusters and networking.

The above framework of FDI gives guidance in identifying the set of economic and institutional variables to be tested as determinants of investment locations, which is discussed in detail in the next section.

### **3. Modeling and data**

#### **3.1 Dependent variable**

In empirical studies, one comes across two main approaches towards the analysis of location determinants of FDI. In the first group of studies, the choice of location for MNE activity is explained by investor's perception or rating of location-specific factors such as market size, labor cost, openness of the economy, etc.. In other studies, dependent variable is the amount of FDI flow or stock, the selection of which depends on data available for analysis. If data are available at the enterprise level, FDI flow is typically used, whereas FDI stock is used in case data which are available at the aggregate level. There are several advantages in working on FDI stocks rather than flows. First, foreign investors decide on the worldwide allocation of output, hence on capital stocks. Second, stocks account for foreign direct investment are being financed through local capital markets, hence it is a better measure of capital ownership (Devereux & Griffith, 2002). Finally, stocks are much less volatile than flows which are sometimes dependent on one or two large takeovers, especially in relatively small countries (Quere, et al., 2005).

The dependent variable used in this paper is the FDI stock per capita—NACE 1-digit into the manufacturing and service sector<sup>1</sup> for each observed CEE country in the period 1998-2005 measured in EUR. Total FDI stock for each country and year was divided by the total size of population in the observed country and year in order to obtain FDI stock per capita. FDI data were taken from the database on FDI in Central, East and Southeast Europe 2008, published by the Vienna Institute for International Economic Studies (WIIW). Data on total population size for the observed CEE countries were obtained from the WIIW handbook of statistics 2008.

In case of our sample countries, a set of possible FDI determinants was selected from the pool of traditional and institutional-related determinants in the literature, and relevant indicators available. As explanatory variables, we used host country and industry specificities that best reflect the attractiveness of the CEE region as a location for foreign investment. The paper proceeds to discuss independent variables applied.

#### **3.2 Independent variables**

Most empirical studies on FDI in transition countries suggest that most enterprises in these countries invest in

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<sup>1</sup> FDI stock into service sector NACE 1-digit—author's calculations. Data were taken from the Vienna Institute for International Economic Studies (WIIW) database.

order to find new markets for their products, regardless of which industry the investment is made in (Lankes & Venables, 1996). A larger market offers a few potential benefits for the investing firm. First, a larger market represents a greater number of potential customers, which may lead to profit growth. Higher profits may also be due to the fact that a larger market facilitates potential economies of large-scale production and fixed cost reduction. Besides, a larger market allows more ways of new product placement, although it depends both on the overall market size and on the dynamics of the market (Resmini, 2000). Our model includes GDP per capita which is a proxy for the purchasing power of local consumers (local demand) and market size. We expect a positive sign for this variable: Countries with higher purchasing power of their consumers are expected to attract more foreign investors in manufacturing and service sector.

Economic integration of a country works on the attraction of FDI through different channels. The first channel deals with the direct consequences of a liberal trade regime and a membership in a supra-national trade agreement for the location of an FDI. The second channel deals with signaling effect of a membership in a supranational trade arrangement (Neuhaus, 2005).

According to Benacek, et al. (2000), individual economies would produce only those goods and services for which they had a comparative advantage and other goods would be provided through trade. Trade and FDI can be either substitutes or complements, and consequently barriers to trade can have two conflicting influences on FDI. Trade barriers are thought to encourage FDI, by increasing the costs associated with serving a market through exports. This is the fundamental argument behind the location theory of FDI, and is particularly important for investments aimed at serving the host country market, where trade and foreign investment are substitutes. On the other hand, multinationals tend to conduct a high level of trade between parent and affiliate firms.

Efficiency-seeking FDI aims at exploiting cost advantages (e.g., labor costs differences) by splitting production processes according to factor intensities. Variables affecting the accession to the host market, like transportation costs, are assumed to impact differently depending on the investment type. Accordingly, market-seeking FDI is encouraged by trade costs as they induce investors to supply a foreign market through FDI rather than through exports. In contrast, efficiency-seeking investment is negatively affected by trade costs as it becomes more costly to re-export produced goods (Riedl, 2008).

Barriers to trade are likely to deter investors who are dependent on inter-firm trade or where output is export oriented. A number of studies have suggested that investment growth in developing economies is positively associated with indicators of “openness”. Such findings may suggest that investors prefer countries with relatively liberal trade regimes and few constraints on profit repatriation, possibly within regions with wider supra-national free trade arrangements.

The paper used the shares of imports and exports in the observed countries’ GDP as the degree of openness. The expected sign of the coefficient with this variable is positive.

Successful implementation of economic reforms in transition countries is a good sign to potential investors, since stable macroeconomic performance implies a lower risk for investment. In this context, price stability is a good indicator for host governments’ macroeconomic management. The sustainability of moderate or low inflation tells investors how successful the host government is and thus the prospect of further growth. Thus, the lower the average inflation rate is in the host country, the more foreign investment will be attracted to the country (Kinoshita & Campos, 2002). A high rate of inflation is a sign of economic instability for foreign investors and a host government’s inability to keep healthy monetary policies. Foreign companies may avoid making investment in countries where their governments are weak institutionally or their technical capabilities are low. In addition,

high inflation or recurrent changes in prices make short-term pricing decisions more costly. They, for example, find that transnational companies invest less in developing countries with higher levels of inflation.

The paper therefore approximates macroeconomic stability with the inflation rate. We expect the higher inflation to have a negative effect on FDI inflows in the manufacturing sector, i.e., the coefficient to be negative.

Besides the size and dynamics of the market and access to the host market, the prevailing factors for attracting FDI certainly include the cost and quality of input factors (Neuhaus, 2005). According to the neoclassical theory of determinants, an FDI enterprise can undertake a foreign investment because of the advantage, i.e., lower manufacturing cost in the host economy including the cost of labor, energy and raw materials.

A major part of FDI has been motivated by the opportunities to lower production cost by relocating production to CEE. According to Riedl (2008), the specific nature of services enables to draw conclusions about investors' motives. Since many services are neither tradable nor storable, but must be produced where they are consumed, FDI activities in the service sector are expected to be primarily affected by market-seeking motives. In contrast, manufacturing FDI is likely to be driven by efficiency-seeking motives as well, since manufactured goods are not characterized by the *uno actu* principle and are therefore potentially exposed to international price competition. Thus, the relevance of input cost factors is higher for MNEs that re-export their products or simply have to compete with internationally supplied goods in the respective host market.

The analysis considers wages as an independent variable, as a proxy variable for input cost. For regression models of manufacturing sector, we calculated unit labor costs as the ratio of the annual average wage in manufacturing sector to GDP per capita in each economy. Because of the lack of data for annual average wage in services sector, data for annual average wage to GDP per capita in each economy were used within the models that referred on service sector. That was the way to make distinction between levels of wages of analyzed sectors. Data of total population size for the observed CEE countries were obtained from the industrial database and WIIW handbook of statistics 2008.

Initial studies related to FDI determinants mostly focused on factor endowments, particularly on labor cost and productivity as local advantages. In recent years, multinational enterprises increasingly focus on “created assets” (Dunning, 2004), including knowledge-based assets, infrastructure and institutions of the host economy. Legal, political and administrative systems tend to be the internationally immobile framework whose costs determine the international attractiveness of a location. Institutions affect the capacity of firms to interact and therefore affect the relative transaction and coordination costs of production and innovation (Mudambi & Navarra, 2002, p. 636). Thus, institutional environment can be a significant location determinant in attracting FDI. The word “institution” has a variety of meanings in the institutional economics. In this study, “institutions” are accepted as “the rules of the game” in a society which is defined by North (North, 1990). Institutions are the rules, the regulations (humanly devised constraints) that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions and codes of conduct) and formal rules (constitutions, laws, property rights). Institutions reduce the uncertainty involved in human interaction by giving us pattern for our behavior.

In this paper, institutional development was measured based on a series of indicators of the transition process progress constructed by EBRD. Indices can take values from 1 to 4+, whereby a higher index denotes getting closer to norms of developed market economies. In all cases, larger values indicate better institutions.

We construct annual aggregate institutional indexes as the unweighted average of EBRD measures of the development of formal institutions for each country. For measures of privatization, we have used next indicators:

Large scale privatization index, small scale privatization and enterprise restructuring index. For liberalization and regulation variable, we have used indicators: Index of price liberalisation and index of competition policy. Financial market development has particularly focused on bank and security markets, and for their formation we used index of banking reform & interest rate liberalization and security markets & non-bank financial institutions (Table 1). Therefore, one would expect a positive coefficient for these indicators.

**Table 1 Construct and institutional variables definition**

Construct	Variable definition	Predicted effect
Privatization	Large scale privatisation index Small scale privatisation Enterprise restructuring index	+
Liberalization and regulation	Index of price liberalisation Index of competition policy	+
Financial market development	Index of banking reform & interest rate liberalisation Security markets & non-bank financial institutions	+

In some cases, there is some colinearity<sup>2</sup> between the indicators of institutional development, largely because progress in various elements of the transition process often occur simultaneously, if unevenly, in particular countries. For this reason, we test hypothesis by estimating a series of equations, one for each institutional development index. Table 1 provides the summary statistics of the variables.

### 3.3 Modeling

The sample of countries for analysis consists of eight transition countries that acceded to the EU in May 2004 (the Czech Republic, Poland, Hungary, Latvia, Lithuania, Estonia, Slovenia and Slovakia). Using the set of data for eight countries over eight years (1998-2005), empirical analysis was conducted by the regression assessment of panel data. It was a “balanced” set of data, since data were available for all eight countries over the entire period covered by the analysis. One of the basic advantages of the regression analysis of panel data, compared to the regression analysis of cross-section data, is that it allows greater flexibility in modeling differences in behaviour between individual countries. Since a change in any independent variable may take some time to affect FDI and to avoid the potential simultaneity bias, we use all independent variables lagged one period.

The equation to be estimated is:

$$\begin{aligned}
 FDI_{it} = & \beta_0 + \beta_1 GDPpc_{i(t-1)} + \beta_2 WAGE_{i(t-1)} + \beta_3 OPENESS_{i(t-1)} \\
 & + \beta_4 INFLATION_{i(t-1)} + \beta_5 INSTITUTIONAL_{i(t-1)} + e_{it}
 \end{aligned}
 \tag{1}$$

where:  $FDI_{it}$  is the log of FDI stock per capita to country  $i$  in time period  $t$ ;  $GDPpc_{i(t-1)}$  is the log of GDP per capita of country  $i$  in  $t-1$ ;  $WAGE_{i(t-1)}$  is the log of annual average wage in manufacturing sector/economy to GDP per capita of country  $i$  in  $t-1$ ;  $OPENESS_{i(t-1)}$  is the trade-to-GDP ratio of country  $i$  in  $t-1$ ;  $INFLATION_{i(t-1)}$  is the rate of inflation of country  $i$  in  $t-1$ ;  $INSTITUTIONAL_{i(t-1)}$  is the institutional related variables, privatization, liberalization and regulation and financial market development of country  $i$  in  $t-1$ . All values are expressed in EUR. Since the dependent variable is expressed in logs, the estimated coefficients should be interpreted as elasticities and semi-elasticities.

## 4. Panel regression results

Given the longitudinal nature of the dataset, obtaining accurate and consistent estimates is conditional on the

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<sup>2</sup> Correlations matrix is not presented due to space limitations.



extent to which we are able to account for heterogeneity across countries and time periods. A standard approach to capturing cross-country variation is the fixed effects methodology (FEM), which assumes that differences across countries are systematic manifestations of unobserved country-specific characteristics. We begin by estimating equation (1) with country fixed effects. The estimated coefficients, excluding the constant and individual fixed effects, are shown in Table 2.

This specification appears to do a good job of explaining the variation in the dependent variable: The overall  $R^2$  is very high (85%), the F statistic is significant at the 1 percent level, and a Wald test shows that the fixed effects are significant as a group in all models.

Use of pooled data in econometric analyses frequently leads to certain complications. First, errors tend to be no independent from a period to the next. In other terms, they might be serially correlated, such that errors in country  $i$  at time  $t$  are correlated with errors in country  $i$  at time  $t+1$ . Second, the errors tend to be correlated across nations. They might be contemporaneously correlated, such that errors in country  $i$  at time  $t$  are correlated with errors in country  $j$  at time  $t$ . Third, errors tend to be heteroschedastic, such that they may have differing variances across ranges or sub sets of nations. And fourth, errors may contain both temporal and cross-sectional components reflecting cross-sectional effects and temporal effects. In other words, even if we start with data that were homoschedastic and not auto-correlated, we risk producing a regression with observed heteroschedastic and auto-correlated errors. This is because heteroschedasticity and auto-correlation we observe are a function also of model misspecification. It is for this reason that we applied tests for checking the presence of heteroschedasticity and auto-correlation. First, a modified Wald test for groupwise heteroskedasticity in fixed effect regression model reveals the presence of heteroscedasticity which, while leaving coefficient estimates unbiased, can significantly influence standard errors and therefore affect hypothesis testing. There are a number of statistical techniques that can address this problem (e.g., weighted least squares), but their applicability and implementation are less clear in a panel context.

**Table 2 Panel regression results (FEM)**

	Manufacturing			Service		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
GDP_pc	0.47*** (0.17)	0.54*** (0.17)	0.51*** (0.17)	1.09*** (0.22)	0.75*** (0.23)	0.58*** (0.23)
Openness	0.01** (0.002)	0.01** (0.002)	0.01** (0.002)	0.01** (0.004)	0.01** (0.004)	0.004 (0.004)
Wage	1.21*** (0.28)	1.16*** (0.30)	1.08*** (0.31)	0.20 (0.55)	0.33 (0.51)	0.21 (0.47)
Inflation	-0.005 (0.01)	-0.001 (0.01)	-0.003 (0.01)	-0.04*** (0.01)	-0.03*** (0.01)	-0.04*** (0.01)
Privatisation	0.42 (0.25)			0.09 (0.44)		
Liberalization and regulation		0.09 (0.24)			1.04*** (0.36)	
Financial market development			0.21 (0.21)			1.11*** (0.28)
R-sq (within)	0.85	0.76	0.78	0.70	0.74	0.76
Prob>chi2	0.00	0.00	0.00	0.00	0.00	0.00
N	64	64	64	64	64	64

Note: Robust standard errors in parentheses. Asterisks indicate variables whose coefficients are significant at 5% (\*\*\*) and 1% (\*\*\*) level, respectively. All regressions include a constant and country dummies (not reported in the table).

Source: Authors' calculations.

In addition to heteroscedasticity, the estimates using FEM model are also affected by serial correlation. In particular, a Wooldridge test for autocorrelation in panel data rejects the null hypothesis of no first order serial correlation. The consequences of autocorrelation are similar to heteroscedasticity, but the problems caused by the latter are usually more severe. OLS coefficient estimates remain consistent and unbiased in the presence of autocorrelation, but they are no longer best linear unbiased estimators (BLUE) or asymptotically efficient. Furthermore, autocorrelation causes standard errors to be biased.

**Table 3 Panel regression results (PCSE)**

	Manufacturing			Service		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
GDP_pc	0.49*** (0.19)	0.58*** (0.18)	0.54*** (0.18)	1.19*** (0.27)	0.87*** (0.24)	0.73*** (0.25)
Openness	0.01** (0.00)	0.01** (0.002)	0.01** (0.002)	0.01** (0.004)	0.01** (0.004)	0.01** (0.003)
Wage	1.16*** (0.27)	1.13*** (0.33)	1.02*** (0.27)	0.37 (0.28)	0.41 (0.27)	0.33 (0.23)
Inflation	-0.01 (0.01)	-0.004 (0.01)	-0.005 (0.01)	-0.03*** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)
Privatisation	0.45* (0.25)			0.08 (0.33)		
Liberalization and regulation		0.04 (0.21)			0.89*** (0.27)	
Financial market development			0.23 (0.20)			1.01*** (0.32)
R-sq*	0.94	0.94	0.94	0.83	0.81	0.83
R-sq (within)	0.85	0.76	0.78	0.70	0.74	0.76
Prob>chi2	0.00	0.00	0.00	0.00	0.00	0.00
N	64	64	64	64	64	64

Note: All regressions were carried out using Prais-Winsten regression with panel-specific AR(1) and correlated panels corrected standard errors. Robust standard errors in parentheses. Asterisks indicate variables whose coefficients are significant at the 10% (\*), 5% (\*\*) and 1% (\*\*\*) level, respectively. All regressions include constant and country dummies (not reported in the table). There is no precise counterpart to R<sup>2</sup> in the generalised regression model. The R<sup>2</sup> from the transformed model is purely descriptive. Therefore, we displayed the R<sup>2</sup> (within) from the original model, because it shows the fit of the model of interest.

Source: Authors' calculations.

Consequent to the previously described problems, both Parks-Kmenta method and Beck and Katz's (1995) proposal are alternatives. They represent two different approaches to tackle the complications of serial correlation, contemporaneous correlation and heteroscedasticity. Generalized least squares (GLS), which incorporates information about the errors and thereby makes up for the inefficiency of OLS, is BLUE and will give correct standard errors. However, GLS assumes that the variance-covariance matrix ( $\Omega$ ), which is used to weight the data, is known when in practice it is not. Instead, we can employ feasible generalized least squares (FGLS), which involves using an estimate of the variance-covariance matrix ( $\hat{\Omega}$ ). Beck and Katz (1995) showed, however, that the FGLS method advocated by Parks and Kmenta produced incorrect standard errors when applied to TSCS data. The poor statistical properties of this technique stem from the fact that it estimates an inordinate number of parameters in the variance-covariance matrix (Beck, 2001, p. 280). Although FGLS works fine in large samples, TSCS data typically does not provide enough observations to estimate these parameters with much precision. The method gives overconfident standard errors because it does not fully take into account the variability in the

estimates of the error parameters (Kristensen & Wawro, 2003). The overconfidence in the standard errors makes the Parks-Kmenta method unusable unless there are more time points than there are cross-section units. In other words, they recommend using Parks only when  $T$  is very large relative to  $N$ , which is not the case in this paper ( $T$  is identical to  $N$ ). Nevertheless, Beck and Katz (Beck & Katz, 1995) showed that these approaches significantly underestimate the variability of the estimated coefficients, especially if the sample size is small. In this study, we followed the suggestions of Beck and Katz and estimated OLS with panel-corrected standard errors (PCSEs) using Prais-Winsten to take into account the AR(1) process. Although this approach estimates the same number of parameters as the FGLS method, it has better small sample properties. The intuition as to why this is the case is that PCSEs are similar to White's heteroskedasticity-consistent standard errors for cross-sectional estimators, but are better because they take advantage of the information provided by the panel structure of the data (Beck & Katz, 1996, p. 34). Through Monte Carlo studies, Beck and Katz demonstrated that PCSEs produced more reliable standard errors than FGLS methods (Kristensen & Wawro, 2003). Beck and Katz (1995) reportedly found that if the sample size was finite or small, the total number of temporal observations must be as large as the number of panels.

The estimated coefficients (OLS with panel-corrected standard errors (PCSEs) using Prais-Winsten to take into account the AR(1) process) are shown in Table 3.

## **5. Conclusions**

Our analysis of the possible differences between the influence of indicators of FDI in manufacturing sector and service sector in CEE countries (transition economies) indicated that the hypothesized relationship did hold. We found significant differences between indicators attracting FDI in manufacturing and service sectors, which were probably the results of the differences between goods and services, the form companies had to market them and strategies adequate for the different type of companies.

Market size, stated through GDP p/c which reflects the purchasing power of local consumers (local demand) positively influenced the FDI inflow into the manufacturing and service sector. It meant for both, manufacturing and service sector, the size of market was very important, probably for service sector even more, because of impossibility for service to transfer from one to the other markets.

Openness in the sense of more liberalized and potentially greater inter- and intra-regional trade provided a broader market, which was of considerable importance for foreign investors, especially those seeking to maximize their efficiency globally. Expected positive influence of openness of FDI stock confirmed a relatively new approach which suggested that the FDI and trade were mutual complements rather than substitutes.

The level of inflation as the sign of macroeconomic instability, traditionally determined on the basis of the persistent rise of level of prices, increased the commercial risk of investment. Namely, high inflation weakened the confidence of foreign investors into the capability and readiness of the recipient country government to maintain a consistent monetary policy, stable prices and currency should their economies be exposed to turbulence of a greater scope. We found inflation manifested statistical significance at the level of 5% and had a negative algebraic sign for service sector, but there was no significance for manufacturing sector. Possible explanation for those results might be the level of openness which implied possibility for transfer of final products from transitional countries to other markets abroad, without problems. Especially, law issues and guaranties for foreign investments and relative stability of CEEC mean sort of warranty that in these areas it would not be possible to

face extremely high level of inflation, which foreign investors had faced in other parts of the world. At the same time, there was negative influence of inflation to the level of FDI in service sector, which was the logical consequence of the fact that there was no possibility for services transfer, since there were characteristics/differences comparing the goods: Intangibility, perishability, production and consumption at the same time mostly. That means there are no alternative markets for services, once when inflation rate is going up.

According to the common view and results of previous researches (Neuhas, 2005; Bevan, et al., 2004) that decision of FDI was greatly influenced by costs and quality of input, especially the costs and quality of labor force, the wages level had proved to be statistically significant for manufacturing sector (at level of 1%), but not statistically significant for service sector. That meant manufacturing sector showed exactly the same pattern of relationship and influence of costs of inputs (wages in our case) as the results of research for total FDI, probably because of the fact that most researches had been done for total FDI (without analyses of different sectors) and the fact that CEE countries mostly faced with FDI in manufacturing sectors in the past (Buigues & Jocquemin, 1994). Possible explanation for differences between manufacturing and service sector regarding wages influences is that cheap, but relatively skilled labor, although a favorable factor for investment, characterizes most of the CEE countries which compete each other for foreign investment. Therefore it can not be a specific advantage of any of these economies individually and cannot help attract foreign investors. On the other side, service sector asks for relatively simple labor skills, there is possibility to prepare and educate employees for mostly simple tasks companies expect them to apply in short period: Banking sector, insurance, trade, which are the dominant sector foreign companies invest to CEE countries. They mostly transfer top management and specific experts from the home country.

The analysis of significance and impact of the institutional-related variables on the FDI stock covered three indicators. Results for manufacturing sector confirmed prior research (Lansbury, Pain & Smidkova, 1996) that the private sector share had a positive effect on inward FDI in CEEC, even the level of significance was lower than the influence of GDP, openness and wages, only at 10%. Contrary to these results, and according to the results of Holand and Pain (1998) study, privatization had no statistically significance for service sector. Possible explanation for these differences could be connected to the fact that FDI in service sector actually was the main or crucial form of privatization in transitional countries—different forms of acquisitions, strategic partnership etc. That meant the level of private share of service sector in GDP practically had no influence on attraction of FDI in service. And probably, if some future research find out the connection and influence of privatization, it would be negative more than positive, since higher share of private sector means more problems and stronger market competition in service market.

Liberalization and regulation included price deregulation were almost finished in CEEC, and index of competition policy. Price deregulation according to the previous research results brought to companies a greater autonomy in their business policy-making, thus providing much more room for the increase in profit and market share. At the same time, liberalization leads to attracting especially market-oriented FDI, i.e., FDI is motivated by profit maximization through providing a broader market.

Contrary to previous researches, we found out no statistically significant relation between those elements and their influence to attract FDI in manufacturing sector in CEEC, but there was statistically significance between the indicators and their influences in the service sector.

Those results were the same as the correlations of inflation influence, which meant there was logical consistency between those relations and influence of inflation to the different sector. As consequence, based on

one of those indicators, we can make prior statement of the possible relations of the indicators for each CEE country. We found the same thing for financial infrastructure.

Two out of four traditional variables showed the differences between the manufacturing and service sector: (a) Inflation, as the indicator of macroeconomic instability, was not statistically significant for manufacturing sector but it was significant for service sector, with negative influence, meaning higher inflation rate made economy less attractive for FDI stock and vice versa; (b) according to the common sense and previous research results, wages had statistically significant influences on the FDI in manufacturing sector, but had no influence on service sector; (c) other two traditional variables—market size indicated through GDP p/c and openness of economy had the same results for both, manufacturing and service sector, even the level of significance were the same.

Looking at the results of testing indicators, compound from original institutional indicators, we had found significant differences between all indicators: (a) Privatization influence on FDI attractions in manufacturing sector at the level of 10% and no influence on service sector; (b) liberalization and regulation had no influence on manufacturing sector, but there was significant influence on service sector (at the level of 1%); and (c) financial infrastructure had no influence on manufacturing, but significantly influenced on service sector (at the level of 1%).

All those results confirm our hypothesis that there were significant differences between the goods and services and consequently between the ways how to transfer, trade and invest to the different sectors. FDI investors will check different indicators and institutional dimensions before make decision of the countries they will invest, and those indicators would be different for manufacturing and service sectors. If host countries want to attract FDI for one of those groups of sectors, they have to work in order to improve and develop different dimensions of institutional indicators.

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## Continuous development in organizations—Romanian model\*

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**Abstract:** This paper presents the results of an experimental study applied on an average level company, sales/distribution profile, from Mures County, Romania. The study analyzes the role of formative intervention in the development of a positive organizational environment in an organization. Following the results of this experiment and especially the results that confirm the importance of formative intervention in the development of human resources, the improvement of communication and professional motivation, a nonrefundable financed phare project has been initiated and implemented within the organization—the center of developing and training the human resources from selling—it’s goal being the development of an ensemble of training services for the company’s personnel and the development of a human resource consultancy network for other similar companies. The last part of this paper briefly describes the main activities and results of this project. All the elements that we have deciphered during the implementation of the project and also the conclusions of the qualitative and quantitative analysis of the experiment’s results, determine us to support continuous professional development in organizations, which, as proved, can improve communication in the organization, maintain the personnel on a high level of motivation, increase professional and personal performance and efficiency, also can lead to self-awareness and auto-implication, satisfaction with the accomplished work.

**Key words:** human resource; continuous professional development; training; organizational communication

### 1. Introduction

The transition process of our country towards a more competitive market economy involves deep transformations in all areas of social, political and economy life. Romanian economy’s performances, the capacity to respond to the pressure exerted by competitors and European Union’s employment market are directly conditioned by the quality of human capital (Pastor, Cîmpean & Stoica, 2005). So the development of human resources in order to increase adaptability and active involvement in a cognitive society, by gaining new social and special abilities required by workplace, is the requirements that emerge with the structural changes in the

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Romanian economy (Cimpean, 2006). Therefore an important area in the measures planned by Romania's regional politics is the development of human resources. To this end, one of the priorities of the National Development Plan of Romania 2007-2013 is "the development of human resources, increase in employment and combat of social exclusion" (Government of Romania, 2005). These measures are even more important because of the poor development of business consultancy services, human resource politics in companies, poor development in the area of services and a poor investment in human capital in Romanian companies (Chisu, 2007; Sandi & Moarcas, 2007).

If the lack of continuous development for an individual produces, negative effects only on an individual level and on most in family environment, for the organization, the lack of continuous development of the personnel leads to poor efficiency and poor functioning of every activity that takes place at its level. Although for some critics continuous formation is only an exaggeration, managers of large companies admit that investing in human resources is what made them have what they own today. In this context we quote Bill Gates, founding president of Microsoft Company, who declared in 1992: "If 20 of my best coworkers leave me in a few months you won't hear anything about Microsoft" (Oltean, 2006). This statement is without a doubt the admittance that human factor is the strategic element on which depends the good development of social activities in general.

Studies show that many companies from Romania are confronted with a series of problems due to an inefficient informational flow, lack of communication or social, psycho-linguistic and physical impediments in the daily communication among members of an organization (Oltean, 2006). Inefficient communication, both horizontally (between employees) and vertically (between employees and leaders), a weak motivation for work, are realities specific to many organizational environments. But being aware of the importance of efficient communication, and also formative intervention which can lead to the improvement of communication between employees, determines us to consider that these should become priorities in any type of organization with adverse environment as demonstrated by our experiment.

## **2. Research methodology**

Our approach is a diagnosis of communicational and motivational environment in one of the average level companies in Tirgu-Mures with a sales profile, its purpose being to determine the impact that formative programs, developed by ourselves in order to improve communication and increase employee's motivation, have on the development of a positive organizational environment (Tomuletiu, 2008). This study was started with the idea that developing communication skills for employees through formative intervention leads to the improvement of the organizational communication's environment, both vertically and horizontally. Also it has assumed that the level of endurance of a communication environment in an organization, both vertically and horizontally, influences motivation for work. Initially the experiment included a number of 50 adult subjects, with ages between 20 and 40 years. From these, at the end of the training sessions, only 43 persons were included in reevaluation.

Procedure and measuring instruments. In the first stage of initial diagnosis, 3 questionnaires were applied: Two about the situation of vertical and horizontal communication in the organization, adapted after Combs G. W. (1981) and one about motivation for work (Pastor & Petelean, 2004). The purpose of the application of these instruments was to prove our assumptions, according to which the poor communication within the organization influences in a negative way the motivation of employees for work as well as the economic efficiency and the best performance of the activities within the company. After data processing, it has been observed the necessity to



improve certain aspects of the communication within the organization by preparing certain communication trainings based on active formative methods and collaboration between employees. Therefore, in the second phase of the research, an experimental environment has been simulated by preparing certain weekly communication seminars (trainings) and some teambuilding activities, for 3 months at the company's head office. The employees were divided into 4 groups, except for the last seminar where they participated together. In the last phase of our psycho-social experiment, the 3 questionnaires were used in order to determine whether the formative intervention had any effect on the communicational environment within the organization and on the work motivation of the employees.

### **3. Results and interpretations**

#### **3.1 Initial testing results**

After using the diagnosis questionnaire of vertical communication, along with unsystematic interviews, it has been observed that most of the employees don't know essential information concerning the organization of the company, which determined us to believe that there are certain problems in the vertical information flow, from management to employees and from employees to management. The problems of communication and collaboration, and also any emerging conflicts, are mainly caused by not knowing certain essential aspects—organization chart, direct superiors, department in which they work.

After using the diagnosis questionnaire of horizontal communication's level, we observed that there weren't many problems in this area, a very high percentage of the employees had confidence in at least 3 other colleagues, but empirical observations and interviews proved the existence of certain interpersonal conflicts between employees from the same level also from different departments, leading to a poor motivation in the management of problems that may arise and lack of involvement in certain activities that require collaboration.

The results of the motivational system's diagnosis outlined, among others, that extrinsic motivation was much more important than intrinsic motivation, one of the causes for this being, not the lack of interest towards intrinsic motivational factors, but their absence or insufficient presence. Another cause, according to 35% of the employees, was determined by the bad relations between colleagues and relations between colleagues and management, leading to the concern and discouragement in the work place.

As the first conclusion, we can state that our assumption concerning the existence of inefficient communication and poor informational flow, and also a weak motivation for work in the company which was conducted in the research, is real and accordingly we intervened with a series of communication and teambuilding weekly activities based on active formative methods which stimulated the interaction between employees.

#### **3.2 Final testing results**

The assumption that interrelation between members of an organization during communication activities leads to an improvement of the communicational environment in the organization is true, because we observed that there were certain positive modifications on the way they handled the communicational environment, both horizontally, between employees on the same level, and vertically between employees and superiors. This is due to formative intervention and to the intervention in the structural organizational plan. These last interventions are a series of internal measures which have been applied in order to clarify certain structural organizational aspects (flow chart, job description contents, weekly meetings, the contents of the internal regulation) and improve informational flow (creating an information pane with updated announcements for employees, its purpose being

also to transmit information between colleagues). Through a comparative analysis in Table 1, we can observe how the communicational environment’s handling level is modified both horizontally and vertically.

**Table 1 Initial and final testing results**

Handling level	Initial motivation (%)	Final motivation (%)	Initial vertical communication (%)	Final vertical communication (%)	Initial horizontal communication (%)	Final horizontal communication (%)
Very low	11.6	0	0	0	0	0
Low	34.9	20.9	34.9	4.7	14	7.1
High	41.9	55.8	39.5	74.4	74.4	66.7
Very high	11.6	23.3	25.6	20.9	11.6	26.2

From Table 1, we can see that motivation has increased from 41.9 % in initial evaluation (pre-intervention) to 55.8% in the final evaluation, also from 11.6% to 23.3%. Also, vertical communication has increased from 39.5% to 74.4% (above 30%). An increase in horizontal communication can be noticed from 11.6% at initial evaluation to 26.2% at the final evaluation. In order to see if difference noticed were statistical significant, we performed Wilcoxon signed rank test for 2 related samples (pre and post intervention groups). The results are shown in Table 2.

**Table 2 Comparison of frequencies between pre and post intervention groups on communication variables.**

Variable	Wilcoxon signed rank test	Significance
Horizontal communication	2.496	0.013
Vertical communication	2.400	0.016

As we can see from Table 2, the differences have statistical significance, both Wilcoxon values being significant at level of 0.05. We can conclude that our intervention programme has significantly increased both horizontal and vertical communication between departments. In both cases we observed a significant influence of the formative intervention, regarding communication-collaboration, within the same level and between different levels of the organization, which proves that communication with the employees and also with the superiors has improved.

The idea that the way the communication environment within the organization is related to the work motivation is partially confirmed by Spearman correlation shown in Table 3.

**Table 3 Spearman correlation coefficient and their significance level**

Variable	Spearman correlation coefficient	Significance
Horizontal communication—work motivation	0.398	0.01
Vertical communication—work motivation	0.246	0.111
Salary—work motivation	0.423	0.005
Promotion—work motivation	0.438	0.003

As it can be noticed from Table 3, only horizontal communication is important for work motivation. Vertical communication has no relation to work motivation in our organization. The correlation is only moderate. More important, stronger correlations were noticed for salary and promotion in relation to work satisfaction.

The idea that the way communication is handled within the organization, vertically, relates to the level of work motivation is rejected, both for the initial and final situation. One of the explanations may be that external

elements that may lead to an increase of the work motivation and satisfaction (promotion and salary), had reduced values, before the formative intervention as well as after that (there were no significant changes), so we may strongly conclude that the communication relation with the superior, which can influence in a positive way the two elements, does not influence the level of motivation. So, the employees are not motivated by the improvement of the communication with their superior, because this does not influence at all the salary or a certain promotion.

In the end, we can add that the level of motivation of employees is a very complex element of the human personality which is influenced differently by certain elements based on its personality and its social and cultural environment. Therefore, to say how much or for how many subjects a certain element influences the change of motivation is quite difficult to be proved but also almost impossible, in our opinion.

#### **4. Conclusions and practical aspects**

The results of this experiment can also alarm many other entrepreneurs, which should be equally preoccupied, and even more in certain situations, not just for the production activity but especially for those who are directly responsible for the production activity, their own personnel. All the elements deciphered, both from an empiric level and also the qualitative and quantitative analysis of the experiment results, determine us to support the investment in human capital through human resource professional forming programs, adapting to the real needs of the organization, through training and teambuilding activities, activities that will strengthen the cohesion of a team and improve communication within the organization and therefore to keep the entire personnel at a high level of motivation. All this can have positive consequences for human resources: High productivity, professional and personal efficiency, self-awareness and auto-implication, satisfaction with the accomplished work.

Following the results of this experiment and especially the results that confirmed the importance and multiple possibilities of formative intervention in the development of human resources, a nonrefundable financed phare project has been initiated within the organization—the center of developing and training the human resources from selling (Tomuletiu, A., Oroian, M. & Lupu, A., 2008).

The aim of this project was the development of an overall service training for staff of the company and the initiation of a consultancy-providing network for promoting best practices in human resources for other similar companies and beyond.

Project activities were justified by the needs identified in the organization and in other similar organizations:

- (1) The need to carry out a professional selection for hiring specialized human resources most appropriate to the job description;
- (2) The imperative need to correlate the demand on the employment market with an appropriate training offer;
- (3) The need to develop professional skills in order to avoid redundancies and fluctuation of the work force.

Thus, this centre has been implemented within the organization which was equipped with advanced training materials, appropriate furniture, library, licenses for batteries of psychological evaluation and selection of personnel tests, all with the support of the granted funds.

The basic activities of the project focused on providing training programs which included not only specialized courses, but also courses for the development of social competencies, courses based on a curriculum appropriate to each course session, as follows:

- (1) Efficient communication and organizational interrelation courses addressed to all employees, with the

purpose of ensuring efficient circulation of information at all company levels, and preventing work conflicts;

(2) PC training courses for those lacking such competences and IT systems implementation courses inside the company;

(3) Leadership and diversity management courses addresses to the staff in leading positions, in order to create premises for a more efficient cooperation between them and their subordinates.

The assessment of staff with the acquired psychological tests was designed to identify any inconsistencies of the characteristics identified with the existing job profile and vocational shifting, where appropriate. Also, psychological testing aimed at the development of a more efficient professional selection, leading to the hiring of the most suitable people for the positions in the organization, in agreement with the profiles of those positions, so that in the future this would contribute to reducing staff fluctuation, at least on an average duration of time.

A national conference with the participation of specialists on the human resources, communication and leadership fields was also organized as a part of the project, with the aim of promoting it and its results. The results were disseminated through the media, and also through a conference volume.

The project activities have had a major impact on employees who had never before benefited from training programs, although this is specified in the law, and is an educational imperative of the new era of knowledge. Through the courses, the target group situation has improved, not only in terms of cognitive or social skills, but also in financial terms, because employees have become able to respond more effectively to professional activities. Indirectly, the work motivation has increased, the communicational environment within the organization has improved, which results in a more sustained and interested participation in all business activities.

The training had a direct impact on adults who have become aware of the need to continuously develop social and professional skills to be able to deal with the structural changes that occur almost overnight.

The project also resulted indirectly in positive consequences on the quality of family life. Those who had benefited from the advantages of the project and had made at the same time efforts in this direction, had increased their chances of reintegration into the labor market in crisis situations and also their career promotion chances; they became more flexible and open to change to the need for development and permanent training. The direct beneficiaries have also acquired a sense of social security as a result of increasing confidence in their ability to cope with all requests of the socio-economic life.

All measures developed by us by means of this project have been designed to contribute to improving the quality of human resources working in this company, measures and practices that will have positive consequences for the long-term, by lowering unemployment and staff fluctuation and also by improving communication and interpersonal/intergroup relations as a direct consequence of a change of attitude. As a result of access to lifelong learning at work, the foundations will be set for the quality development of people's life, for economic performance criteria within companies, elements that will lead to social-economical development of the community.

We would like to conclude, that Romanian organizations of all types should become increasingly aware of the importance of granting credit to factors interrelated to human resources development and continuous professional training, with the purpose of increasing performance and economic competitiveness. Thus, small and large-sized Romanian entrepreneurs, and not only them, should become increasingly preoccupied with the people that are directly responsible for production activity, that is, their own staff.

**(to be continued on Page 38)**

# Empirical study of investment activity's drivers in capital-intensive Russian firms

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**Abstract:** In this paper we present the research results of key factors that determine the investment behavior of Russian companies during 2004-2008. The emphasis is made on the policy of capital expenditures. In the analysis, it included macroeconomic, some industry factors (growth rate, spread of efficiency (ROIC-WACC), market and industry risks) as well as some internal factors related to the equity structure and the quality of corporate governance.

**Key words:** investment behavior; internal drivers; multifactor regressive analysis; information transparency index; public capital-intensive Russian companies

## 1. Introduction

Investment activity of companies has been traditionally considered as one of the key economic and innovative drivers for the country development especially in the area of creating tangible and intellectual (intangible) assets through improving the existing capacity and competitive advantage. For Russian companies as our research shows problems of renewing tangible asset through replacement of the worn out ones, increasing their competitive advantage through refurbishment of tangible assets and creating intangible ones (brands, trademarks, highly-qualified staff, loyal contractors) are very acute in the period of high market growth and are still acute while regressing to the recession stage.

In our study of the investment behavior of the Russian companies, we used the Rosstat database to analyze the dynamics of the main macroeconomic, industrial and corporate indicators; company management surveys in capital-intensive industries and economic analysis based on the financial report data and key non-financial indicators of the internal management for the period 1991-2008, and Bureau Van Dijk (Ruslana) database for financial and non-financial firm-level information.

According to Rosstat,<sup>1</sup> since 1990s the level of capital asset depreciation has substantially increased in the capital-intensive industries. Comparing it to the industrial depreciation in the year 1991 which was 41%, this figure in the year 2007 was more than 53%. As a result of low rates of renovation of the capital assets, the age related condition of the production assets has been worsening. As our research has shown on the basis of statistic data and a number of surveys conducted (Guriev, Lazareva, Rachinsky & Tshlo, 2003; Kovalin & Moiseev, 2008; Dolgopyatova, Ivasaki, Yakovlev, 2007; Simachev, 2001; Yasin, 2004; Teplova, 2007) the Russian companies are

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<sup>1</sup> [Http://www.gks.ru](http://www.gks.ru).

facing the problem of not only making an innovative development breakthrough but maintaining and renovating the existing capacity in order to have their competitive advantage in the local markets. The need for modernization is the most widely discussed issue in the recent surveys. According to (Kovalin & Moiseev, 2008)<sup>2</sup>, this problem is acute for 80% of the respondents.

For our research on the investment behavior of Russian companies in the area of capital investments for the period 2000-2008, we have restricted our Russian company sample by two conditions:

(1) One life stage companies of capital-intensive industries which require substantial financial injections into maintenance and modernization of the long term tangible assets (these companies are characterized by a high degree of main assets depreciation, small renovation coefficient from the start of 2000);

(2) Companies with competitive advantages in the market that can be found out by, for instance, such a financial indicator as positive efficiency spread.<sup>3</sup> The positive efficiency indicator allows in our opinion to choose such companies in the market that have true market value growth through increasing their investment share in their fixed capital (true market value).

Within the study framework, we have verified a number of hypotheses with the companies that match our sample:

(1) What macroeconomic and institutional indicators mostly influence the investment decision making process in the area of creating tangible assets for Russian companies; the importance of financial limitations and whether their relevance changes with time;

(2) Whether internal (non-fundamental) factors influence the degree of the investment activity among companies. For example, we have considered such factors as structure of equity, management and quality of corporate management;

(3) What internal processes stimulate the investment activity and which of them just discourage it (the study was based on finding out "negative" and "positive" experience).

The hypotheses of big influence of macroeconomic, industrial and institutional factors is being actively worked out in the developed capital markets and in a number of studies there have been pointed out a range of indicators that allow to diagnose any changes in the investment activity in a particular country and at a particular point of time.<sup>4</sup> Among the recent studies it is very interesting to point out considerable optional opportunities to postpone, delay or just terminate the investment activity before the agreed time. A number of studies show that industrial characteristics of non reverse nature of investments greatly influence the sensitivity of investment behavior towards any change in the macro environment (Bulan, 2005).

Empirical works are interesting and in their focus there is the influence of internal (non-fundamental) drivers. However these studies give a model of the company investment behavior in the time of strong external (institutional) shareholder protection (the majority of studies were conducted in the American market with its Anglo Saxon system of legal protection). The issue is in the area of the importance of internal corporate management mechanisms (company information transparency and its investment activity, the role of the independent members of the board of directors, structure of equity, etc.) along with a weak institutional support is

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<sup>2</sup> 147 businesses from 53 Russian Federation regions.

<sup>3</sup> We consider the spread of efficiency (the current true market value creation indicator) to be the difference between the current return on invested capital of the company and weighted average capital costs, i.e., ROIC-WACC.

<sup>4</sup> Investment activity means the agreed policy of changing the volume and structure of the fixed company capital which can be defined by a number of indicators, such as the ratio of capital investments to earnings or the asset volume for the start of the year, ratio of long term financial and capital investments, non-material investments measured in percentage figure of the return etc.

still an open one.

A number of studies state that for the developing capital markets the influence of macroeconomic, industrial and institutional factors (e.g., change in taxation) on the investment behavior is smaller compared to the developed ones because of the low local market competition and using only their own financial and investment resources. As for the capital market shares macro and industrial indicators account for not more than 15%. In the area of internal drivers of investment activity, there is no clear understanding of the indicators and their weights, although these issues have been actively raised in the economic literature for the last years. Attempts to analyze the influence of internal drivers of investment activity, choice of development strategy and efficiency indicators have been made with the help of both opinion polls and econometrical methods.

There is no clear conclusion about the influence of internal drivers in the process of decision making investment activity among Russian companies. The opinion poll among CEFIR (the center for economic and financial research) employees in 2008 (Lazareva, Rachinsky & Stepanov, 2008) sticks to the hypothesis that the investments of Russian and foreign companies are not greatly influenced by the quality of their corporate management (e.g. transparency level of decision making process) and their structure of equity. The opinion survey by the HSE based on 40 company sample (Dolgopyatova, Ivasaki, Yakovlev, 2007) showed that a joint-stock company with the great degree capital accumulation is characterized by a high degree of investment activity. However increasing the sample didn't prove this conclusion. In the research by Bureau for the economic analysis in structure of equity comparison and reforming activity among 400 RF companies, there discovered positive influence of the concentration of equity in the hands of the foreign investors (Simachev, 2001).

Econometric studies are not numerous in the Russian market as opinion surveys and their results (e.g., Guriev, Lazareva, Rachinsky & Tshlo, 2003), along with the studies of several emerging markets (Czechia, Romania, Poland, etc.; Filatotchev I. R. Kapelyushnikov, Dyomina & Aukutsionek, 2001; William Davidson Institute, 2002, 2004) also have not given a clear picture of the internal drivers influence (e.g., property concentration).

## **2. Our econometric studies**

The present research on the basis of multifactor regressive analysis aims at working out a number of indicators that will allow analysts to make a model of the investment behavior in Russian market and the existing demand for credit resources.

Very important macroeconomic and industrial factors in the models of the investment behavior tested on the basis of public capital-intensive companies are the growth rates (economic and industrial) and price volatility among the main industrial product groups. Relevance of these factors and the set of them sometimes vary depending on the financial and real investments of the company. Thus the market risk measured with the help of beta coefficient happens to be relevant only in the case of long term investments. It's worth noting that for the last years long term investments in the whole economic environment exceeded the real ones (capital, CAPEX or Cpx) fivefold. For capital injections the specific risk appeared to be more important and it is related to the non reverse nature of investments. Popularity and dominance of the long term investments can be explained by their higher liquidity rate as the reversibility investment factor is greater.

The decrease of interest rate on the market during the period of 2000-2007 led to lower dependence of investments of internal sources of finance. Importance of operational capital flows was becoming less in the regression models within the years and it was accounted for the investment activity. However the research has

shown that especially among large-scale companies (that are in the focus of our study), financial restrictions are the most evident and numerous. Not less than 85% of capital investments of large companies were their own financial resources. In terms of financial investments (e.g., related to complete takeovers or acquiring new property shares) the debt burden was higher. Among the borrowed funds attracted with the aim of creating tangible assets, Russian and foreign banks' credits were dominant. At the same time, as the profit return period of the most investment projects exceeded 5 years, the short-term nature of the received loans (2-3 years) and imbalance in the active/passive shares were becoming a big problem. Companies with "long money" featured a high degree of investment activity (Teplova, 2007).

Our research has shown that financial restrictions and consequently investment activity were different in the companies with different internal characteristics (structure of equity, management system and bonus system for top-managers, information transparency level). For example in companies where big share of equity belongs to the members of the board of directors, the debt share was smaller. For this reason a separate part of the research was devoted to finding out the influence of internal (non-fundamental) factors on financial restrictions and investment behavior.

A big sample of public companies made on the stage 1<sup>5</sup> was narrowed to 34 items that had a positive efficiency spread during the analyzed period 2004-2008 (stage 2) and had no life span differences (stage 3—selection of companies with a life span and with demanded products range existing over 15 years). We based on the idea that real investments in this particular set of companies create true market value and thus define the effectiveness of the decision making process.

We have studied both quarterly and yearly capital investment data. Our research has proved the earlier received conclusions in a bigger sample (2000-2007) that seasonal factor plays a big role in investments. According to 70% of the sample, there is evident increase of capital investments during the last years (November-December). January accounts for only 1-2% of the fixed yearly volume. These figures correspond to the Rosstat data show that the first month investments regularly decrease by more than 65% in comparison with December. For example, in 2006 investments in January were 28% of the December volume (2005). Managing strategies play substantial role in seasonal changes when the investment cycle matches the calendar year plan. However there is one more convincing factor related to the lack of co-ordination of the investment plans with their financial sources and funds receiving time constraints. Besides, there is big importance of the widely applied company policy of budget constraints in current and investment spending that doesn't encourage economical use of the resources and stimulates spending of the allocated funds by any means.

**Table 1 Key financial indicators for the industry-related final sample**

Industry	Mean ROIC	WACC	Number of companies after selection, stages 2 and 3
Extracting industry	22.05%	19.69%	6
Chemical industry	22.74%	15.59%	6
Metallurgical industry	31.60%	18.96%	7
Heavy industry	17.45%	16.88%	15
Total			34

Source: Calculations by Udaltsov V. E. based on the created database measured in rubles.

In order to analyze the degree of influence of minority group shareholders on the investment activity (capital

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<sup>5</sup> Source: <http://www.ruslana.bvdep.com>, data taken from companies' websites.



investment share in the earnings) with the help of quarterly issuer reports, there was allocated a total share of capital owned by the shareholders and the share portfolio didn't exceed 5% (minor). The total share of equities owned by minor shareholder group entered the regression stage with a fixed coefficient 0.19 (fixed level figure is 5%) while the amount of shares owned by the Board of Directors entered the regression with a fixed coefficient 0.3 (fixed level figure is 1%).

The following results can be interpreted in the way: When the share of equity owned by minority group decrease by 1%, the conflict between dominating and minority shareholders worsens and leads to decrease of investment activity by 0.19%. Thus hypothesis has been proved that the volume of investment activity as the capital investments is sensitive to the existence of minority shareholders who welcome more material rather than financial investments.

As our research has shown the fact that board of directors members own shares also greatly influences the investment behavior. There has noted positive impact of the board of directors share portfolio for the range from 0 to 2% (coefficient value 0.16) and for the range from 21% to 72.7%<sup>6</sup> (coefficient value 0.27). Share portfolio impact for the range from 2% to 21% is not evident.

All the studied companies in their reports informed about board of directors members bonus payments and if there is such a bonus they presented its figure. The research has shown that the case of payment itself results in the increase of capital investment share in the earnings by 0.29% (significance level 1%). Bonus payments to the board of directors are a positive indicator for all the investors and creditors. With that the amount of financial reward for the Board of Directors negatively influences the investment activity (coefficient value -0.15; significance level 10%).

One more hypothesis of the positive influence of the equity concentration on the investment activity in the form of capital expenditures has not been proved. As the result of studying different model specifications (the biggest shareholder share, the share of the three biggest shareholders etc.), regression turned to be the most reliable where the share of majority group is described with the help of the size of share in the hands of the three biggest shareholders' with no insiders among them. The value of the coefficient of this factor in the regression is -0.32. The increase in concentration of equity didn't stimulate the investment behavior in the form of capital expenditures of the companies listed in the sample. Either preference was for financial investments or the current operating capital flows left the company in the form of dividends despite the fact that the financial results defined the opportunity for market value creation with the help of the fixed capital increase strategy.

In order to define more precisely the results of the regression models, we have tested separate company pairs which are counterparts in their industry, earning dynamics, financial indicators, but which differ in their investment behavior. Case comparisons proved the conclusions received on the basis of the regression models that internal company characteristics (mainly property concentration and the board of directors incentives) can explain its investment behavior.

"Penz Tyazh Promarmatura" plc and "Tikhoretsky Mashinostroitelny Zavod by V.V.Vorovskoy" (TMZ) plc in 2004 had almost the same investment activity and internal factor indicator values (see Table 2).

During the period 2005-2006, both companies experienced the decrease in their earnings due to the decrease in the demand but the changes in their investment activity in these companies had contrary nature. The degree of

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<sup>6</sup> Value 72.7% is maximum volume of the share portfolio owned by the Board of Directors with the framework of the current sample.

the investment activity (capital expenditures are about 6% of their earnings for both companies in 2004) was adjusted by “Penz Tyazh Promarmatura” plc to 13.5% (2.2 fold growth in the form of investment outflows into modernization and capacity increase), while “Tikhoretsky Mashinostroitelny Zavod” (TMZ)—to 0.5% (twelve fold decrease)—2 column, Table 2 (CAPEX). The started recession didn't lead to the decrease of the investment activity by “Penz Tyazh Promarmatura” plc whereas “Tikhoretsky Mashinostroitelny Zavod” decreased its capital investments. It should be noted that return on invested capital (ROIC), and efficiency spread of “Tikhoretsky Zavod” during the analyzed period are higher and this fact form the point of view of the industrial indicators should greater encourage the investment activity.

**Table 2 Key financial and non-financial indicators on two companies of sample in dynamics**

Company	Year_id	Cpx	ROIC	Top1 (%)	Top3 (%)	Bod (%)	Minor (%)
Plc “Penz Tyazh Promarmatura”	2004	0.053	0.187	0.208	0.535	0.221	0.269
Plc TMZ	2004	0.065	0.291	0.185	0.489	0.200	0.365
Plc “Penz Tyazh Promarmatura”	2006	0.135	0.232	0.496	0.854	0.638	0.086
Plc TMZ	2006	0.005	0.281	0.666	0.743	0.119	0.059
Plc “Penz Tyazh Promarmatura”	2008/3	0.148	0.211	0.455	0.860	0.190	0.080
Plc TMZ	2008/3	0.048	0.275	0.290	0.596	0.108	0.298

Within the studied period from 2004 to the third quarter 2008, in the compared companies there were significant changes in the structure of equity and the incentives of the board of directors. Thus “Penz Tyazh Promarmatura” plc. had changes in a big increase of the property share owned by the board of directors members while in the case with TMZ plc., on the contrary share fraction owned by the board of directors members decreased and new large inside owners not involved in management took over minority shareholder group.

Information transparency index for “Penz Tyazh Promarmatura” plc equaled to 55.5% for the studied period, which made the company attractive for minor shareholders and creditors whereas Information transparency index of TMZ plc. didn't exceed 33.2%. For an external analyst, it can be a clear sign showing that the company is unwilling to attract debt and boost its investment activity. Capital investments were mainly aimed at maintaining the existing production capacity.

#### **4. Results**

The Russian companies are facing the problem of not only making an innovative development breakthrough but the problem of maintaining and renovating the existing capacity in order to have their competitive advantage in the local and global markets. Financial investments outweigh capital investments in form of capital expenditures. Several factors of institutional environment (for example, state control) and the internal management system produce this situation. Seasonal factor plays a big role in capital investments of big Russian companies. Among large-scale companies (that are in the focus of our study) financial restrictions are the most evident and numerous. Not less than 85% of capital investments of large companies were their own financial resources. In terms of financial investments (e.g., related to complete takeovers or acquiring new property shares) the debt burden was higher. Macroeconomic, industrial and institutional factors can explain not more than 40% of capital investment behaviour of Russian listed companies that create market intrinsic value (economic value added). The board of directors share portfolio, equity structure concentration and share of equities owned by minor shareholder group, information transparency index are important drivers of capital expenditures of the

listed Russian companies. When the share of equity owned by minority group decrease by 1%, the conflict between dominating and minority shareholders worsens and leads to the decrease of investment activity by 0.19%.

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# Electronic government interoperability framework in Greece: Project management approach and lessons learned in public administration

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**Abstract:** The implementation of e-government is a burgeoning phenomenon across the globe. However, a review of the IS literature reveals the inability of public administration organizations to complete information technology projects successfully. Unless governments learn to manage the government transformation projects, these e-dreams will turn into global nightmares. The shortage of studies on e-government implementation presents a knowledge gap that needs to be plugged. This paper describes and analyzes the implementation and the project management approach of the electronic government interoperability framework (EGIF) in Greece. Our intent is to present an application of a goal-driven project management methodology named EGTPM (electronic government transformation project management) in order to use it as a methodological reference when navigating in the open sea of information technology project implementations in the area of public administration. The successful implementation of the specific project indicates that the application of EGTPM approach could provide a solution to achieve government transformation objectives more effectively and efficiently.

**Key words:** public administration; e-government; government transformation; management; e-government interoperability framework; public sector project management

## 1. Introduction

Government transformation programmes and projects are usually shaped in a way to reduce government costs, improve delivery of public services, increase transparency, increase engagement of citizens in public matters, or achieve better outcomes in major policy areas (such as education, employment, taxation, health or social security). The success of such large scale coordinated attempts depends on how well they are able to satisfy their objectives, usually delivering the promised quality within predicted time and calculated effort. The transformational nature, the large scale and the involvement of a large number of function-oriented officials are the key factors that usually make e-government projects more complex than usual IT projects (OECD, 2003).

Over the last few years, rapid progress has been made in moving from conceptual studies, “whitepapers” and initiatives to the actual deployment of e-government systems (Lenk & Traunmüller, 2002). Whereas private corporations have been using information and communications technology (ICT) to improve the efficiency of their business for two decades, public sector agencies have only started to consider it rather recently. Nevertheless, governments are now aware that offering their services online will help them to reduce costs (UK Prime Minister,

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1999; Norris, 2004) and accelerate and simplify (Mora & Ticiu, 2008) the service provision. In that context, various services such as applying for a passport, registering as a voter or filing tax returns have been made available online in several countries (UK Cabinet Office, 2002).

National governments cope with considerable challenges, trying to locate the right pathway of implementing and managing successful e-government projects (Heeks, 2005). The management of government transformation projects is, in significant part, the management of technology, people, organization and knowledge. As interest and pressure for new and expanded e-government increases, public managers find themselves making decisions about information and information technology for which they are often unprepared or ill-equipped (Gil-Garcia & Pardo, 2005).

E-government interoperability frameworks (EGIFs) pose today as the cornerstone for the resolution of interoperability issues in the public sector and the provision of one-stop, fully electronic services to business and citizens. Such interoperability frameworks aim at outlining the essential prerequisites for joined-up and web-enabled e-government services, covering their definition and deployment over thousands of front-office and back-office systems in an ever extending set of public administration organizations (Charalabidis, et al., 2008). They further provide the necessary methodological support for the increasing number of projects related to the interoperability of information systems in order to better manage their complexity and risk, and ensure that they deliver the promised added value (Ralyte, et al., 2008).

In this direction, the paper presents the application of the electronic government transformation project management (EGTPM) approach to manage the implementation of the Greek e-government interoperability framework (EGIF).

This paper is organized as follows. Section 2 presents the fundamental concepts of EGTPM approach. Section 3 illustrates the application of EGTPM approach in the specific case and section 4 discusses the results and the lessons learned. Section 5 provides the conclusions and possible future enhancements.

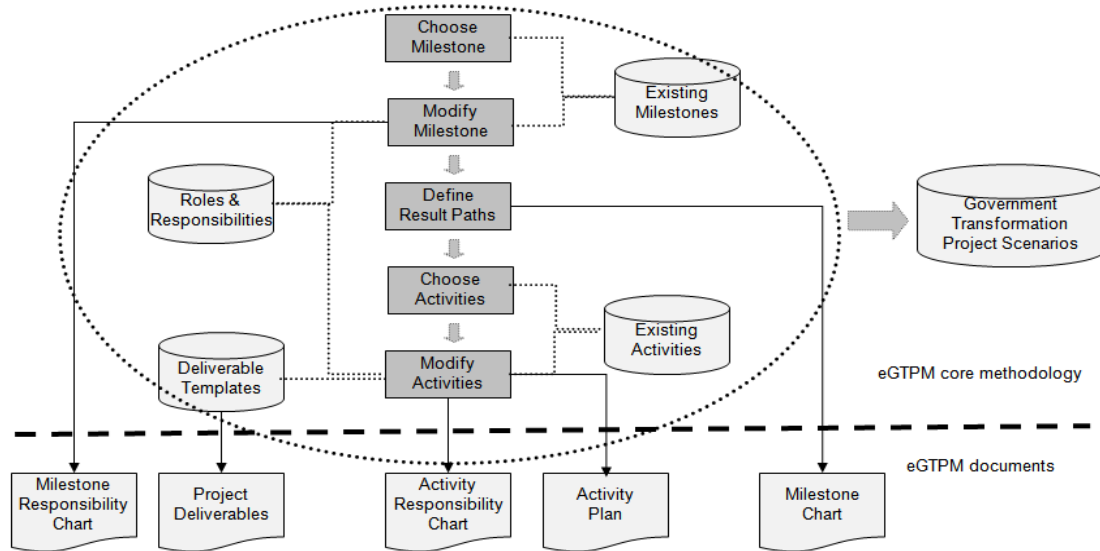
## **2. Electronic government transformation project management methodology**

The existing management procedures, applied in government transformation projects, are based on the hard-rational, bottom-up approach (Winter, Smith, Morris & Cicmil, 2006; Gupta, Kumar & Bhattacharya, 2004; Checkland, 1989; Morris, 2002; Yeo, 1993; Winch, 2004). Most of the projects are organized to define the necessary activities and the analytic project plan prior to the final milestones. As a result, most of them have delayed exceeding the pre-defined budget. On top of that, they do not cover the full spectrum of the stakeholders' expectations, leading to incomplete results or projects that cope with sustainability issues.

E-government transformation project management (EGTPM) (Charalabidis, Sarantis & Askounis, 2009) approach has been used during the implementation of the specific project. EGTPM (Figure 1) provides a sound basis for project management in e-government area, being a result-oriented approach to project management and offering a radical departure from the more traditional project management methodologies, focusing on what must be achieved, the goals (Andersen, Grude & Hague, 2004), rather than on trying to predict timescales and resources for activities. Following, the basic concepts of the methodology are concisely presented:

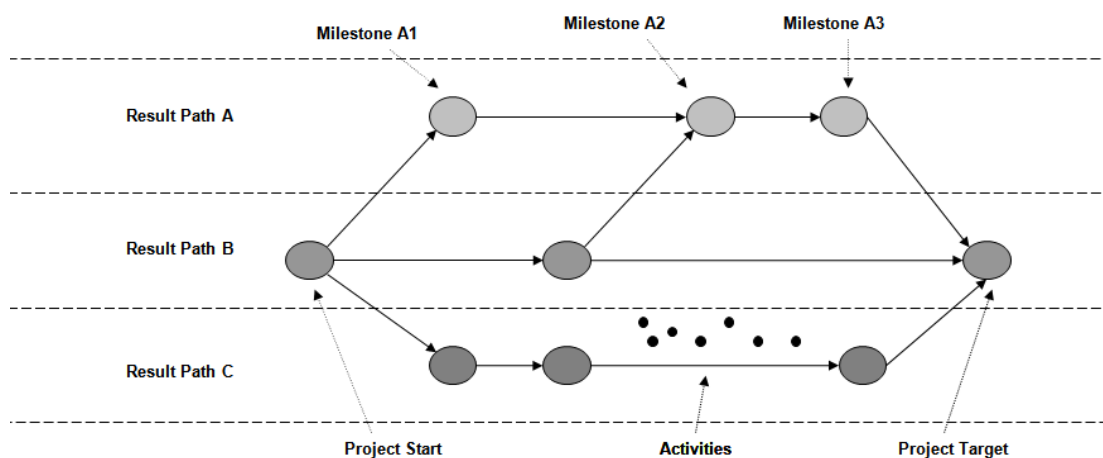
(1) Milestone (sub-goal). Successful project management of government transformation projects requires bringing the disparate organizations, business processes, technologies, agendas, cultures and people together to create a harmonious and workable solution. In EGTPM, the milestone is defined as a practical and tangible step within the project described as a state, which must be reached to meet the final objective.

(2) Knowledge management. Existing best practices and already successfully implemented e-government projects could pave the way for approaches that can exploit model-driven design and provide domain specific ways of implementing safe and challenging goals. An attractive alternative for building the project plan from scratch is the selection of an appropriate pre-configured project plan using an EGTPM e-government project scenario. Government transformation project scenarios are stored in the scenario repository. The selected project scenario serves as a basis for the public organization specific project plan. Because every e-government project is unique, the project scenario allows removing, changing or editing the initial scenario elements.



**Figure 1 EGTPM methodology overview**

(3) Deliverable templates. EGTPM exploits the fact that government transformation projects deliverables present a considerable number of common features. Based on this commonality, it proposes the generation, reuse, and customization of deliverable templates formed in the level of contents definition.



**Figure 2 Milestone plan and result paths**

(4) Project planning. In EGTPM, by concentrating on the results, a plan is devised which is more flexible to the changes that will undoubtedly arise during the project. Furthermore, the project manager is able to build a management framework attuned to the unique demands of the specific project environment. An e-government

project usually addresses several needs or purposes in an organization; it usually has a composite goal and the plan is therefore multi-dimensional. This means that several aspects of the project are worked in simultaneously. In order to bring out the multi-dimensional aspects of project work, the element of the result path (Figure 2) is used. A result path is a series of milestones that are closely related to each other.

(5) Stakeholder analysis and responsibility planning. EGTPM identifies the project stakeholders which are affected positively or negatively by the results. During the stakeholder analysis, their areas of interest, the kinds of contributions to the project, the expectations of the stakeholder, the power of the stakeholder and the appropriate strategy to work with the stakeholder are identified in the stakeholder table. In this way the project support is increased and the appropriate informative channels are discovered.

### 3. Application in e-government project

#### 3.1 Project scope

In the case of the Greek public administration, e-government evolution is currently addressed through a large number of ongoing projects (central governmental portal, central local administration portal, national network infrastructure and numerous front-office information systems to provide electronic services) that demand a high degree of interoperability with legacy systems (Table 1). In this context, the Greek EGIF comes to facilitate the Greek public administration to adapt to the digital era, ensure deployment of joined-up information systems and delivery of high quality services to the citizens and businesses and contribute to the resolution of the interoperability problem.

**Table 1 The size of the interoperability problem in Greece**

Organizational aspect	20 ministries, 13 prefectures, 52 districts, 1,000 municipalities	Systems aspect	200 governmental Internet portals	Non-governmental stakeholders aspect	1,000 IT products and service companies
	1,000 governmental “points of service”		1,000 municipal Internet portals		750,000 enterprises, SMEs and VSEs
	> 3,000 non-interoperable service types (government to citizens and businesses)		2,500 public administration back office systems		11,000,000 citizens
	> 4,500 document types exchanged between administrations				18,000,000 tourists per year > 20,000,000 service requests per year (mostly non-electronic)

The existing applied implementation procedures in Greek government transformation projects are based on the bottom-up approach. Most of the projects are organized to define the necessary activities and the analytic project plan prior to the final milestones. As a result, most of them have delayed exceeding the pre-defined budget. On the top, they do not cover the full spectrum of the stakeholders’ expectations, leading to incomplete results or projects that cope with sustainability issues.

#### 3.2 Project structure according to EGTPM

The milestones (sub-goals) with their corresponding descriptions have been selected to structure the electronic government interoperability framework milestone list. The milestones (Table 2) that have been chosen aim to cover all aspects of EGIF project. They reflect what we wish to focus on in the project. In practice, we must, often, weed out some milestones to obtain an easily comprehensible plan.

#### 3.3 Milestone list

iP1—Project file defined

A file containing the overall plans of a project and any other important documents is defined. It includes a record of project data/documents in scheduled time basis.

iS1—Standard blueprint completed

A blueprint with the contents that will be included in the standard document is predesigned. After discussions, the stakeholders conclude in a mutual agreement concerning the framework that will be followed during the standard document implementation.

iP2—Coordination of stakeholders

Interests service, improvement of the communication and coordination among project stakeholders are targeted. It articulates and formalizes the roles and responsibilities of each stakeholder, improving the project effectiveness and efficiency. Benefits for each stakeholder are ensured.

iS2—State of the art analysis completed

Remarkable EGIFs, other relative initiatives and projects are carefully selected, and their usefulness is evaluated. State of the art analysis of relevant frameworks at a pan-European and national level is conducted, lessons are learned and presented.

iT1—Informative web site completed

A comprehensive on-line project presentation website is developed and linked to all partners' websites. It will serve as the reference point for people interested in the project itself, but will also contain reference material on all covered related fields, subscription functionalities for participation in public project events, various contact options to the project management as well as selected experts, etc.. A "partners area" will be developed to facilitate shared editing and shared document management.

iT2—Collaboration platform completed

Establishment of a permanent collaboration platform, which will include all the essential tools for the project implementation and it will serve as a cross project collaboration tool for knowledge, experience and best practice sharing, as well as result consolidation and dissemination support.

iS3—Current status analysis

Analysis of the existing implementations for each standard, technology or methodology is identified. A review of current developing country e-government projects is implemented. Picture of the existing situation is derived.

iS4—Standards and specifications defined

Issues concerning the standards and specifications effectiveness, efficiency, openness, usefulness and applicability are examined and evaluated. The set of standards and specifications for achieving interoperability and information systems coherence across the public sector are defined.

iS5—Metadata templates defined

The essential e-government entities are defined and the exact metadata fields of them are identified. The mechanism and templates to collect all the relevant public services, documents, systems and organizations metadata are defined.

iS6—Services modeling completion

All relevant details regarding the service execution are extracted and depicted in process diagrams with the help of enterprise modeling tools. The essential service data and metadata are collected and they are exploited using the relative tools.

iS7—Documents modeling completion



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All relevant details regarding the documents structure are extracted and depicted in data schemas with the help of data modeling tools. The essential document data and metadata are collected and they are exploited using relative tools.

**iD1—Training completed**

The training material is designed, produced and the training courses take place. Training specification and material planning are taking place according to customer’s needs and directions.

**iP3—EGIF version completed**

The essential steps take place in order to complete a full EGIF version cycle. This milestone is an iterative one and takes place according to the contractual agreement.

**iD2—Dissemination completed**

Dissemination material is produced and dissemination activities take place. Dissemination specification and relative material planning are taking place according to customer needs and directions.

**iP4—Project closure**

The typical and substantial project termination is taking place. All the contractual commitments are met.

**Table 2 Project milestones (sub-goals)**

Code	Title
iP1	Project file defined
iS1	Standards blueprint completed
iP2	Coordination of stakeholders
iS2	State of the art analysis completed
iT1	Informative web site completed
iT2	Collaboration platform completed
iS3	Current status analysis
iS4	Standards and specifications defined
iS5	Metadata templates defined
iS6	Services modeling completion
iS7	Documents modeling completion
iD1	Training completed
iP3	EGIF version completed
iD2	Dissemination completed
iP4	Project closure
iP1	Project file defined
iS1	Standards blueprint completed
iP2	Coordination of stakeholders

**3.4 Milestone plan**

The milestone plan (Figure 3) is the project’s global plan. The development of the EGIF milestone plan has been performed at the start of the project. The purpose is for all core project members and stakeholders to acquire a common understanding of the goals and how the project shall progress. This is essential to gain commitment from them. Moreover, project participants agree on that milestones are specifically critical to the project so that everyone understands the severe consequences if these milestones are not reached in time or are realized with poor quality.

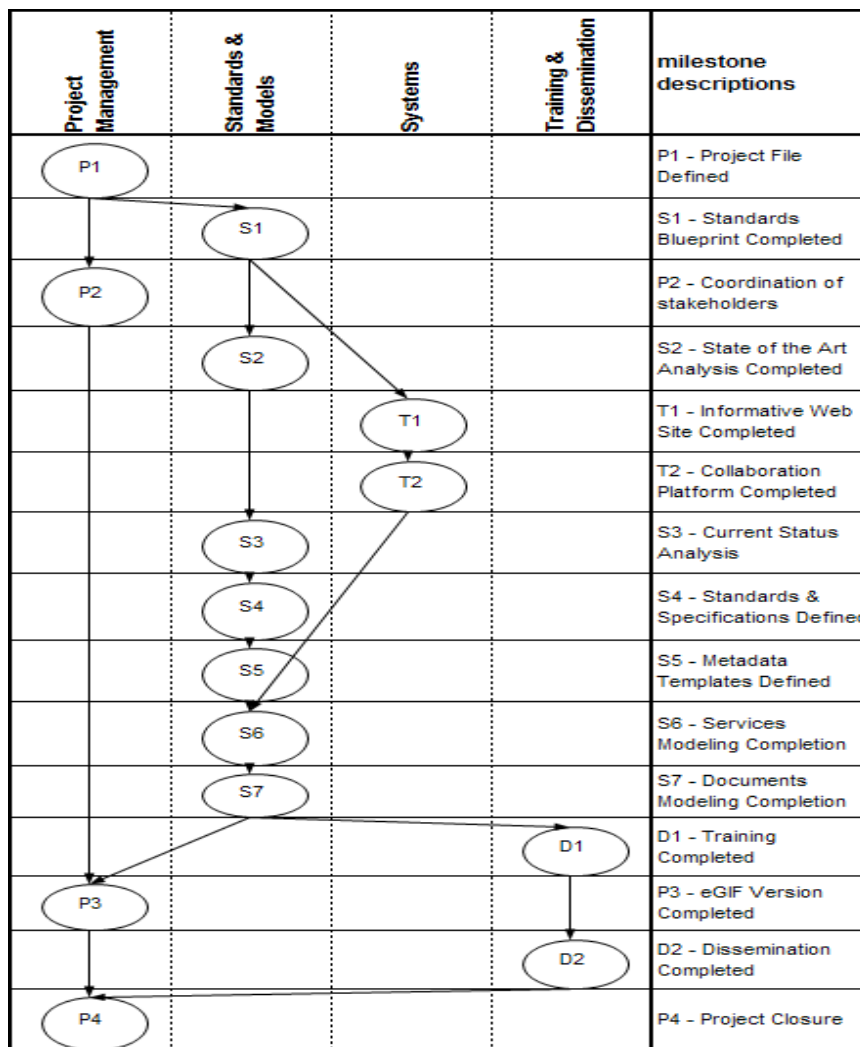


Figure 3 Milestone plan (automatically generated by EGTPM tool)

### 3.5 Activities and deliverables

The milestones are composed from activities that are presented using the relative activity plans. Activity planning is the drawing up of a detail plan to achieve the milestones of the milestone plan. It is through activity planning that we determine how to reach the milestones within the time limits and with the resources allocated. Milestone list includes all the project milestone information, as shown in Table 3.

### 3.6 Responsibility chart and project schedule

A major part of project planning is performed with the help of the responsibility chart (Figure 4). The milestone responsibility chart clarifies the role of the different participants necessary to achieve the milestones. EGTPM provides a predefined pool of responsibilities which can be extended-modified by the user. In order to complete the responsibility chart, the following roles have been identified in the EGIF project: management, project manager, steering committee, working group, key users, end users, external expert, IT support, service & data analyst, service & data modeler, security expert, business consultant, model consultant, application consultant, technical consultant, analyst/programmer.

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**Table 3 Milestones—Activities—Deliverables (extract)**

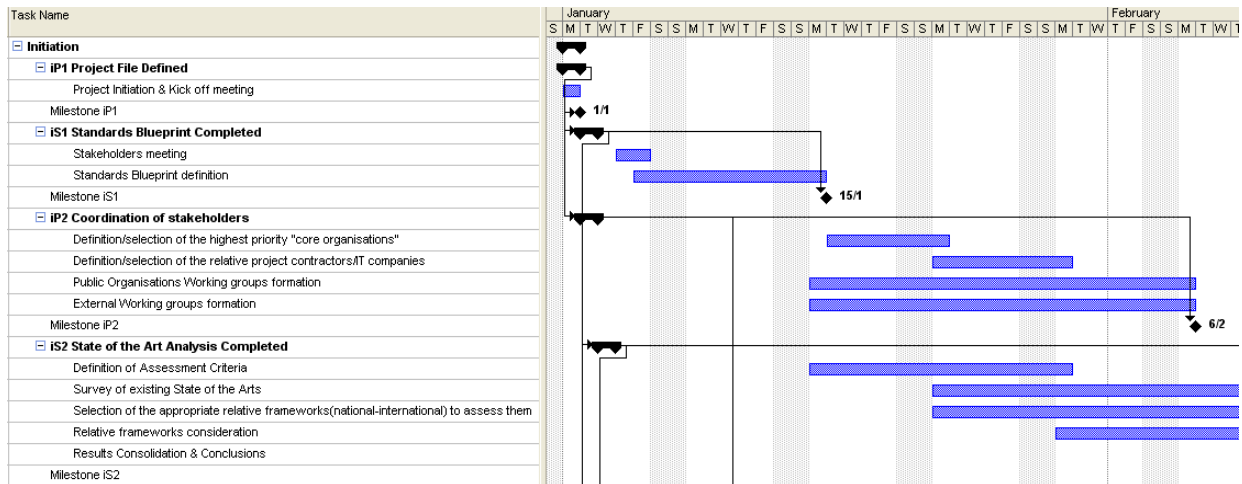
Milestone code	Milestone title	Activity	Deliverable
iP1	Project file defined	Project initiation & kick off meeting	Project plan & monthly report
iS1	Standard blueprint completed	Stakeholders meeting	Standard blueprint contents definition
		Standard blueprint definition	Standard blueprint
iP2	Coordination of stakeholders	Definition/selection of the highest priority “core organizations”	Regular meetings & meeting proceedings
		Definition/selection of the relative project contractors/IT companies	
		Public organizations working groups formation	
		External working groups formation	
iS2	State of the art analysis completed	Definition of assessment criteria	Assessment methodology
		Survey of existing state of the arts	Best practices
		Selection of the appropriate relative frameworks (national-international) to assess them	
		Relative frameworks consideration	
		Results consolidation & conclusions	

<b>Responsibility Chart</b>																
Responsibility	Role															
	Management	Project Manager	Steering Committee	Working Group	Key Users	End Users	External Expert	IT Support	Service & Data Analyst	Service & Data Modeler	Security Expert	Business Consultant	Model Consultant	Application Consultant	Technical Consultant	Analyst / Programmer
Milestones																
P1 Project File Defined	A	D/P	C						X	X		X	X			
S1 Standards Blueprint Completed		D/P	A		C	C	A		X	X		X	X			
P2 Coordination of stakeholders		D/P														
S2 State of the Art Analysis Completed		P	A	A					X	X	A	D	X	X	X	
T1 Informative Web Site Completed		P			D	d		X	A	A		A	A			X
T2 Collaboration Platform Completed		P			D	d		X/T	A	A		A	A			X/T
S3 Current Status Analysis		P		C	A	A			X	X	A	D	X		X	
S4 Standards & Specifications Defined		P	A				A	X	X	X	X	D	C	C	C	C
S5 Metadata Templates Defined		P			C	C	A		X	X		d	D			
S6 Services Modeling Completion		P		C			A		X	X		d	D			X
S7 Documents Modeling Completion		P		C			A		X	X		d	D			X
D1 Training Completed		D/P	C		A	A		A	X	X		d	d	X	X	A
P3 eGIF Version Completed		P	D	X	X	X	A		X	X	A	d	d			
D2 Dissemination Completed	A	P/D	d	X	X				d	d		X	X	X	X	A
P4 Project Closure		P/D	d						X	X		X	X			

**Figure 4 Responsibility chart (automatically generated by the EGTPM tool)**

Exploiting the project data (milestones, activities), significant value is added to project planning producing the project schedule (Figure 5). Use of milestones allows project management to much more accurately determine

whether or not the project is on schedule. By constraining the dates associated with milestones, the critical path can be determined for major schedule intervals in addition to the entire project. This segmentation of the project schedule into intervals allows earlier indication of schedule problems and a better view into the activities whose completion is critical to the project timeline.



**Figure 5 Project GANTT Chart (automatically generated by the EGTPM tool)**

EGTPM application on the specific project results in a project that have satisfactorily covered the expectations of all the stakeholders (public administration, IT industry, government, citizens, enterprises etc.) involved in it. The goal oriented nature of the approach gives the opportunity of covering all the different aspects and issues that have arisen during the implementation in a timely and cost efficient manner. The project contractor and the contracting authority are now equipped with an amount of e-government project implementation knowledge which is easily exploitable in future projects.

#### **4. Results discussion and lessons learned**

The lessons from the application of the project management procedure for the specific project can be summarized as: E-government interoperability cannot be realized by addressing technical issues only. To truly enable interoperability across public administration, a bottom-up approach starting with technology must be avoided despite the fact that a common standard modeling framework, architecture and general technological paradigm to be followed shall be proposed and best practice guides for public administrations needs to be documented. The starting point is situated on the top with the government’s strategic framework, vision and goals of its leaders. In this context, articulating organizational, political and human issues deserves more priority and effort than the technical dimension that has already mechanisms and standards in place.

A clearly defined public sector project management model needs to be envisioned and put in place, as well, by:

- (1) Determining monitoring mechanisms: Understanding linkages to processes and policies, such as procurement policies, to ensure that agencies must adhere to these;
- (2) Measuring project management effectiveness: Defining metrics of success (such as “reuse” of e-government project components), and using metrics to evaluate e-government progress;
- (3) Stimulating growth of successful projects by breeding initiatives that might become successful and result in best practices, while projects targeting similar areas but not likely resulting in success should not be supported

and discouraged.

No matter how well prepared a public organization is, it is illusionary to believe that it can achieve e-government transformation at once in one big step. The starting position of the public sector should be well understood and benchmarked so that the gap between the “as is” and the “to be” states is well defined. Securing e-government progress is a process that includes many incremental activities over time which is constantly monitored and where the long haul-quick wins will seem to be small wins in the grand scheme of things.

Winning “hearts and minds” is crucial and mechanisms for increasing awareness must be foreseen. Bringing together public sector officials from across government agencies to discuss the implementation of e-government projects, with the participation of businesses and citizens, may go a long way, but it will ensure acceptance in the long term. The supplier community must be in partnership with the government community, with a shared understanding of the means of delivery and the ends sought, while coalitions having participants with different backgrounds and from multiple organizations at national and local levels can bring new ideas on the table.

Competencies of the public servants shall be cultivated with the help of appropriate education schemes since knowledge and capabilities are necessary to understand and apply the EGTPM approach in its full spectrum.

The application of EGTPM approach on the specific project results in satisfactory results covering the expectations of all the stakeholders (Ministry of Interior, IT contractor, the managing authority of the project, government, employees, citizens, enterprises, etc.) involved in it. The goal-oriented nature of the approach gives the opportunity to cover all the different aspects and issues that have arisen during the implementation in a timely and cost efficient manner. The project contractor and the contracting authority are now equipped with an amount of e-government project implementation knowledge which is easily exploitable in future projects.

## **5. Conclusions and future enhancements**

In the context of this paper, Greek e-government interoperability framework implementation using the EGTPM approach has been presented. Projects of this kind need a champion within the organization and in the specific case success was largely a result of the involvement of the information technology expert of the Ministry of Interior. Identification of key staff to form the proper project team, constant monitoring and marketing of the concept to citizens and employees also contributed to the success of the project.

The quickest way for a public organization to gain early benefits from the presented EGIF project would be to identify the most crucial existing interchange points and electronically bridge those points improving the interoperability state (Sarantis, Charalabidis & Psarras, 2008) of the public organization. Once these crucial exchanges are automated then other less critical exchange points can be bridged. This approach will allow incremental adoption and lower risk while maximizing benefits.

EGTPM methodology, after its application in a number of e-government projects, has been already populated with data, amounting to 40 milestones, more than 100 activities, 50 deliverable templates and more than 20 individual roles—thus being able to assist the structuring of a number of key e-government projects, like national interoperability framework development, service portal creation, electronic criminal record, e-government survey development and so on.

Reusable artifacts of the presented approach include the overall EGTPM framework and concepts, the developed milestones and activities, the developed document templates and the identified roles. Using the concept of the scenario repository opens very interesting opportunities for consulting public organizations and practices

that are committed to knowledge management. These consulting organizations can build and distribute their own repository with project scenarios, depicting the common approach of that organization and including their best practice experiences.

Project implementers and practitioners applying EGTPM methodology should take into account the conditions, the technological level, the political antecedences and strategic objectives concerning e-government that prevail in each country.

Future work along the methodology includes continuation with data population, EGTPM tool refinement, further research on the existing distinct gaps and coverage of issues that have not yet been encountered such as budget management, quality management and risk assessment—currently covered through generic methods. Finally, another future goal is to communicate EGTPM methodology to practitioners through the introduction of a practical guide. The guide will provide direction to practitioners as they consider, make a case for, and implement government transformation initiatives.

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# **The role of educational strategies in human development: An example of using key word method in teaching Arabic as a second language in Malaysia**

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**Abstract:** This paper is an attempt to discover and recognize the important role of educational strategies in developing human capital in which they become positive agents of human society, such as academic achievement, intellectual abilities, interpersonal skills and also self-esteem. These will be measured using a survey instrument that classifies learning performance via test scores, to test the hypothesis that learning a language will lead to comparable positive self-development, but indirected language learning will affect academic achievement negatively. Therefore, key word methods in learning Arabic language will be used as directed Arabic language learning to measure the significant correlation to both academic and non-academic development of the learners in which the effectiveness of mnemonic strategy in vocabulary memorization is associated with the self-consciousness and personal psyches of the learners. Consequently, they appreciate the knowledge and values they gained from their learning activities, which help them to perform better than students who did not use this type of learning strategy in learning Arabic language. Teachers, on the other hand, would also able to observe the important impact of Arabic language learning on learners' academic performance and personality development. Therefore, education is simply a process of acquiring a new knowledge in creating an environment in which students and teachers learn something for themselves.

**Key words:** educational strategy; human development; methodologies; language teaching and learning

## **1. Introduction**

In Malaysia, the significance of learning Arabic is regarded as part and parcel of the Malay Muslims' religious duties. This can be reflected in the learning of the Koran as a compulsory process of growing up for all Malay children in Malaysia by their parents, who send their children to someone who is good at recitation of the Koran or to religious schools in their early age where they also at the same time learn to pray and observe other basic principles of Islam. Therefore, the philosophy of teaching Arabic has always developed together with the curriculum of teaching Islamic ethic and principles. For a believing Muslim, Arabic should be learned for self perfection as prescribed in the Koran (Chapter 17, pp. 80-81).

Language teachers recognize that the challenge of teaching Arabic today is not an easy task. It is in need of a major effort to improve and simplify the teaching and learning activities. Meanwhile, the relevant authorities look forward to identifying its real cause and are trying to find a way out, especially in developing and enriching the

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Arabic vocabulary (Azhar, 2003, 2006; Osman, 1993). Take the shortage of experienced teachers for example, equipment and resources that usually lead to discouraging the learners' effort, especially in the context of Malaysian situation. For this reason, this study is an attempt to look into the possible role of methodologies in which Arabic language learners become capable of improving and achieving their learning objectivities.

Among the most obvious problem faced by Arabic language learners is vocabulary. Some students seem to have an innate talent to be able to memorize new words while others seem to struggle forever. The differences might come from personal attitude and self-esteem in learning or it might come from the methodologies adopted by the learners. This study is mainly concerned about the latter hypothesis, where it purely refers to the nature of the learning process, its conceptual basis and practicalities in structuring educational impact on learners' personalities and self-development.

In general, the hypothesis of this study is that students learning Arabic language using key word method will develop better than students not using this type of learning strategy. In other words, this process of learning will give a positive impact on the learners. The impact is not only in terms of academic development and performance, but also involving personality, interpersonal skill abilities, and intercultural understanding.

The teacher, particularly the one who is dedicated to Islamic education, must constantly try to look toward the goal of human completeness and look back at the natures of all his/her students, both excellence and medium, ever seeking to understand the former and to assess the capacities of the latter for the better future in facing the real life and contemporary challenges.

## **2. The concept of human development**

The continuous growth and development of human beings is really fascinating, in which their trigger has led thinker to curiosities about what conceals human nature. The term "growth" simply refers to the psychological development of the human body. However, the term "human development" has emerged as a broad collection of ideas and ideals linked to the objectivities of human existence, including a sustainable expansion involving human thinking and creativities. In other words, this concept of human development represents a reformist rather than a rejectionist position of development in which the role of external factors are regarded as the fundamental course in developing human beings inclusively, based upon people as subjects rather than objects (Edwards, 1989).

### **2.1 Educational functionality and strategies**

Education can be understood as a process and mechanism in developing a human being. The impact of this process can be observed through the reflections of what had been taught and learned through certain processing activities within our lifespan, also at schools, with teachers or even without specific teachers and specific medium of instruction. For that reason, when we realize the phenomenon of knowledge reflection spread over within a community, a question comes to mind: What educational strategies have been adopted within that community?

From the definition of "education", the term "educational strategy" can be understood as a dynamic approach in creating a reflection toward enhancing the impact of knowledge targeted by a learner. However, its identification and application might differ from case to case, where it is usually subjected to the nature of subject matter, its practicality with the goals of teaching and learning as a mechanism to create impact upon the learner. In other words, an educational strategy here means an art or skill of using and utilizing all the internal and external elements in order to execute approved educational plans as effectively as possible during specific processes and times.



The issue of educational processes and strategies is an important issue to both practitioners and thinkers, due to its implication on future development of human civilization and its maintaining ability. Therefore, it can be regarded as the cornerstone for individual development and social enhancement or otherwise. Whenever a teaching process goes smoothly as planned within educational strategies, this means an individual or a nation has managed to establish an effective mechanism to achieve stability and progress. The survival of an individual or a nation can partly be measured from the effectiveness of educational strategies adopted in transforming knowledge and skill within the processes.

Therefore, the issue of education has to be at the top of national agenda for effectiveness and reforms to meet all new challenges in the new era. Any success in the past cannot be used as a measurement for a success in a new era where many new changes and challenges emerge. Whenever the leaving environment of human society changes, some adjustments should be done to suit the contemporary demand, where it should be properly planned to improve contemporary educational needs and ensure that the future generation is fully prepared in an active and effective manner, capable of coping with the challenges in the new era based on their capacity to learn and to apply the knowledge and skills accurately.

### **2.2 Aspects of educational functionality**

From a conceptual perspective of learning based personality theory (LBPT), the term “teaching” not only carries the meaning of introducing new things to learners, but transforming the learners comprehensively in terms of their human characteristic by giving them a new skill in doing things accordingly, or making a person know or realize about himself and his environment, such as identifying his specialization and function, or certain aspects of strength and weaknesses (Heinstrom, 2000).

Essentially, education can be regarded as a process of building human inner meaning of a person where its impact can be reflected physically and socially. The physical impact can be observed in the form of an individual personality, conduct, behavior, skills and professionalism. While the social impact can be observed in the form of achievement that exists in the society such as social justice, social stability and social prosperity.

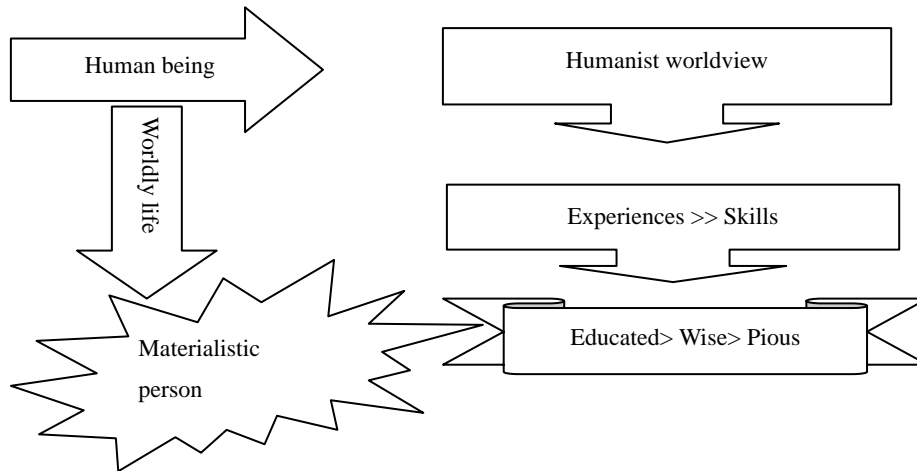
These aspects occur through an educational process either formally or informally by life experiences and observing natural phenomena that lead to the uncovering of the blindfold of the human mind that prevent their heart from realizing the truth.

In short, educational process supposes to transcend the physical classroom in more than one way. However, it is in need of a suitable strategy to give a fruitful impact of learner’s development. This concept of human development and the role of education in keeping the balance of human characteristic for their humanistic survival can be realized from Figure 1.

Indeed, human development can be understood from various perspectives. It can be regarded as a process of expanding “the range of human choice”. For example, if we compare the difference of development between the rich and the poor, it is not in the sense of material choices, but in terms of the degree of happiness within the number of choices enjoyed by both. A rich person might have all the choices, but not happy with most of them. On the other hand, a poor person might have fewer choices, but feel happy with them all. Obviously, life is a learning experience. The complexity of human behavior and personality is finely related to the several mechanisms and the surrounding factors which define how, what and when we learn about the world around us. Therefore, human development can be regarded as an important aspect that emerges through a successful process. Using an effective strategy in teaching can be regarded as an important factor for a better impact on student personality development, besides their academic achievement excellence.

**The role of educational strategies in human development:  
An example of using key word method in teaching Arabic as a second language in Malaysia**

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**Figure 1 Aspects of learning based on personality theory**

### **2.3 Aspects of educational strategies**

From the above discussion, educational activities can be regarded as an interactional process between three important components: teacher, learner, and subject of learning.

Intellectual abilities and creativities, on the other hand, have become hot topics in academic circles, although they have only recently gained credibility as a legitimate subject for research. They can be regarded as located in a person's psyche in which they are transformed into actions, products or processing treatments. Psychometricians assume that creativity is a measurable mental trait, just like intelligence, and focus on developing tests which measure divergent thinking (Plucker & Renzulli, 1999). They have also tried to sort out the relationship between creativity and intelligence. Although there is disagreement about the nature of the relationship, many interesting models have been proposed. Perhaps the most appealing one is proposed by R. J. Sternberg in which he suggests that intelligence is a subset of creativity (since creativity also involves thinking styles, cultural influences, motivation, etc.). The most important finding for teachers is that creativity is not positively correlated with intelligence above an IQ of 120, an indication that creativity is not unusual or rare. It is possible to be highly intelligent but not creative, and vice versa. Some of the more fascinating studies explore the differences in values between highly creative and highly intelligent students. Highly creative students value a sense of humor and getting along with others more highly than achieving goals and values that often put them in conflict with teachers (Sternberg & O'Hara, 1999, p. 266).

### **3. Malaysian educational philosophy of teaching Arabic language**

Arabic language curriculum has been introduced officially by Malaysian Education Ministry on 1st January 1997 together with the establishment of the National Religious Secondary Schools of Malaysia (Kementerian Pendidikan Malaysia, 2001). In 1984, the ministry, with the cooperation of the Islamic Educational, Scientific and Cultural Organization (ISESCO), organized a series of workshops specifically for in-service Arabic language teachers where they were exposed to various methodologies in teaching Arabic language as a second language (Universiti Kebangsaan Malaysia, 2008).

Teaching any language always carries a different meaning, objective, method and strategy, depending on its contextual specification and situation. Teaching Arabic language in Malaysia, for instance, is referred to the process of delivering a course containing Arabic language by a teacher to his/her students, in accordance with a

specific framework structured by the government of Malaysia. The direct objective of this teaching process is to develop self ability in using Arabic language together with other educational functionalities in developing national integrity and unity. In other words, to produce good Muslim citizens who are knowledgeable, pious, God-feared and morally righteous (Kementerian Pendidikan Malaysia, 2001).

### **3.1 Challenges of learning Arabic language in Malaysia**

We live today in a rapidly changing world that is transforming before our very eyes. Therefore, it is felt that our future generation will be living in a very complex life pattern and structure, compared to what we are having now. Such a way of living will require maturity, flexibility, adaptability, self-reliance and innovation as pre-determined factors of success.

For this reason, our national curriculum should be designed and prepared with the idea of making the learning impact one that is satisfactory to the current need and safeguards the future. In the case of learning a foreign language such as Arabic, learners always find it difficult to absorb not only vocabulary, voices and grammatical structures of that particular language, but also the socio-cultural context that exists within the language.

Students who choose to learn Arabic language in Malaysian schools need a high level of motivation if they are to complete the learning process successfully. During their studies, they often have to work by themselves with little or no opportunities for Arabic language interaction. They will have to deal with more abstract and ambiguous situations than someone taking English language. They need to be dedicated, responsible, in control of their studies and maintain an image of self-worth and self-efficacy. They should see the value of learning Arabic language and be able to postpone current enjoyments and cope with a learning interruption environment. On top of all that, they also have to develop their own strategies in helping them to be successful in learning Arabic language.

Similarly, those who teach Arabic language should step-up and declare confidently that the language should be taught through a comprehensive educational framework and strategies, in which a learner's life, activities and thoughts are structured and reflected appropriately, to include all sorts of self-meaningful development that constructs the natural life of a human being which displays his/her personal behaviors and self-esteem (Bakir, 2007).

We have to remember that valuable intellectual development comes from self-development, and that it mostly takes place within the educational syllabus and a well structured curriculum rooted within a specific educational philosophy.

### **3.2 Key word method as a strategy**

As we know teaching and learning itself are both complex processes. The quality indicators of their successfulness go to many factors involved in the process. Among them there is the adoption of an appropriateness of teaching and learning approaches. In this context, according to Hauptman (2004, p. 84) "when the 'key word method' is used in the classroom, the teacher has to ensure its effectiveness". This will not be achieved without proper adherence to its characteristic and operational function. In general, the conceptual idea of using key word method refers to the learners utilizing their own creativities in memorizing new information that has been learned. The method is simply creating enjoyment and excitement in learners' self consciousness.

The functionality of key word method is due to the fact that it is a systematic and practical approach in a specific teaching and learning process. Its function is to strengthen the memorization process, i.e., helping learners to remember information that has been learned, or as an approach in helping the process of memorization and

recognition, with the help of certain created images, indicators or signal which have been stored at an earlier stage in life (Afnan Darwuzah, 1986).

Indeed, there are some other methods such as the method of loci, the pegword hook method, the link word method and others, which can be used in the teaching process. The basic idea of “key word method” refers to the conceptual basis of remembering itself, or self-consciousness of learners in dealing with what had been learned, i.e., to strengthen the power of remembering new words, phrases and information. A similar discussion can be found in Hall, Wilson and Pattersn (1981), and also in Levin, Mcgovern and Pressley (1985), Majid Abu Jabir and Rafi’ Zaglul (1990), Hall and Fuson (1988), Paivio and Desrochers (1981) and Reed (1982).

The historical origin of the “key word method” is untraceable. However, it has been popularized lately by cognitive psychologists Atkinson and Raugh who excitedly examined interest in the method and claimed to have successfully structured the operational principle of this approach. Atkinson (1975, p. 821) describes the “key word method” as:

By a key word we mean an English word that sounds like some part of the foreign word. In general, the key word has no relationship to the foreign word except for the fact that it is similar in sound. The key word method divides vocabulary learning into two stages. The first stage requires the subject to associate the spoken foreign word with the key word, an association that is formed quickly because of acoustic similarity. The second stage requires the subject to form a mental image of the key word, “interacting” with the English translation; this stage is comparable to a paired-associate procedure involving the learning of unrelated English words.

The operational conceptual definition of this approach is based on uniting language patterns together with learning items according to the nature of the human mindset. It has been especially pushed as an effective strategy for learning foreign vocabulary. It is presumably equally valuable for extending native-language vocabulary and learning technical jargon, and has also been used successfully to teach social studies facts and social interaction (e.g., the products of a country; capital cities, names and faces of people). The conceptual ideas of this approach lay in the identification of a key word that probably is the best memory strategy in recognizing a particular fact or knowledge that has been learned.

There are two stages to the method:

Firstly, link the foreign word (such as Arabic word) with a Malay word that sounds like some part of the Arabic word. For example the word rakiba sounds like the Malay word rakit;

Secondly, link the keyword with the Malay meaning of the Arabic word by forming an interactive image. For example the word rakiba (=menaiki), so learners could visualize a rakit being rode by a person. Although the keyword component of the word is much more likely to be recalled (e.g., the rakit part of rakiba), any word with that component seems equally possible.

To remember that rakiba means ride, a learner needs to:

- (1) Derive the keyword from the word (e.g., rakit from rakiba);
- (2) Derive the interactive image from the keyword (e.g., a man pedaling on a rakit);
- (3) Derive the meaning from the image (e.g., riding from the image of man on rakit).

Clearly, the more obvious the original encoding is, the easier it will be to recreate the process (e.g., rakit is an obvious keyword for rakiba).

In general, the concept of teaching strategy in using key word method comprises of two important steps:

(1) To form a connection between foreign words and any word in the mother tongue. The nature of this connection is fully based on the physical basis, a condition that Atkinson and Raugh (1975) regarded as “key

word”. The only condition for this connection is the existence of similarities and reasonable matching that can relate the two words together in the mind of learners;

(2) To form a semantic connection between the two words. In this step, learners have to design a semantic mental image in his/her mind that relates the two words together and becomes interactive in a certain way in the mind.

In reality, the first step is the most important one as it represents the starting point for the establishment and effectiveness of this method as a strategy in the process of memorizing and remembering foreign words. In fact, this will not be achieved without fulfilling the following three conditions:

(1) The degree of similarities between the two words should be very high;

(2) The “key word” should be designed specifically for a specific word which should be learned;

(3) The semantic mental image that should be functioning interactively between the two words should be spontaneous in nature.

The effectiveness of this method is proven by many studies such as Atkinson and Raugh (1975), Hauptman (2004), and others especially in terms of improving memorization power. This is due to the fact that the method is not only true from fundamental theoretical standpoint, but also from a practical point of view. Many language practitioners have explored and expended this method in various fields and subject, which leads them to suggest that this method can be used in teaching any abstract or philosophical subjects. They call it “face name” which is specifically to be used in memorizing names of persons or things. Through this method, the learner can easily remember the name of a person or a thing once he sees them.

### **3.3 An experience of using key word method**

According to the philosophical ground of Arabic studies within the Malaysian secondary school curriculum from year one to year six, students are supposed to have learnt around 3000 words (Muhamadul Bakir, 2007). Looking at the objective of teaching Arabic language as designed by the Education Ministry, it is obvious that the main objective is to enable students to enrich their Arabic vocabulary and terminologies, especially at the beginning of their studies up to the end of secondary level (Malaysian Education Ministry, 2003).

However, from general observation, the figure as targeted by the ministry is quite difficult for students to achieve. Even though the main objective is for students to acquire an adequate working vocabulary for the purpose of improving the standard of student performance in studying Arabic, they are unable to do so. This clearly needs an explanation. We should identify this problem, whether it is due to the syllabus, the curriculum or strategies. The hypothesis that the students’ inability here could lie in the teaching method and strategy is quite true. The method and strategy chosen should be effective and suited to the nature of the subject and its learning objectives. This is the finding of a study conducted in Sultanah Bahiah School in testing the “key word method” as a good choice to fulfill the need and objective of learning Arabic in Malaysian schools. Nevertheless, this is not a new method because it has been around for quite some time, especially among English language teachers.

The study was aiming at evaluating the suitability of this method in teaching Arabic in Malaysian schools only. Two groups of students have been selected for this purpose. The first test was conducted on 34 students in Form One. They had almost the same age and level of Arabic background. They were provided with the “key word method” to learn a number of Arabic words and their function of usage. On the other hand, a second test using a standard method (that has been used by all schools in Malaysia) was conducted on 27 students in Form Two from the same school. After analyzing the data, the result of the test is very convincing, whereby the comparison between the two groups is obvious and fascinating, i.e., the differences between the key-word group

and the control group in which they used their own learning strategies only.

Group one (i.e., with the “key word method”) achieved a resounding 100% success with 90% up to 100% marks, where 14 students out of 34 achieved full marks of 100%, with a frequency percentage of 41.2%. While the lowest marks was represented by only one student who obtained 90 to 91 marks with the frequency percentage of 2.9%.

On the other hand, in group two (i.e., without the “key word method”), only 7 out of 27 students were able to achieve positive results, where the result of the distribution of cumulative frequency of group two is lower. The highest percentage in this group was represented by 2 students who obtained 95-99 marks, with a frequency percentage of 7.4%, while the lowest performance obtained 60-64 marks, and was represented by 3 students with a frequency percentage of 11.1%.

In comparing these two groups, it appears that even though group one came from a lower level compared to group two, the application of “key word method” had been successful in helping them with the new Arabic vocabulary development.

### **3.4 The driving force of self-development**

From the comparison above, this study concludes that the application of “key word method” had been successful in helping Arabic learners in acquiring new vocabulary. In fact, the effectiveness of using key-word as a strategy in learning Arabic language is not only on vocabulary development acquired by the learners, but this study had also recoded other aspects of learning impact collected from the interviews conducted after the test. Some of those aspects that had been observed after using “key word method” is directly related to personality development, such as:

- (1) Having a positive perception toward Arabic language;
- (2) Having self confidence in learning Arabic language;
- (3) Demonstrating a pro-active attitude in learning new information;
- (4) Showing more willingness to share learning experience with others;
- (5) Showing more enjoyment in learning Arabic language;
- (6) Having a good sense of accountability upon academic progress, achievement and performance;
- (7) Being motivated and creative in preparing for examination.

From the above findings, this study concludes that the use of the key-word method is extremely important in developing the learner’s abilities from various perspectives, such as:

- (1) As an instrument in learning new vocabulary;
- (2) As an instrument in activating learner’s memorization abilities and creativities;
- (3) As an instrument in proving the existence of transformation within classroom exercises;
- (4) As an instrument to overcome the need to be overly self-reliant, panic and hopeless in facing educational difficulties;
- (5) As an instrument to activate learner’s mind in creating learning activities and strategies.

Obviously from the above discussion, it is of the utmost importance to encourage Arabic language learners and instructors to be creative proactively in indentifying appropriate educational strategies, especially when trying to achieve most of the learning objectives drafted for attending a specific Arabic language program.

## **4. Conclusion**

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It is recommended that using appropriate methods and strategies such as “key word method” is essential not only in improving the teaching and learning processes, but also in achieving the comprehensive impact of the learning activities, especially in terms of realization of educational functionality that leads learners toward a complete understanding of human education, with the criteria of achieving a balanced development of the total personality. This kind of educational strategies will help learners to appreciate the knowledge and values they gain from their learning activities. For this very reason, education is a process of developing self-esteem through acquiring a new knowledge, in which it gives an impact on creating an inclusive self-satisfaction whenever learners and instructors learn something new for themselves.

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## IAS/IFRS and insurance: A gradual shifting from insurance to finance

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**Abstract:** Financial year 2005 marks the gradual introduction of the international accounting standard (IAS) as part of a broad project promoted by the EU to achieve consistency and comparability and, consequently, greater transparency in corporate accounts, with benefits for the users and institutions who make use of, or exercise control over them. The present paper will not address all the related complex profiles (e.g., actuarial methodologies, financial evaluation models, cash-flows scenarios generation techniques). Actual aim is to bring evidence for the gradual shifting of perspective promoted by the financial community as far as the insurance companies are concerned: Once considered as unknown “black-boxes” because of their peculiarities, western countries’ most authoritative agencies and largest private investors felt for a long time uneasy to manage insurance companies’ disclosures. More recently, since the industry has been absorbed in the world-wide trend toward global conglomerate encompassing banking, finance and insurance, western regulators have undertaken a sound effort to move insurance disclosures from a technical to a financial view, boosting a dramatic homologation to other financial institutions (Cesarini & Varaldo, 1992; Forestieri & Moro, 1993; Locatelli, et al., 1999). The trade-off, the authors intend to show, is now between more transparent outlook and an insider’s knowledge of an industry whose peculiarities are inescapable.

**Key words:** insurance companies; insurance risk; IAS/IFRS; EU-market; actuarial rules; property-and-casualty; life-and-health; banking; finance

### 1. Introduction<sup>1</sup>

As a project on a pan-European scale, adoption of IAS/IFRS (international accounting standard/international accounting and reporting standards, hereinafter IAS) has required remarkable modifications to member states’ national laws in order to ensure full legal and regulatory compatibility.<sup>2</sup> Additionally, the acknowledged peculiarities of the insurance industry have necessarily prolonged the ad hoc procedure for the processing/publica-

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<sup>1</sup> The present paper defines a conceptual framework which the authors will be adopting as a start point for developing an on-the-field research over insurance industry so to provide the framework itself with a sound basis of empirical evidence.

<sup>2</sup> Taken for granted the IAS/IFRS adoption must be considered a pan-European project carried on by EU on a wide basis, let’s remind that the paper is focused on Italian insurance industry, so that the whole framework and the main assumptions related to it have been formulated referring to said context. About aforesaid contest see Danovi & Indizio (2004) and ANIA (2008).



tion of insurance IAS, of which so far only the first phase has been completed.<sup>3</sup> This paper will carry on the following outline:

- (1) Notion of insurance business life-cycle;
- (2) From former to current view of insurance contracts;
- (3) Main topics arising from IAS/IFRS adoption;
- (4) Essentials about macro-effects;
- (5) Other IAS/IFRS relevant to insurers;
- (6) New perspectives and criticism on insurance contracts.

## 2. Notion of insurance business life-cycle<sup>4</sup>

As well known to scholars, an insurance company is an entity pursuing profit by providing its customers (policyholders) with a peculiar service: Coverage from adverse events, usually consisting of lump sums or annuities, as well as of other equivalent services: Legal or medical assistance, credit warrant, outdoor assistance in case of car accident or other kind of inconveniences (Borch, 1990).<sup>5</sup> Basically speaking, an insurance business life-cycle (IBLC) starts in the right instant a contract is underwritten and a specific risk moves from the policyholder to the insurer (first step). This simple event implies that a professional insurer, let's say an actuary, has previously identified a price for risk (premium), that fits, in light of statistical methods and historical evidence, with a consistent class of future adverse events like the one being covered by means of the contract (Di Mascio, 2001). The second step is a more or less complex tailoring of the premium, as far as the single policyholder and each possible element inherent to the contract are concerned. Usually, as insurance companies do not own the net-dealers that sell their products,<sup>6</sup> a third step consists of a cash outflow from the policyholder, that pays the premium to the dealer, followed—after a certain lapse of time—by a cash flow toward the insurers, but instantly reduced by an amount called “acquisition cost”, the remuneration of the dealer. Because of the financial deposits received by the networks, the insurer enjoys a u-turn of the traditional financial cycle, for it earns a more or less extended lapse of time before it has cash-outs to pay claims, lump sums, annuities or other kinds of insurance service. During such a lapse of time, the insurers invest (fourth step) the policyholders' deposits in order both to

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<sup>3</sup> Legislative Decree No. 38 of 28 February 2005 requires that companies subject to Legislative Decree No. 173 of 26 May 1997 must draw up financial statements in accordance with the international accounting standards issued by the IASB and adopted by the Community. Under the options elected by Italian law, insurance companies: (a) Draw up IAS-compliant consolidated financial statements as from financial year 2005; (b) continue to draw up their separate financial statements in accordance with Legislative Decree No. 173/97; (c) draw up IAS-compliant separate financial statements as from financial year 2005 if they issue financial instruments that trade on the regulated markets of any EU Member State and do not publish consolidated financial statements. These requirements currently make no reference to an international accounting standard providing full guidance on accounting treatment of technical items, in particular of the liability postings known collectively as “technical reserves”, which are a peculiar feature of insurance companies. By the way, transition to the IAS/IFRS for insurance companies is still incomplete, at two levels: in terms of application, which covers consolidated financial statements but not separate financial statements; and in terms of range of accounting treatment: The new policies do not include reporting items relating to pure insurance contracts (IFRS 4); on an optional basis, for the purposes of comparison only, the sections relating to financial assets and liabilities (IAS 39) may also be excluded, a particularly significant point given the undoubted importance of financial assets in insurance company balance sheets.

<sup>4</sup> For the sake of convenience the authors summarize the basics of insurance business life-cycle, so they'll be taking them for granted hereinafter. By the way, the authors are aware the whole matter is generally well known to scholars as well as to an academic audience.

<sup>5</sup> Insurance services may be roughly divided into coverage from events linked to risk affecting human life (so-called life insurance) and affecting damage or loss inherent to one's own properties and other tangible or intangible assets (so-called non-life insurance).

<sup>6</sup> Generally insurance companies sell policies through different kinds of dealers: agencies, brokers, financial advisors, bank branches.

cope with future partially unpredictable outflows, and to make profits inasmuch as gains released by the contracts should be larger than the losses. The very next step, after investment, consists of recognizing sufficient technical reserve (Angarini, 2000).<sup>7</sup> Final step is adverse event, which may happen or not, before the lapse of time—if any—goes by.

As the insurer's goal is to provide a coverage from adverse events generating financial inflows<sup>8</sup> higher than the related outflows (Moro, 1997),<sup>9</sup> not negligible peculiarities arise when approaching insurance contracts analysis and evaluation: The u-turn of the traditional financial cycle and, more than any others, the complete insurer-based subjectivity (though "actuarially amended") as far as its own due is concerned. Even the most widely accepted models and methods, let's remind embedded value, devoted to cash flows prediction should take into account them (Tosetti, et al., 2001).

### 3. From former to current view of insurance contracts

This paragraph addresses how the guidelines inspiring former view of insurance contracts have been modified by IAS adoption. Before introducing the main points, we should highlight that IAS adoption is mandatory only for insurance companies, listed or not, issuing consolidated accounts.<sup>10</sup> The main reason of this partial adoption lies in the incomplete IAS issuing procedure as regards insurance liabilities. The current release of IFRS 4, indeed, only deals with liabilities linked to the portion of contracts not considered, according to IASB, as insurance ones (hence called "investment contracts"). The main result is that, for the IFRS 4-phase II is far to be actually carried out (Floreani & Selleri, 2006), as the same insurance company will be adopting different sets of accounting standards for its own consolidated and separate accounts; moreover, given IFRS 4 often provides discretionary outlines of contract classification and other matters, different companies adopt different sets of accounting standards for consolidated accounts, too. This situation highlights how far the aim of a full comparability and consistency still remains.<sup>11</sup>

Under Italian local GAAP inherent to insurance contracts (Gismondi, et al., 1999), whose last release stemmed from EU directives, balance sheets hide more than they disclose (Cappiello, 2003). Starting from non-life industry (so-called P/C, i.e., "property and casualty"), the total amount the policyholders pays to the insurer, net of acquisition costs and other commissions due to dealers, were disclosed among the assets, and split by nature. On the liability side, i.e., the total amount estimated by insurer's settlers, eventually amended by central settlement department in order to ensure statistical adequacy, Balance sheet discloses the following details: (1) Premium reserve; (2) claims reserve;<sup>12</sup> (3) equalisation reserve; (4) other reserves.

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<sup>7</sup> So-called "claims reserve" in case of non-life insurance; "actuarial reserve" in case of life insurance. Actually, as far as claims reserves are concerned, the estimation takes place in the moment the uncertain event does happen, thanks to, case by case, junior or senior claims settlers, legal advisor, medical consultants and other suitable professionals. Insurer's claims settlement department usually amend the total amount (i.e., the amount resulting from the mere addition of the single amounts estimated by each settler), testing its soundness with appropriate statistical techniques. As far as actuarial reserves are concerned, the recognition is at inception, estimated by insurer's actuarial department. Interesting scholar issues in Floreani (2000).

<sup>8</sup> For single and/or recurrent premiums, revenues on investments and other commissions earned.

<sup>9</sup> For single and/or recurrent acquisition costs and expenses: overhead, for claims settlements, staff, R&D, consultants and whichever other costs inherent to company management.

<sup>10</sup> For listed insurance companies that not issue consolidated accounts IAS/IFRS adoption becomes statutory in order to separate accounts.

<sup>11</sup> Interesting issue about Third EU Directives introduction of IAS/IFRS as far as financial institutions are concerned is Dickinson (1997).

<sup>12</sup> As far as aforesaid reserve inherent to Motor TPL is concerned, see Pelosi (2001).

Further details to most of the above mentioned items, are provided in the notes to consolidated accounts, however, let's focus on former life disclosure (so-called L/H, i.e. "life and health"), then we'll come to some conclusion. The asset disclosure is the same we've seen above, actually undistinguished as for insurers running both P&C and L&H businesses, so that interested users may experience some difficulty going through these assets.<sup>13</sup> On the liability side, the estimation of future cash flow due to L/H policyholders is a task of the actuarial department, which fixes the amount at inception and updates it at each reporting date. In addition, a technical reserve is post to match financial liabilities linked to financial policies, whose risk is borne by the policyholders and pension funds. Finally, the former insurance contract disclosure, on a consolidated basis, includes the so-called P&C/L&H technical account:<sup>14</sup>

I. Non-life business technical account

1. Premiums, net of outwards reinsurance

- (1) Gross premiums written
- (2) (-) Outwards reinsurance premiums
- (3) Change in gross premium reserve
- (4) Change in reinsurer premium reserve

2. Other technical income, net of outwards reinsurance

3. Charges relating to claims, net of recoveries

- (1) Amounts paid
  - (i) Gross amount
  - (ii) Reinsurers' share
- (iii) Change in recoveries, net of reinsurers' share

(2) Change in claims reserve

- (i) Gross amount
- (ii) (-) Reinsurers' share

4. Change in other technical reserves, net of outwards reinsurance

5. Reversals and profit sharing, net of outwards reinsurance

6. Operating costs:

- (1) Acquisition commissions
- (2) Other acquisition costs
- (3) Change in commissions and other acquisition costs to be amortised
- (4) Premium collection commissions
- (5) Other administrative costs
- (6) Commissions and sharing in profits received from reinsurers

7. Other technical charges, net of outwards reinsurance

8. Change in equalisation reserves

9. Result of Non Life business technical account

II. Life business technical account

1. Premiums, net of outwards reinsurance

- (1) Gross premiums written
- (2) (-) Outwards reinsurance premiums
- 2. (+) Income from investments transferred from the non technical account

3. Income and unrealised capital gains relating to investments benefiting policyholders bearing the risk thereof and investments arising from pension fund management

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<sup>13</sup> Suitable details are available in the annexes, but they're issued for regulatory purposes only, under statutory schemes, so uneasy to get and to analyze apart by insiders, as they lack of any comments helping users to grasp technical content.

<sup>14</sup> I.e., that's portion of profit and loss account addressed to provide the users with a rough view about the economics of the two lines of business.

4. Other technical income, net of outwards reinsurance
5. Charges relating to claims, net of outwards reinsurance
  - (1) Amounts paid
    - ( i ) Gross amount
    - ( ii ) Reinsurers' share
  - (2) Change in reserves for amounts payable
    - ( i ) Gross amount
    - ( ii ) Reinsurers' share
6. Change in actuarial reserves and other technical reserves, net of outwards reinsurance
  - (1) Actuarial reserves
    - ( i ) Gross amount
    - ( ii ) Reinsurers' share
  - (2) Other
    - ( i ) Gross amount
    - ( ii ) (-) Reinsurers' share
  - (3) Technical reserves where investment risk is borne by policyholders and reserves relating to pension fund management
    - ( i ) Gross amount
    - ( ii ) Odds to reinsurers
7. Reversals and profit sharing, net of outwards reinsurance
8. Operating costs:
  - (1) Acquisition commissions
  - (2) Other acquisition costs
  - (3) Change in commissions and other acquisition costs to be amortised
  - (4) Premium collection commissions
  - (5) Other administrative costs
  - (6) (-) Commissions and s haring in profits received from reinsurers
9. Capital and financial charges and unrealised capital losses relating to investments benefiting policyholders bearing the risk thereof and investments arising from pension fund management
10. Other technical charges, net of outwards reinsurance
11. Result of Life business technical account

On a separate basis, the strongest aim of former accounting framework is to satisfy third parties' information needs on recoverability of their interests, particularly of credit-stakeholders such as money lenders, policyholders and tax authorities (Ceccarelli, 2000). But a lot of significant information is unrecoverable as far as business technical trends are concerned. Let's start with a remark involving both insurance businesses: Former consolidated accounting standards, till 2004, prescribed to split financial investments, which cover on average 80% of insurers' portfolio of assets, into long-lived and short-terms ones, basically, the former is stated at their carrying amount, so free of any effect stemming from market up-and-downs (apart from impairment); latter is stated at the lower of carrying amount and fair value. Apart from insiders, there's a lack in reliable disclosure about unrealised gains or losses. Second, but not less important, users are unable to recognise those kinds of financial instruments which are backing the insurer's liabilities toward the policyholders (those bearing the major unrealised gains? Or losses?).

As to P&C businesses, among other points of criticism, an almost complete lack of disclosure affects the bridge across administrative, overhead, operating as well as any other kind of running expenses (management, staff, distribution and marketing ones included) and the management load that burdens the premium the policyholders is charged with. Further considerations do concern L&H business. As far as traditional insurance contracts are concerned—contracts that charge the insurers with some kinds of risks—the ongoing actuarial

reserves, let's say the expected cash outflows due to contracts, rise or fall at each reporting date depending on realised gains and losses inherent to financial instruments the insurer has put into the segregated funds.<sup>15</sup> Unfortunately, any detailed information is easy to get about the financial instruments put into said funds, insurer's asset manager choices in order to modulate the release of net profit date by date, how such choices actually hammer out different classes of policyholders and, that's to keep in mind, different classes of economic rights. Finally, considering the recent defaults that hit a number of once authoritative and influential financial institutions, corporations and market makers, a danger for policyholders lies into poor information about actual issuers of securities and other financial instruments the insurer uses to back contracts, so the formers do not become aware of their own exposure to risk until an adverse default does happen.

On such a basis, apart of any other concerns about comparability and consistency of accounts, a significant lack of information has been experienced by a number of users: Financial analysts, rating agencies, corporate and institutional investors, together with policyholders and customer associations. The adoption of a new set of accounting standards improving disclosure over insurance contracts from several points of views is a sound requirement so as to update the completeness and reliability of their reporting to market.

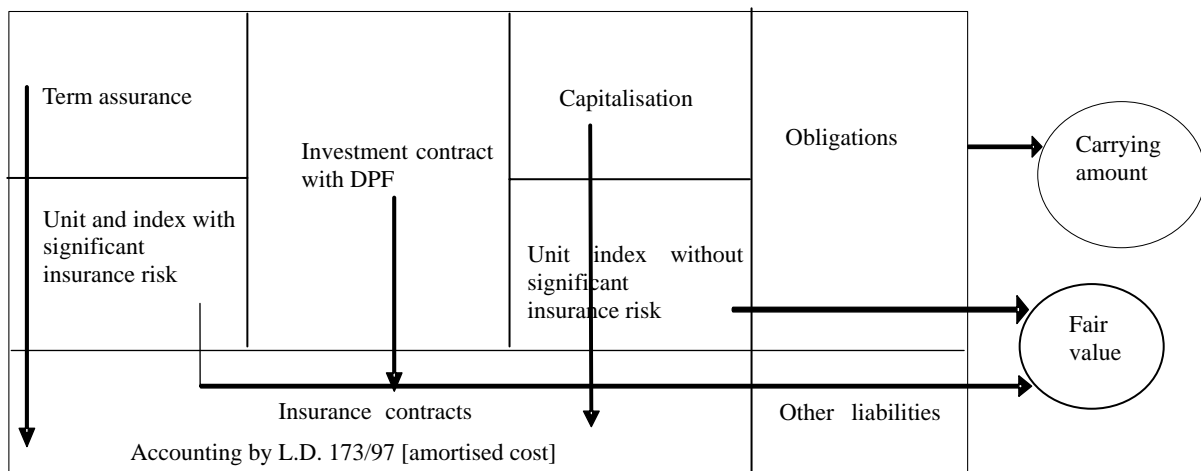


Figure 1 Insurance accounting standard before IAS/IFRS adoption

Source: Isvap.

#### 4. Main topics arising from IAS/IFRS adoption

In order to analyse how the framework has changed as to how insurance's main items are disclosed, let's start from the previous one, and move then to the current one after IAS/IFRS first adoption. In the past balance-sheets released under Italian local GAAP, the main items inherent to insurance business are disclosed as follows:

(1) Assets: As insurance business, life as well as non-life one, implies a kind of management of policyholders' assets, let's focus on financial instruments first. Classification criteria required to separate "long-lived" from "short-term" investments. The first class includes securities and other investments (such as: in subsidiary and associated companies as well as other equity investments) held for strategic aims, so intended not to be dismissed before their maturity, if any, as well as, in case of equity-shares, not to be dismissed at all, apart

<sup>15</sup> I.e., virtual portfolio set up by the insurer, whose net profit drives policyholders' rights, apart from the ones secured by contract clauses or regulatory rules.

from particular reasons.<sup>16</sup> Short-term investments do not qualify for recognition as long-lived investments and were therefore held for trading.<sup>17</sup> Said criteria probably met creditors' specific claims for disclosure better than any others, indeed, e.g., all financial items: (a) Are classified and accounted for irrespectively of their attribution to segregated funds linked to life policies, as well as to their attribution to technical reserves coverage; (b) do not disclose their unrealised gains or losses; (c) do not disclose the amount of said gains or losses to be transferred to policyholders; (d) provide poor information about issuer's profile as far as its credit standing, rating, solvency ranking are concerned. The concern seems to be particularly severe with regard to accountability of transactions involving derivative instruments. Irrespectively of their purpose, hedging or trading, transactions involving derivatives often recognise the mere cost of purchased/sold options. Disclosure improves a bit if derivatives are used for the purpose of yield enhancement (i.e., trading), as they were stated at fair value, and changes in value recognised in the profit and loss account. However, relevant information about the actual amount of unrealized gains or losses linked to derivatives was provided only in the memorandum accounts, hence out of balance;

(2) Liabilities: As far as insurance liabilities are concerned, let's address separately life and non-life business. Regarding the former, apart from reinsurance: (a) Actuarial reserves were calculated using appropriate assumptions with regard to mortality rates and technical interest, which generated accruals that take account of possible unfavourable changes;<sup>18</sup> (b) reserves for operating costs: for rates where the premium payment term is shorter than the contract life, a reserve for operating costs were formed on a cover-by-cover basis; (c) reserve for amounts payable: reflects the total sum required to pay matured sums insured and annuities, surrenders and claims, including related settlement costs; (d) technical reserves where investment risk is borne by policyholders and reserves arising from pension fund management are calculated using appropriate actuarial assumptions based on the value of the mutual fund units to which the benefits are linked. Shortly speaking, the actuary set up its assumptions for estimated future cash inflows and outflows, based on information available at inception.

IASB criticism hits such so-called "lock-in approach", i.e., actuarial assumptions usually are not revised at each reporting date on the basis of possible new information available, resulting both and over-conservative (i.e., biased) and irrespectively of possible different scenarios inherent to mortality and morbidity, whose likelihood should affect the estimations of future cash flows. In a word, IASB intends to shift evaluations from single best estimate (cover-by-cover) to a kind of portfolio best estimate. Second IASB criticism to former view regards the actuarial use of the so-called "risk margin", RM, i.e., the amount the insurer asks the policyholder for, in addition to the future cash-flow asked for risk coverage, let's say "pretium aleae" (Savelli, 2008). Under IASB approach, usually actuaries use RM as a shock absorber, a kind of buffer to absorb adverse changes in future cash-flows, hence keeping unchanged the liability amount. Such a bent has been challenged by IASB, as adverse changes in future cash flows, therefore in the liability before the policyholder, should be reflected into a revised value of the

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<sup>16</sup> At inception equity investments classified as long-lived investments were stated at cost and written down only to reflect permanent impairments in value, while the losses were reversed when the reasons for the write-downs no longer existed. On the other side, securities classified as long-lived investments were stated at their amortized cost at each reporting date. Write-downs and reversals of impairment followed the same rules as those used for equity investments.

<sup>17</sup> At each reporting date all items were stated at the lower of carrying amount and fair value, determined as the average price of the last month. In case of equities not traded on regulated markets, fair value is calculated with suitable financial models hence they were written down to reflect possible depreciation in value and/or in the financial position of the investee.

<sup>18</sup> The actuarial reserve was usually equal to or greater than the surrender value. In accordance with Legislative Decree No. 174 of 17 March 1995 and ISVAP ruling No. 1801/G of 21 February 2001, the actuarial reserves were supplemented, where necessary, with a specific amount covering possible discrepancies between the foreseeable rates of return on the assets covering the reserves and obligations assumed in respect of policyholders. About Isvap' span of control see De Cocci (1982), Carnevale (1984) and Farenga (1994).

actuarial reserve, keeping unbiased the margin.

On the non-life side, a specific structure of disclosure occurs: (a) Premium reserve is composed of the “reserve for unearned premiums” and the “reserve for unexpired risks”,<sup>19</sup> (b) P&C business claims reserve represents commitments in respect of reported and unreported claims that have been settled in full or in part at the balance sheet date, in accordance with the “ultimate cost” principle. They are determined on a claim-by-claim basis (using the so-called “inventory method”, hence analysing each claim).<sup>20</sup> With regard to definition of “ultimate cost”, each single insurer uses a statistical-actuarial method to supplement the inventory claims reserve, particularly with regard to the lines with longer settlement processes (e.g., some kinds of third-party motor liability and general liability); (c) other technical reserves include the “ageing reserve”, in respect of health insurance policies taken out on a long-term basis or with compulsory renewal on expiration; (d) equalisation reserves that is all sums provided in accordance with current legislation in order to equalise future fluctuations in the claims rate or to cover specific risks.<sup>21</sup> In addition to above mentioned criticism, IASB has questioned the lack of concern about the time value of currency, hence promoting the introduction at least of free-risk discount rate even for P&C technical reserves estimation, in accordance with L&H ones.

Given the generally accepted need of a new standard of principle ruling the evaluation, classification and accountability of insurance-related assets and liabilities, let’s address them separately as far as IAS adoption is concerned (Pucci, 2001a).<sup>22</sup> For financial assets, usually the most part of an insurer’s asset portfolio, recently revised IAS 39 sets up the following classification:

(1) Held-to-maturity: This category includes debt securities with fixed or determinable payments and fixed maturities that the entity has intent and ability to hold to maturity. If, in exceptional cases, an objective change in the aforesaid conditions makes it impracticable to hold the financial instruments in that class, they must be reclassified as available-for-sale assets;<sup>23</sup>

(2) Loans and receivables: This heading includes loans, amounts due from banks, amounts due from customers, repurchase contracts and loans of securities originated by the group. It also includes reinsurance operations and cash deposited with third parties as a guarantee on future group obligations. The receivables are non-derivative financial assets with fixed or measurable payments that are not listed on an active market and not

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<sup>19</sup> The former reflects gross premiums written pertaining to subsequent years. It is calculated pro rata temporis for each line of business, net of acquisition cost and other costs and commissions directly attributable. The latter covers impending risks after the balance sheet date. The reserve is calculated by line of business on the basis of the loss ratio of the current generation, also considering the ratios of previous years.

<sup>20</sup> Depending on each line of business, the estimate also takes account of objective factors known at the time of the estimate, of foreseeable increases in costs during the settlement process and any directly attributable settlement costs. Claims settlement costs that are not directly attributable are calculated on an estimated lump sum basis, taking account of the impact of settlement costs on the individual lines of business.

<sup>21</sup> E.g., equalisation reserve for: The credit line of business, natural disasters, and so forth.

<sup>22</sup> This section updates and develops preliminary findings issued in 2005, about which see Danovi & Indizio (2005).

<sup>23</sup> After initial recognition, held-to-maturity financial assets are valued at amortised cost, using the effective interest method. Any gains or losses from disposals or from the amortisation process are reflected in the profit and loss account. In cases of impairment losses, measured as the difference between the carrying amount of the asset and the present value of expected future cash flows, the adjustment of value is reflected in the profit and loss account. As stated by IAS 39 for reversals of impairment of debt securities, if the reasons for the impairment are removed due to an objectively observable event, the value can be recovered up to the corresponding amortised cost, with differences reflected in the profit and loss account. Held-to-maturity assets are derecognised when, due to natural maturity or disposal of the asset, the contractual rights to the cash flows are transferred, along with the related risks and benefits.

held for sale in the short term;<sup>24</sup>

(3) Available-for-sale: This category, defined in residual terms by IAS 39, includes debt and equity securities, listed and unlisted. It also includes equity interests in entities other than subsidiaries, associates or joint ventures.<sup>25</sup> As long as the instruments remain on the balance sheet, directly related gains and losses are capitalised and accounted for as income or expense, based on the effective rate of return (amortised cost method). In the case of securities listed on an active market, the market price is presumed to be the most reliable measure of their fair value. Unrealised gains and losses amend financial instrument carrying amount and shall be recorded in a specific equity reserve. At each reporting date, should reliable information indicate impairment, the carrying value of the instruments is adjusted to reflect the impairment and the corresponding cost is reflected in the profit and loss account. If an equity security suffers impairment, the rule “once impaired always impaired” comes in force and any subsequent recoveries of value are accounted for in the specific equity reserve, since reversal of impairment is prohibited;<sup>26</sup>

(4) Financial assets at fair value through profit or loss: The heading includes held-for-trading assets and any other fair value assets reported in the profit and loss account.<sup>27</sup> Also classified in this category are derivative contracts embedded in complex financial instruments but for which the conditions for unbundling exist.<sup>28</sup> Are included assets associated with insurance or investment contracts for which the insurance risk is not significant or associated with pension fund management?<sup>29</sup>

On the liability side, with regard to L&H and P&C technical reserves—key liabilities in insurance balance sheets—the transition is governed by IFRS 4, that requires contracts to be classified in accordance with significant risk parameters. If these parameters are not satisfied, the contract is deemed to be an investment contract rather

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<sup>24</sup> Loans and non-insurance receivables are valued at cost amortised by the effective interest method, net of any write-downs. Periodically, at each reporting date (annual or interim), loans and receivables are subject to re-measurement to identify those that display evidence of possible impairment, due to events subsequent to their initial recognition. Any adjustment in value is reflected as income or expense. The value of receivables can be recovered, up to the limit of amortised cost, to the extent that the reasons that caused the previous impairment are no longer valid. Loans and receivables can be eliminated from the balance sheet when they are considered entirely unrecoverable or written off. Securities lending transactions require that securities received on loan not be reported, while securities lent are not derecognised until the underlying is actually sold. Therefore the entity that lends the securities records a reverse repurchase transaction and a loan receivable, while the party receiving the securities records a repurchase transaction and a loan payable. Commissions and interest received or paid are accounted for on an accrual basis as interest income and expense.

<sup>25</sup> At initial recognition, the financial instrument is measured at purchase cost, which normally expresses fair value at that date, considering any directly attributable transaction costs. At each subsequent reporting date, the measurement criterion is fair value. Where there is an active financial market, fair value is represented by the price on that date. When active market prices are unavailable, fair value is determined on the basis of measurement techniques generally recognised by the financial markets. When no reliable measurement is available, cost is used as the criterion.

<sup>26</sup> The recovery of impairment value up to the corresponding amortised cost is permitted for debt securities, provided the underlying reasons for the impairment have been removed based on objective information. This recovery of value is accounted for in the profit and loss account.

<sup>27</sup> The former regard securities held for short-term trading or part of a portfolio of financial instruments managed to produce short-term profit, as well as derivative contracts held for speculative purposes.

<sup>28</sup> The conditions for unbundling are the following: (a) the economic characteristics and risks of the embedded derivative are not closely related to the economic characteristics and risks of the host contract; (b) a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; (c) the hybrid instrument is not measured at fair value with changes in fair value recognized in profit or loss.

<sup>29</sup> Most financial instruments are initially recognised at cost, and then measured at fair value, taken to be the market price for those traded in an active market. Derivatives embedded in complex contracts, not closely related to them but those meet the definition of derivative, are unbundled from the host contract and measured at fair value, while the primary contract is treated with the accounting criterion for its class. For instruments not traded in an active market, estimation models are used that consider the prices of similar instruments, the characteristics of the issuer, and whether it has a rating. Instruments for which fair value cannot be reliably determined are carried at cost.



than an insurance one. Coming to essential, IFRS 4 states that former GAAP (local or other generally accepted ones) may be used as far as “insurance contracts” are concerned. The point is to recognize “real” insurance contracts and distinguish them from “false” ones. IFRS 4 uses “insurance risk” as a driver to envision insurance contracts coming under its scope. As P&C business is considered entirely “real” insurance, hence in scope of IFRS 4, for L&H business, in order to identify the relevant accounting policies, each contract is broken down into its single type of “covers”, which are then classified as “insurance” or as “investment” depending on the significance of the underlying insurance risk. Insurance covers are intended to have a significant insurance risk (traditional tariffs) as well as certain covers related to linked contracts (generally classified as investment contracts) in case discretionary participation features (DPF) occur.<sup>30</sup>

The new classification differs significantly from former GAAP, due to the decisive weight attributed to role of insurance risk. Apart from its strictly technical content, the new standard, which is necessarily a preliminary stage before the IASB issues a second and more incisive set of requirements, provides three basic guidelines to be followed by first-time adopters. As a major result, IFRS 4 adoption has brought a new classification among insurance contracts, so that not only most D class contracts (so-called “linked”) are considered as investment ones, but even some of former traditional contracts (C class) are reclassified as investment ones, hence coming in scope of IAS 39.<sup>31</sup> For investment contracts there’s a specific financial liability carried at fair value through profit or

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<sup>30</sup> Quoting Kpmg paper: “Insurance accounting under IFRS 4”, a discretionary participation feature is: “a contractual right to receive, as a supplement to guaranteed benefits, additional benefits: (a) that are likely to be a significant portion of the total contractual benefits; (b) whose amount or timing is contractually at the discretion of the issuer; and (c) that are contractually based on: (1) the performance of a specified pool of contracts or a specified type of contract; (2) realised and/or unrealised investment returns on a specified pool of assets held by the issuer; or (3) the profit or loss of the company, fund or other entity that issues the contract. A DPF is therefore a contractual right to receive significant benefits in addition to the guaranteed benefits. These additional benefits are, in terms of the contract, subject to the performance of the entity or a specified pool of assets whilst the amount or the timing of such additional benefits is at the discretion of the insurer. ... The discretion inherent in a DPF must be embodied in the terms of the contract. In some contracts, the insurers only have discretion to influence the timing of the payments. In other contracts, insurers may have the discretion to determine the ultimate share that policyholders have in the performance of the entity. To qualify as a DPF, under IFRS 4, the additional benefits paid in terms of the contractual rights of the policyholder must be subject to the insurer’s discretion over either (or both) the timing or the amount of the benefits, but must also be linked to the performance of a contract; a pool of assets; or the entity, as specified in the contract”; Kpmg, Insurance accounting under IFRS, 2004, available at: [http://www.kpmg.com/SiteCollectionDocuments/Insurance\\_accounting\\_under\\_IFRS.pdf](http://www.kpmg.com/SiteCollectionDocuments/Insurance_accounting_under_IFRS.pdf).

<sup>31</sup> A concise and trustful guidance has been provided by the International Actuarial Standard of Practise No. 3, issued on June, 16th, 2005, by the International Actuarial Association (IAA): “While there are some exceptions, the general process of classification normally includes the following steps: (1) Obtain relevant information; (2) Definition of a contract for accounting purposes — Consider whether to separate or combine contracts for accounting purposes; (3) Classification of stand-alone service contracts — Consider whether the contract creates financial assets or liabilities for the reporting entity in which case it may be a financial instrument, rather than solely requiring the entity to provide services for a fee; (4) Classification as an insurance contract — Determine if the contract contains significant insurance risk. If yes, then the contract is an insurance contract and IFRS 4 applies; (5) Classification as an investment contract — If it is not insurance, determine if the contract is a financial instrument (e.g., it creates financial liabilities, equity instruments, or financial assets). If yes, then the contract is an investment contract. If no, the contract is a service contract and IAS 18 applies; (6) DPFs—if the contract is an investment contract, determine if the contract contains a DPF. If yes, then IFRS 4 and IAS 32 are applicable. If no, then IAS 32 and IAS 39 apply; (7) Service Component—if IAS 39 is applicable, determine if the contract contains a service component. If yes, then acquisition and other servicing expenses related to the service component and related earnings are accounted for under IAS 18. The rest of the contract is accounted for under IAS 39; (8) Embedded derivatives — For insurance contracts, investment contracts, and service contracts, determine if the contract contains an embedded derivative. If an embedded derivative is included, determine if that component is already measured at fair value or if it is closely related to the host contract. If neither of these conditions is satisfied, separation might be required. In case of an embedded derivative special disclosure might be required under IFRS 4; (9) Unbundling of a contract into components—for insurance contracts, determine if unbundling of a Deposit Component is required or permitted by the accounting guidance. If unbundled into deposit and Insurance component, the deposit component is accounted for under IAS 39 and the insurance component is accounted for under IFRS 4.

loss.<sup>32</sup> Finally, in order to classify, no matter how P&C contracts are defined, for they lie under IFRS 4, therefore the (consolidated) technical reserves of P&C business will continue to be determined in accordance with former gaap, with the exception of some integration reserves and the equalisation reserves, not allowed by IAS. From a general point of view, the following issues arise from IFRS 4 adoption:

(1) Deferred acquisition cost (DAC)/unearned revenue reserve (URR): From an economic point of view, the insurance revenue (gross premium) is composed by an element deputed to match future outflow strictly related to the risk assured.<sup>33</sup> In order to equalise the economic result emerging from the revenue/expense timetable, a DAC—an intangible asset—is posted so that the initial payment of commission<sup>34</sup> may be balanced and the first years' net profit trend be mitigated. On the opposite side, in case of contracts releasing most of their cash flows as long as early lifetime, an intangible liability, URR, is posted;

(2) Liability adequacy test (LAT): Based on the new provisions of IFRS 4, the adequacy of the insurance liabilities at each reporting date has to be determined with the liability adequacy test. The test must be performed on the (traditional) insurance contracts. A liability adequacy test (LAT) is performed to ascertain the adequacy of the reserves in relation to future cash flows.<sup>35</sup> Adjustment (i.e., further liability) created by the liability adequacy test is posted among the technical reserves, under the heading “other reserves”;

(3) Equalisation reserves: A third important innovation introduced by IFRS 4 is the prohibition on recognition of technical reserves that are not strictly related to known or measurable claims, but merely assumed on the basis of statistical information, in order to equalise claims.<sup>36</sup>

By the way, severe criticism may be addressed to IFRS 4 as well as to former GAAP (ONA, 2006). Two aspects seem to be particularly revealing. Under the first point of view, IASB issued IFRS 4 as a “partial” attempt (so-called “phase I”) to rule the complex structure of insurance liabilities. In particular, no guidance is provided with regard to life and non-life technical reserves, leaving each insurer free to adopt its local GAAP or other ones generally accepted. It's easy to remark the dramatic discontinuity that has hit insurance companies consolidated accounts since IFRS 4 has been adopted (2004), as each insurer has been able to choose its own set of standards in order to evaluate class and account for technical reserves. Therefore, one of the main goals of the adoption, i.e., balance sheet comparability among insurers of different countries, has become harder to get than ever. As different sets of GAAP may now be used by insurers of the same country, comparability is worsened furthermore. Under the second point of view, the current context shows a dramatic mismatching as far as technical items of traditional insurance contracts are concerned. Indeed, under IAS 39 financial assets are recognised at fair value, while the corresponding liabilities are stated at amortised cost, this tends to generate a mismatch. IFRS 4 introduces an innovation just to mitigate this inconvenience at least where it's more relevant, in L&H business: “shadow accounting”. In accordance to this option, based on the results delivered by liability adequacy testing, for

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<sup>32</sup> In case, the deposit component of such contracts is measured separately, at fair value too.

<sup>33</sup> In case of traditional business by a loading deputed to front expenses directly and indirectly attributable to business management; in case of financial contracts by commission for day-by-day asset management performed by the insurer (or by other financial entities).

<sup>34</sup> Especially in case of annual premium insurance contracts, and single premium investment contracts, charged with a relevant amount of acquisition costs at inception.

<sup>35</sup> The test compares the actuarial reserves, less deferred acquisition costs (DAC), and with discounted future cash flows, which are estimated from a projection of expected cash flows generated by the in-force portfolio on the basis of reasonable assumptions regarding fundamental reversal factors—mortality and surrenders—and the expenditure trend.

<sup>36</sup> Therefore, under IAS, the equalisation reserves and other similar technical reserves allowed to date under former GAAP, will no longer be recognised.



transfer of related risks and benefits. Unlike Italian GAAP, where recognition is linked to the transfer of legal title, IAS link recognition to the transfer of the risks and benefits associated with the item, that is, the transfer of the right over the related cash flows. With regard to the classification of assets and liabilities, the new standards introduce significant changes for financial instruments. Accounting treatment of financial instruments that represent receivables, payables, securities, and derivative contracts is no longer based on the nature of such instruments but on the purpose of the investment. Classification is determined upon initial recognition and may be subsequently modified only under certain conditions.

Based on the topics examined above, a number of general indications are provided below for a tentative assessment of the main macro-effects carried on by the new accounting policies over the financial statements of insurance companies. One of the most affected areas is measurement of insurance premiums. Under IFRS 4 contracts with a predominantly financial content and a non-significant insurance risk may not be recognised under life premiums. IAS compliance will therefore bring a reduction in life premiums, depending on the premium-mix.<sup>37</sup> Almost all companies that have witnessed an increase in the share of financial policies on premium income (especially life companies which place a particularly large proportion of financial products, especially through the banking channel) do report a decline in this area.<sup>38</sup> The economic effects of the new accounting standards vary: New criteria now govern accounting treatment of gains and losses on securities, equalization reserves, deferred acquisition costs, amortization plans and, in particular, impairment of both financial and non-financial assets, notably intangible assets. In the case of securities, designation of the majority of financial assets as available-for-sale suggests that greater volatility can be expected in investments (measured at fair value) and shareholders' equity, which now includes a reserve for unrealized gains and losses. Greater variability may therefore also be expected in traditional performance ratios such as ROE or ROI, which are based on the value of own funds or invested capital.

In the non-life area, technical liabilities should be stable, except for the elimination of a number of reserves previously provided for integration purposes and of all equalization reserves. Provisions in respect of possible risks are not allowed under the IAS; their elimination on first-time adoption does have a positive impact on shareholders' equity. In the life area, technical liabilities in respect of traditional products are not expected to change, since accounting treatment is similar. However, let's outline that "lock-in assumptions", proper to the previous approach, are amended by the new one as far as traditional business contracts are concerned: currently actuarial assumptions are "locked-in" at inception, but according with range or class of portfolio's segment, so-called "experience eras", hence such liabilities are expected to be varying under the actuarial assumptions adopted to foresee and weight the different scenarios. By the way, no substantial difference is expected in actuarial reserves for investment products, as the best estimate approach will generate assumptions pretty close to the current ones, particularly referring to unit and index linked contracts. Both the cases, major changes are linked to the assumptions inherent to mortality, morbidity, investment returns, surrenders, expense ratios and expected proportion of policies remaining in force and vice-versa (lapse-rate). On asset side, DAC calculated under IAS are expected to increase as long as early years after first time adoption, as compared to former capitalized acquisition costs.

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<sup>37</sup> Contracts whose premium are to be derecognised will be shown in a specific balance-sheet heading under deposits, while the only revenue written to Profit and Loss will be the margin obtained since inception of the policy.

<sup>38</sup> Nevertheless the change will not have an impact on the generation of embedded value, whose amount and releasing depend upon specific evaluation models, irrespective of how contracts are accounted for.

The net impact on annual net profit will depend on the combined effects of the various changes, as outlined above. Preliminary findings indicate, however, that major items such as best estimate liability approach and margin risk for uncertainty are likely not to have an impact on the price margin, maybe its yearly timing along contracts' life-cycle. Yet it should not be forgotten that the new policies will have extensive repercussions, bringing important innovations not only in reporting, but also with regard to company valuations and consequently to management strategy. An increase in sensitivity of economics is determined to a large extent by IAS adoption, an extremely important consideration for listed companies, in terms of perception of company value among analysts and investors.

## 6. Other IAS/IFRS relevant to insurers

Apart from insurance-related accounting standards, a set of IAS/IFRS concerns other assets and liabilities of insurers' balance-sheet from a general point of view (Mariniello Fiume, 1999). Focusing our attention on items actually relevant to insurance companies, we're to summarize the IAS/IFRS standards ruling about them.

### (1) Intangible assets (other than goodwill)

This heading includes assets defined and governed by IAS 38. It only includes non-monetary assets identifiable and controlled by the entity, from which economic benefits for the entity are expected to derive and whose cost is known or can be reasonably measured.<sup>39</sup> When goodwill from insurance business combinations derives from assets that generate cash flows related to VOBA (i.e., "value of business acquired") over a definite period of time, it is amortised on a non-straight-line basis as provided in IFRS 3, supplemented by IFRS 4.

### (2) Retained earnings and other equity reserves

As provided in IFRS 1, this reserve includes the gains and losses deriving from first-time application of the IAS/IFRS. Here included are reserves arising from the reclassification of all equalisation reserves posted in accordance with previous GAAP and any other reserves envisaged under the Italian civil code and previous laws governing insurance companies, as well as consolidation reserves.

### (3) Other liabilities

This heading reflects various types of liability: deferred commission income relating to contracts not covered by IFRS 4, in accordance with IAS 18.<sup>40</sup> As provided by IAS 19, a future projection of accrued staff severance entitlements is determined using actuarial techniques, to estimate the prospective actual charge at the time of severance. Any difference arising between determination of severance entitlements using IAS and the corresponding liability accrued in accordance with local GAAP is recognised under this heading.

## 7. New perspectives and criticism on insurance contracts under IAS/IFRS

Current phase I driven by IFRS 4 has challenged undoubtedly the former approach and the common standards of disclosure (IASB, 2007; Clark, 2008; Doni, 2008). Aiming to summarize such improvements, let's outline the following items:

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<sup>39</sup> An intangible asset recognised as such may have a definite useful life, in which case it is systematically amortised over that useful life; or it may have an indefinite useful life and is therefore not amortised but, as provided in IAS 36, must be tested for impairment annually, at the reporting date, or when there are indications of permanent loss of value.

<sup>40</sup> Liabilities in respect of employee defined benefit plans involving post-employment disbursements and other long-term benefits (excluding staff severance entitlements classified under other payables), for Italian and foreign companies. The heading also includes the provision for employee and director pension obligations.

(1) Getting rid of the former creditors' view, once dominating insurance assets and liabilities accounting for and disclosure: IAS 39/IFRS 4 approach widely replaces aforesaid view, introducing improvement in terms of quality of testing models and assumptions underlying asset and liability evaluation; and also it forces the insurer to provide the annual report's reader with a more detailed disclosure, especially as to once-neglected issues, i.e., portfolio's economics sensitivity to policyholders' expected behaviour under different scenarios;

(2) Criteria to recognise insurance from non-insurance contracts: a sound improvement brought by IFRS 4, even if based upon general guide-lines showing a strong need for operative guidance, consists of its purpose to separate contracts with and without significant insurance risk, as well as with or without discretionary participation features, coming to state different models in order to evaluate and account for related assets and liabilities;

(3) Profit release pattern: consistently with IFRS 4, yearly profit from insurance contracts must emerge, and be accounted for, as insurance risk is released.

Even though the above mentioned issues may be considered as improvements in insurance accounting standard, some criticism arises as well. First, IAS 39/IFRS 4 states a partial approach, indeed the set of standards eligible to evaluate and account for insurance-related assets and liabilities are not statutory, hence allowing different insurers to adopt different sets. In terms of comparability the current context shows a considerable worsening. Second, a relevant criticism arises from the lack of consistency between assets and liabilities evaluation standards. The point comes out from the following scheme:

**Table 1 Some points about IAS 39 and IFRS 4**

Financial instruments (IAS 39)	Insurance liabilities (IFRS 4)
Available for sale: Fair value with unrealised gains and losses accounted for in equity;	Insurance contracts and investments contracts with DPF: Amortised cost + LAT + shadow accounting;
Trading: Fair value with gains and losses through P/L;	Investment contracts: Fair value or amortised cost.
Held-to-maturity: Cost/amortised cost;	
Loans and receivables: Amortised cost.	

Such an hybrid model, with its misleading approach in terms of comparability and asset/liability mismatching, is certainly due to the (temporary) phase I of the "insurance contracts" project carried out by IASB, which is expected to issue (around 2011) a new definitive standard to govern insurance contracts as a whole. By the way, we may take a look at the main guidelines inspiring the next phase (so-called "phase II") in order to hammer out a rough idea about the future impact of IAS/IFRS adoption on the insurance industry. Currently, scholars deal with IASB discussion paper (DP) labelled: "Preliminary views on insurance contracts" issued in 2007. A deep screening of said DP is out of scope of this paper. However, a quick overview will allow us to come to some conclusions, albeit necessarily unsteady:

(1) Current entry/exit value. Basically, two models have been under question for a long time, in order to set up the new general insurance evaluation and accounting model. The first requires stating which price an insurer would pay so as to transfer pending rights and obligations inherent to a specific portfolio to itself; the second, which price the insurer that actually owns said rights and obligations would have to pay in order to transfer them to another insurer. To the best of our knowledge, IASB is likely to choose the latter;

(2) Future cash-flow. DP seems to pay strong attention to explicit, unbiased, market consistent, future cash flows. Insurers are requested to assess with deep accuracy both the amount and the expected timetable and the

nature (i.e. risk profiles, by envisioning and weighing different scenarios' likelihoods) of future cash flows, which is crucial to the above mentioned model (current exit value).

Of course, other relevant and challenging issues arising from DP are now under consideration (Selleri, 2008), with which the insurance industry (the largest groups and corporations, as well as trade associations), its top-managers, country regulators and scholars seem to be deeply involved; for instance the profit at inception principle, charging actuarial officers with major responsibilities which hardly impact accounting principles and practices. However, while everyone is waiting for the final DP release, some final conclusions may be drawn up. First, the strong emphasis on the concept of insurance risk, as a driver heading the selection between insurance and non-insurance contracts, is worthy. The same holds for the claim for unbiased estimations for an explicit posting in order to take into account the 'margin for uncertainty' due to different scenarios and the policyholders' behaviours; finally the envisioning of risk drivers affecting future cash flows may be considered an important step toward an up-to-date model for insurance contracts' evaluation and accounting. Second, IASB's approach seems to assume or call for a "market of insurance liabilities", regularly operating and able to generate reliable fair values, which actually does not exist (Manghetti, 2000). The high technicality of the insurance industry implies a number of obstacles to the practical implementation of the current exit value approach and its basics, such as unbiased and market consistent cash flow estimation, also getting rid of equalisation reserves and of any other entity-specific parameters (statistical portfolio evidences, single cost and expense ratios and so forth). A possible reason, behind such a fresh but questionable approach, is likely to be the need to de-theologise an industry traditionally considered some kind of a black-box by third parties, particularly investors. Replacing the old creditors' view, too conservative in order to warrant the recoverability of sums lent by different stakeholders (policyholders, employees and their associations, tax office and other state authorities), IASB is forcing a dramatic simplification of insurance technicalities overstressing undefined but popularly well known concepts such as: fair value and cash flow. Concepts well known especially by a particular class of stakeholders: financial investors. How IASB's call for said de-theologising will be supporting financial investors' decision making seems to be reasonably clear so enforcing the ongoing trend toward financial conglomeration able to capture customers needs for banking, financing and insurance services (Proto, 2002; Selleri, 1999; Stacchezzini, 2008). How this simplification will be providing models for strategic management and evaluation consistent with insurance industry's specificities remains unanswered.

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**(to be continued on Page 96)**



## India's Look East Policy and north-eastern states: An overview

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**Abstract:** To become an economic developed country, every country needs to look for its trade and commerce because it is one of the most prominent factors. Hence, the present study is an endeavor to highlight "India's Look East Policy and its northeastern states". The methodology adopted here is mainly based on secondary data and information, the sources of which have been compiled from different national and international journals and related books, etc.. India's involvement in the enterprises of ASEAN (Association of South East Asian Nations) for economic corporation was initiated in the year 1991 with the function of "Look East Policy". ASEAN countries have emerged as significant entities among India's most dynamic trade partners. Undoubtedly, north-east India has the potential to become gateway to the east, which can help trade and commerce with ASEAN countries to flourish.

**Key words:** sect oral dialogue partner; free trade agreement; chicken neck

### 1. Introduction

India's north-eastern region is the home to several ethnic groups and has over 200 of the 635 tribal groups in the country with a strong tradition of social and cultural identity. India's policy of strengthening economic ties with this part of the world is commonly known as "Look East Policy". Trade and commerce is one of the most important ways to become economic development of a nation. India's Look East Policy initiated in early 1990s was basically conceived to increase India's economic interactions and linkages with South-east Asian countries and integrate with the world through trade and investment flows both inward and outward. As the current wave of globalization, Asia is poised to determine the new world order both economically and politically. It has the fastest growing markets in world, high gross domestic product (GDP), the fastest increasing militancy expenditures etc.. The Asia region seems to be even half of the world's GDP by 2020. Among the top twelve countries of the world in terms of GDP, Asian countries included were Japan, China, India and South Korea. The total labour force of Asia Pacific and South Asia countries was 1.7 billion, out of which 750 million and 450 million were accounted by India and China alone respectively. It is believed that the twenty first century could thus well be Asia's era. Therefore, it is imperative for Asian countries to work together to extend cooperation and promote prosperity through increased economic integration and interaction among rapid economic development and growth of Asian countries, especially in South-east Asia countries.

India has taken interest in South-east Asia, because its vision of becoming a developed economy by 2020 most probably depends to a large extent on the increase in economic cooperation with its extended neighborhood and the need to encounter China economically. China competes with India in the political, economic and military sphere and most importantly, in the economic influence in the region of South-east Asia.

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Obviously, there is a need to seek new markets for India to grow economically and a significant way of countering China's own economic policies. Pranab Mukherjee said in his key-note address at a national conference on India's Look East Policy in Guwahati that "by gradually integrating this region through cross-border market access, north-eastern states can become the bridge between Indian economy and the fastest growing and dynamic region in the world". The external affairs minister also announced that Bharat Sanchar Nigam Ltd. had started working on an optical fiber project to set up telecommunication network between north-east region and South-east Asia. On the political fronts, India has made efforts to improve relationship with neighboring countries.

## **2. Objective and methodology**

This article is based on a study which encompasses the following objectives:

- (1) Introduction of India-ASEAN trade very briefly;
- (2) Brief history of India-ASEAN car rally firstly;
- (3) India's Look East Policy and its opportunities to north-east region (NER), etc..

The present study is based on secondary data and information, the sources of which have been compiled from different national and international journals, government records/publications and related books, etc..

## **3. India-ASEAN countries trade**

India's involvement in the enterprises of ASEAN (Association of South East Asian Nations) for economic cooperation was initiated in the year 1991 with the formulation of Look East Policy. India became a sectoral dialogue partner with ASEAN in 1992, became a dialogue partner fully in the year 1995, a member of the ASEAN Regional Forum in 1996 and a summit level partner (on par with China, Japan and Korea) in 2002.

A summit level engagements, ministerial meeting and official level discussions are held in order to fulfill the Look East Policy agenda. India is now one of the four summit level partners of ASEAN, the other three being China, Japan and Korea. During December 2005, India participated in the ASEAN summit interaction and the East Asia Summit interaction held in Kuala Lumpur. Ministerial level meetings had also been held with a number of ASEAN and East Asian dignitaries. These had provided the framework and directions for the various issues involved in enhancement of trade and investment relations (Ministry of Commerce and Industry, Annual Report, 2005, 06). India has also suggested the formation of Asian Economic Community including ASEAN, China, Japan, Korea and India.

## **4. First India-ASEAN motor car rally**

In order to usher in the free trade agreement between India and ASEAN member states (Republic of Brunei Darussalam, Kingdom of Cambodia, Republic of Indonesia, Lao people's Democratic Republic, Malaysia, Union of Myanmar, Republic of Philippines, Republic of Singapore, Kingdom of Thailand, Socialist Republic of Viet Nam) based on the address of Hon'ble Prime Minister at the ASEAN-India summit meeting in Bali, Indonesia on 8th November, 2003, a car rally was organized traversing through Moreh in Manipur culminating at Indonesia under the sponsorship of the Ministry of External Affairs (MEA), government of India and the Confederation of Indian Industries (CII) in close co-operation with member-states of the ASEAN secretariat from 22 November to 13 December, 2004. The key objective of the event was to demonstrate the proximity of India and more

particularly the north-east states with ASEAN countries to create public awareness of India-ASEAN relations. This programme was taken up under “India’s Look East Policy”.

### **5. India’s Look East Policy and north-eastern region**

Under the “Look East Policy”, trade relations are likely to achieve new dimensions. The eight north-eastern states are likely to strengthen their trade and commerce with the ASEAN, involving the adjacent countries, namely Nepal, Bhutan, China, Myanmar and Bangladesh. The north-eastern region (NER) has a characteristic geographical location. While China and Bhutan fall on its north and north-west, Myanmar and Bangladesh on its east, south and south west. Thus, the NER is characterized by its unique geographical entity.

The northeastern region which shares only 2 percent of the border with the Indian mainland, it is connected with “mainland India” by a narrow land corridor often called “chicken neck” at Siliguri and 98 percent with the international border of India with Bangladesh, Myanmar, China and Bhutan. According to T. P. Khaud (adviser NEC & Retd. IAS officer), he divided the regions as debit and credit side shown in Table 1.

**Table 1 Debit and credit sides of NER**

On debit side	
No.	Particulars
1	Inadequate basic developmental infrastructure;
2	Geographical isolation and difficult terrain that reduces mobility;
3	High rainfall and recurring flood in Brahmaputra valley;
4	Lack of capital formation and proper enterprise-climate;
5	Slow technology spread;
6	Absence of a supporting market structure and adequate institutional finance structure;
7	Low level of private sector investment.
On credit side	
1	Large natural resources and tremendous potential for growth in agro-horti-forestry sector including extensive bamboo plantation and exotic flora;
2	Substantial mineral deposits;
3	Unique bio-diversity;
4	Vast water resources including hydel power potential with more than 50,000 MW identified capacity;
5	Great promise for tourism development;
6	Proximity to one of world’s fastest-growing economies, South East Asia;
7	A literate population;
8	Rich heritage of handloom and handicrafts;
9	A democratic traditional system of local-self government with community spirit permeating the entire social system.

Source: Yojana, December, 2006.

Border trade with Myanmar and Bangladesh is especially important. There are several other projects to improve connectivity between north-east region and Myanmar. These include road, rail links, telecommunications, information technology, science and power. The geopolitical entity, coupled with constricted narrow corridor connecting the NER with “mainland” India and poor infrastructural facilities within the NER has led to a situation that each of the states in the NER is looking more to neighboring countries than to mainland India for economic relations. In such situation, implementation of India’s Look East Policy will provide the NER with a natural

advantage for border trade. The same justifies the need for and the significance of establishing regional cooperation for facilitating the growth of business and investment between the NER and the Association of South East Asian Nations. The ASEAN is now seriously engaged in negotiations for having free trade area with India. Honorable Prime Minister Dr. Man Mohan Singh has maintained that India is committed to work with the ASEAN and other East Asian Countries to make 21st century truly as “Asian century”. The minister of the development of north-eastern region suggests that Look East Policy should act as the basis of developing the north-eastern states.

If it happens, then the NER of India could become an economic bridgehead for tapping a market of 500 million people in our extended neighborhood in South-east Asia. On the other hand, reopening of the Himalayan pass-Nathu La between Sikkim and Tibet on July 6, 2006 after 44 years for trans-border trade, has a very significant point to prove in the growing Sino-India relations.

The reopening of the trade route through Nathu La has tremendous potential for boosting the economies of both northeastern India and western China.

## **6. Opportunities for the north-eastern region under India's Look East Policy**

Linking north east with dynamic Asia promised vast economic opportunities and benefits including deepening social and cultural ties between the people of northeast and its neighbouring areas. Market integration of the land-locked north-eastern region with southeast and East Asian countries would boost trade. Trade would thus serve as a driver of rapid economic development of the region (Sarma, 2005). The following observations could be considered potential benefits that NER could derive from the implementation of India's Look East Policy.

### **6.1 Potential items to be exported**

It is very difficult to identify the potential items which could be exported from the north-eastern region to the outside world, because a large number of items from handloom and handicraft products to mineral products could be named as potential items of export from this region. However, many well known institutions/organizations in India like Indian Institute of Foreign Trade (IIFT) in New Delhi, National Council of Applied Manpower Research (NCAMR) in New Delhi, Federation of Indian Export Organization (FIEO) in Kolkata, Tata Consultancy Services (TCS) in Kolkata, Export-Import Bank of India (EXIM Bank) in Kolkata, Confederation of Indian Industry (CII), Federation of Indian Chamber of Commerce and Industry (FICCI), Indian Institute of Entrepreneurship (IIE) in Guwahati, north-eastern Chamber of Commerce and Industry (NECCI) in Guwahati and Federation of Industries and Commerce in north-eastern region (FINER) in Guwahati have undertaken research studies investigating into the potential items of the north-east has to offer for border trade and have listed out a large number of potential items for export from the north-east. The FIEO in Kolkata has identified the following items exportable from the north-eastern region of India highlighted in Table 2.

However, there is considerable scope of improving trade in such local products and quality improvement is the necessary condition for these products to capture the foreign market and derive benefit from enhancing trade activities.

India's trade with the ASEAN countries, Australia, New Zealand and countries of Oceania has an adverse balance of trade and its export & import items are depicted in Table 3(a) and Table 3(b) respectively.

**Table 2 Potential items from the NER for the border trade**

No.	States	Items
1	Arunachal Pradesh	handmade carpet, handmade paper, citrus fruits, processed fruits, herbal products etc.
2	Assam	chilly, ginger, handloom & handicrafts, processed fruits, handmade paper, essential oil, jute products and floriculture items, minerals like coal & limestone etc.
3	Manipur	handloom & handicraft products, horticultural products and product that are procured from outside the state and are being exported to Myanmar.
4	Meghalaya	ginger, orange, turmeric, potato, betel vine, areca-nut, broomstick, coal, limestone etc.
5	Mizoram	passion fruit, raw cotton, tung seeds, citrus fruits, tapioca, ginger, processed fruits, processed spices, tung oil, handloom & handicrafts etc.
6	Nagaland	chopsticks, horticultural products, handloom & handicrafts etc.
7	Sikkim	orchids, floriculture, pepper, ginger etc.
8	Tripura	fresh fruits, processed fruits, raw & processed rubber, handloom & handicrafts etc.

Source: Yojana, December, 2006.

**Table 3(a) India's trade partners**

Major destinations for India's exports in South East Asia	Australia, Indonesia, Malaysia, Singapore, Thailand and Vietnam Socialist Republic
Major sources of imports from	Australia, Indonesia, Malaysia, Myanmar, Singapore and Thailand

Source: Ministry of Commerce, government of India.

**Table 3(b) India's export & import items**

Principal commodities of India's exports to South-east Asia	oil meals, gem & jewellery, electronic goods, cotton fabrics, made-ups, aluminum other than products, machinery and instruments, primary and semi-finished iron & steel, marine products, drugs and pharmaceuticals, meat/meat products, inorganic/organic/agro-chemicals etc.
Major commodities of India's imports from South-east Asia	coal/coke/briquettes, vegetable oil, electronic goods, artificial resins and plastic metal, organic chemicals, machinery except electrical machinery, wood and wood products, non-ferrous metals, ores and metal scrap, raw wool, pulses, etc.

Source: Ministry of Commerce, government of India.

## **6.2 Several economic opportunities of NER**

Numbers of economic opportunities that could emerge for the NER may be enumerated as follows:

(1) Agro-processing zone: The region's climate condition and its topography are suitable for horticultural development, plantation crops, vegetables, spices, rare herbs and medicinal plants;

(2) Eco-tourism prospect: The region's rare flora and fauna and its natural scenic beauty offer an ideal place for eco-tourism. Besides, the region inhabited by people with diverse culture is endowed with unique performing arts, varied customs and handicrafts;

(3) Base for foreign/domestic investors: The region located in close proximity to south-west China and South-east Asia may become a suitable base for investors both foreign and domestic to tap the world's most populous region in the world. The existence of a large number of educated classes who speak English is an added advantage for investors. For industrial growth centers, the region has been provided with a number of incentives like transport, capital investment and interest subsidy on working capital;

(4) Harnessing the power: Blessed with huge hydro-power potentials and other natural resources like oil, natural gas, coal, limestone etc. and also being endowed with India's largest perennial water system in the river Bramaputra and its tributaries, the region has the potential of becoming the next India's powerhouse;

(5) Cultural advantages and prospects: The people in the region have, from time immemorial, developed

strong linkages culturally with one another which could make economic transactions less costly with a prospect of unique cultural advantage;

(6) Benefit from service sectors: There are several possibilities for the NER to enjoy the spin off effects from trade by developing certain service sector like transport and communication, storage, hospitality, banking and insurance etc..

To take fully opportunities of the benefits offered by India's Look East Policy, several challenges must be met and tackled. Some of the important challenges to be taken into account are:

(1) Lack of physical infrastructure networks and economic infrastructure: Physical and financial infrastructures are crucial for the development of the economy. They increase the competitiveness of the economy and provide efficient resource mobilization and allocation. Except the social sector especially education, the region's infrastructures like road, power communication are quite dismal;

(2) Low human capital formation: Though the region's literacy rate has been improved considerably over the years, the region has a long way to go for quality human capital formation. Along with education, health sector development should be an integral part of any development planning in the north east;

(3) Indian government is hesitant to project north east in its Look East Policy for numerous reasons: (a) Overstress on security/strategic consideration; (b) insurgency groups utilizing the network, especially still well road-high security risks for India; (c) the Chinese factor-cheap product flooding Indian market; (d) physical connectivity could facilitate import of vices such as drugs Aida/HIV, illegal migrants, infectious diseases, small arm etc.; (e) mainland India has cheaper trade route by sea rather by land (Sarma, 2005);

(4) Ethnic conflict and insurgencies: Several ethnic-based insurgency groups operate in north-east states. They are forcefully demanding the donations from the common people both urban and rural areas and also government offices. These give hurdle to the development work.

To maximize the opportunities unfolded by the India's Look East Policy, the following strategies ought to be considered:

(1) Related issue of insurgency

The genesis of most of the north-east insurgencies is either to preserve the unique indigenous identity or because of the lack of economic development and opportunities for the large majority of the people or both. Among the region, Manipur is still affected by the largest number of insurgent outfits. People's resilience in both Manipur and Nagaland makes it possible to maintain the minimum standard of living despite enormous hardships.

Insurgency in this region has already caused serious damage to the regional economy and taken away a number of valuable human lives. Something can be done to reduce the prevalence of violent conflicts in the affected countries and prevent their recurrence. Democratic reforms improved political governance and institutions for economic management are needed in conflict-torn societies to manage affectively the challenges they face, to maintain political stability and also to diversify their economies. On this basis of observations, central and state governments in the region need to restructure their styles and systems of governance to address the root cause of conflicts in the region.

(2) Need for economic integration

Prior to the region is integrated into the Asian economies, the region itself needs to integrate their economic by themselves on the following point:

(a) Common market approach regarding the natural resources management

In term of natural resources, the eight states have their own strengths and weaknesses and each depends on

other states in different ways. This mutual economic dependence must be formed into a strong position through the creation of a common market or regional market. For instance, water resources of the region and the state-wise detail of mega, major and medium hydro-power potential in the north-eastern states are given in Table 4.

**Table 4 State-wise mega, major and medium hydro-power potential**

State	Potential (MW)	Unexploited (MW)	Exploitable (%)
Arunachal	26,756.00	26,631.17	99.50
Assam	351.00	148.50	42.31
Manipur	1,176.00	1,006.50	85.59
Meghalaya	1,070.00	948.33	88.63
Mizoram	1,455.00	1,448.00	99.52
Nagaland	1,040.00	958.12	92.13
Sikkim	1,283.00	1,225.20	95.52
Tripura	9.00	0.50	5.56
Total NER	33,140.00	32,366.32	97.67

Source: Yojana, December, 2006.

The total unexploited hydro-power potential in India is 65,599 MW. Of this, 32,367 MW, roughly 50 percent is in the north eastern region. In order to ensure optimal use of the natural scarce resources of the region development, certain institutional framework that the stakeholders could have free exchange needs to be developed. In this connection, creation of a formal body like NER Economic Co-operation Council may be envisaged.

(b) Infrastructure of the region

Infrastructure is one of the most important factors to become a developed region or country. The biggest constraint in the region has been the lack of infrastructure facilities, particularly roads, railways, power and air services. Significant initiative ought to be taken to improve connectivity. Rail projects under construction must be completed by 2010 and more train must be introduced to the region.

Air connectivity must also be improved by shifting the hub of air services to Guwahati. Development of inter state infrastructure facilities like road communication is being taken up by NEC. Activating inland waterways and providing access to the sea part require significant diplomatic initiative with Bangladesh. The aim should be to have a common market with Bangladesh. Infrastructure and connectivity could support the "Look East Policy". Many of the requisite investment will have to come from the private sector and the government will have to create the enabling environment for private initiative in economic activities. The central government has to augment infrastructure spending directly.

(c) Common regional science and bio-diversity policy

The region is identified as one of the world's biodiversity hot spots. The forest cover in the region stood at 52 percent of its geographical area. The region has reserves of petroleum and natural gas, science and technological intervention is crucial for sustainable development of the region. Research and development, conducted by different universities, technical institutes like IITs, engineering colleges and specialized institutions need to be co-coordinated to provide S&T imputes to the development secures in the region. To preserve and utilize the region's rich bio-diverse resources, common approach to science policy needs to involve for the entire region.

(d) Eco-tourism package for north-east

The World Tourism Organization (WTO) defines ecotourism as “tourism that involves traveling to relatively undisturbed natural areas with the specified object of studying, admiring and enjoying nature and its wild plants and animals, as well as existing cultural aspect (both of the past and present) found in these areas”. India's northeast region rich in natural resources, unique cultural heritage and bewildering diversity, is already to wake up to its enormous tourism prospect and harness it in a sustainable manner. The region has international border with Myanmar, China, Bhutan and Bangladesh, paving a way to market itself across South-east Asia. There is a pressing need for exploring cross-border opportunities for north-east tourism in term of the “Look East Policy”, which is, undeniably, a major hopeful area for economic augmentation of this incredible part of India. Tourism sector facilities should be developed, taking the entire region as one unit.

### (3) Issue of governance and institutional infrastructure

The NER is the home of the following four world religions, i.e., Christian, Muslim, Hindu and Buddhism and also populated by people with diverse ethnic background, culture, traditions and social institution, which needs a highly innovative governance structure. The governance systems have to deal with the problems peculiar to the region. Active civil police provide them with adequate training and orientation to properly investigate crimes and bring people to justice through the process of law. Creating a legal framework, implementing machinery to maintain law and order and building an effective and expeditious judicial system are essential components of this incentive system. For corruption, free administration of local government has to be strengthened.

## 7. Conclusion

Northeast has the possibility to become gateway to the dynamic South-east Asian economics, which can help the trade and commerce with our eastern neighbors to flourish and must be pursued with commitment and determination by the central government. The Look East Policy is of added interest to north-east. The traded goods can reap an additional commercial advantage. Efforts ought to be directed to build up physical and institutional infrastructure. At the meantime, state government of the regions must be ready to confront competition from these economies and prepare them to increase their economic efficiency by removing constraints and bottlenecks in the operation of commodities, money and labour markets. However, many players in different sectors of the region like bureaucrats, political parties, NGOs are not aware of the significance of these forces. To overcome this problem, seminar/workshops programme may be conducted in different parts of the region. In the age of globalization, privatization and liberalization, trade and commerce need to be developed, which will give sound healthy in financial position of a nation.

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## Infant and child mortality in Sudan: Case of central region\*

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**Abstract:** This paper uses households' data from central region of Sudan to examine factors that affect infant and child mortality. The education of mother and father, community variables and household income per adult are used. For this purpose, a household survey was conducted to collect data on the variables of interest from a random sample withdrawn from the study population. 600 questionnaires were distributed to households in one province of the region (out of five) where there are seven localities. The data has been analyzed using different statistical and econometric methods, including ordinary least squares method. The ordinary least squares found that child mortality is inversely associated with household income per adult, community variables and parental education. The effect of mother's education is more significant than father's education, mother's age is also found to be the most important factor that influences child mortality.

**Key words:** infant and child mortality; education; community variables; household income

### 1. Introduction

Infant and child mortality rates are important indicators of health levels and economic and social conditions that prevail in a society. In Sudan, the average mortality rate of the under-five year children in early 1990s was about 123 per thousand live births. Although the rate had declined by late 1990s, it was still relatively high at 104 per thousand live births. Infant mortality was estimated at 38 per thousand live births. Data of southern Sudan are not available for early 1990s. However, for late 1990s, the UNICEF (2002) estimated infant mortality in southern Sudan at 54 per thousand live births and at 132 per thousand live births for the under-five year children.

**Table 1 Infant and child mortality rates in Sudan according to mode of living and sex (‰)**

Death probabilities	Mode of living		Sex		Total
	Urban	Rural	Male	Female	
Neonatal mortality	39	37	-	-	38
Mortality before the first month	27	33	37	25	31
Mortality after the first month and before the first year	40	35	36	37	37
Mortality after the second year and before the fifth year	37	39	37	40	38
Mortality before the fifth year	101	105	108	99	104

Source: Ministry of Health and UNFPA (1999).

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### Infant and child mortality in Sudan: Case of central region

Table 1 reports infant and child mortality rates during the ten years preceding the Sudan maternal and child health survey conducted in 1995. The table shows that among every one thousand live births, 68 children died before they completed their first year. The probability of death during the period between the first birthday and the fifth year amounted to 38 per one thousand live births. Among every one thousand live births, 104 children died before reaching their fifth birthday. The table also shows that infant and child mortality rates are higher among male children (37 for infant and 108 for child mortality per thousand males compared to 25 and 99 per thousand females). The differences in infant and child mortality rates between rural and urban areas are minimal.

Table 2 reports infant and child mortality rates according to women education level and state of residence. A strong relationship between infant and child mortality and mother's level of education is revealed. Women with no education experienced about two times the rate of under-five and infant mortality of women with secondary and higher education level. The mortality rates of infants and children under five years progressively declined with the rise of mother's education level.

**Table 2 Infant and under-five child mortality rates according to mother's education level and state of residence (%)**

Mothers' characteristics	Neonatal mortality	Mortality before the first month	Mortality after the first month and before the first year	Mortality before the first year	Mortality after the second year and before the fifth year	Mortality before the fifth year
Education level						
Illiterate	40	34	42	76	48	121
Primary	33	28	32	60	26	84
Intermediate	29	15	22	37	14	50
Secondary	35	18	24	42	9	51
Residence state						
Red Sea	65	50	66	116	56	165
Kassala	38	38	63	101	51	148
Gedaref	36	31	36	67	54	117
Northern	36	26	30	50	23	78
Nahr El Nile	37	29	28	57	26	81
Khartoum	45	27	42	69	38	103
Gezira	20	21	22	43	17	59
White Nile	43	33	37	70	44	111
Sinnar	38	24	26	51	50	98
Blue Nile	47	46	55	101	80	172
North Kordofan	34	28	32	60	37	94
South Kordofan	34	38	57	95	57	147
West Kordofan	38	34	38	72	25	95
North Darfur	41	27	34	61	42	101
South Darfur	45	33	32	64	34	96
West Darfur	33	42	30	71	35	104
Total	38	31	37	68	38	104

Source: Ministry of Health and UNFPA (1999).

Although the overall average of under-five mortality rate (104 per thousand births) is lower than the average

of 162 per thousand live births in Sub-Saharan Africa (World Bank, 2002), the rates in some states are higher than that of Sub-Saharan Africa average. These states include South Kordofan, Kassala, Blue Nile and Red Sea. This may be due to the effect of the war, which in turn affected education and health services in these states. The lowest under-five years and infant mortality rates are reported in Gezira state (59 and 17 per thousand births, respectively). We observe that while in north and south Darfur States, health services are expensive and difficult to get, yet child mortality rates are lower than the average of Sudan, which may be attributed to under-reporting of child mortality as a result of political instability in these states.

## **2. Literature review**

Studies in different disciplines, including demography, economics, anthropology and sociology, conclude that a strong inverse relationship exists between mothers' schooling and child's mortality. At the most obvious level, educated women are likely to be more knowledgeable about nutrition, hygiene and health care. Thus, for example, Mensch, et al. (1986) found that in developing countries, an additional year of maternal education tends to be associated with a relatively constant percentage change in child mortality rates. Mortality tends to be higher in rural than in urban areas. In many low-income countries, the proportionate reduction in child mortality resulting from an additional year of mothers' schooling is about the same, and ranges between 5 and 10 percent. The effect of fathers' education is smaller, especially in rural areas.

In Latin America, the infant mortality rate was 3-5 times higher for mothers with no education than for those with some university education. On average, mothers with only 1-4 years of education often experienced infant mortality rates that were 30% lower than those experienced by mothers without education. The drop of the infant mortality rate for women with 1-4 years of education was greater than 30% in Brazil, Colombia, Ecuador and Peru (HRO, 1993).

It was also observed that mothers' education explained more of the variation in child mortality than the other variables, such as individual's access to health care, the prices of health care services or even total family income spent on health care. As mentioned earlier, the study by Subbarao and Raney (1995) showed that double female secondary school enrolment ratio from 19% in 72 sample countries to 38% in 1975 reduced infant deaths in 1985 by 64%, while double the number of physicians reduced the number of infant deaths by 2.5%. Furthermore, double per-capita income from the sample average of \$650 in the 72 countries to \$1300 would have no effect on the number of infant deaths.

It was argued that better-educated mothers used a different mix of observable health inputs more effectively, their use of many minor unobservable health inputs was positively correlated with their education level, and their education was credited with the effect of these unobserved inputs on child health (Schultz, 1984). Along similar lines, Caldwell (1979) hypothesized that in West Africa, a mother's education enabled her to exploit local public health care more effectively. He suggested that the interaction between mother's education and local public health infrastructure was complementary or positive. Similarly, Estrey and Habicht (1988) found that safe water supplies reduced child mortality by a greater amount for more educated than for less educated mothers in Malaysia, whereas access to toilets in the household was less effective in reducing child mortality in the case of educated mothers.

Rosenzweig and Schultz (1983), however, found the opposite (negative) pattern of interactions (or substitution) for Colombia, where differences in maternal education had a smaller impact on child mortality in

urban populations that received more public and private health services. Their findings were consistent with the aggregate patterns reported for Latin America by Behm (1980) and Palloni (1981) and for Sri Lanka by Meegama (1981) and Schultz (1999). These authors observed that the largest payoff in terms of non-market returns to maternal education was realized when public health and family planning programs were least developed. Differentials in child mortality by mother's education were the smallest in urban areas served by relatively well-funded public health programs, and largest in rural areas that generally lay outside the reach of hospitals, public health and family planning clinics.

Also Haines and Avery (1982) found that an additional year of a mother's education reduced her children's mortality by 6 to 7 percent, holding constant household sanitation, quality of the dwelling, community child mortality levels and health care facilities. They concluded that the child-health gained related to mother's education were smaller in urban areas, a result also found by Schultz (1980) for Colombia and Behm (1976) for several Latin America capital cities.

Barrera (1990) also observed this negative interaction (or substitution) between mother's education and community variables. He used household and community data for the Philippines to study the relationship between maternal education and child health. He analyzed this relation conditional on the community's average levels of water and sanitation but not on the household's actual variables assumed to be correlated with unexplained variations in child health. He found that mother's schooling had larger protective effect on child health in unsanitary communities. In a community where piped water was the predominant source of supply, the impact of mother's education diminished, whereas when water-sealed toilets were more prevalent in the community, the effect of maternal education on child health were larger.

According to Beneto and Schultz (1996), the relationship between child mortality and mothers' education was negative, even after-controls were included for the community health infrastructure, health problems, food prices, household assets, ethnicity and region. In Cote d'Ivoire and Ghana, each year of secondary school completed by a mother in Cote d'Ivoire and each year of middle school completed by a mother in Ghana led to a reduction in child mortality rate by about 1%.

Most of the studies on the effect of education on child health had not taken fertility decisions into account; they assumed that the composition of the population of children classified by health was unrelated to prior fertility decisions. Inherent healthiness and other unmeasured determinants of health will influence the fertility decision. For example, when parents are less (more) likely to have a child whose inherent healthiness is perceived as low (high), we have a negative (positive) birth selection decision.

Pitt (1995) estimated a reduced form of a model of the determinants of child mortality in 14 sub-Saharan African countries, with a view to obtain a measure of the effect of mother's schooling on child mortality allowing the potentially selective nature of fertility. He assumed that first births were exogenous. In particular, the lack of fertility in all periods prior to the first birth was not selective. The intuition was that in a high fertility environment, almost all fecund women bear at least one child during their reproductive lives, and a sample of women with one child each reflected the distribution of health heterogeneity of the full population of women. Selective fertility choice began subsequently after the first birth. The results provided substantial evidence of biased estimation of the effect of women's schooling and age on the probability of child death prior to age 2 years. Furthermore, not accounting for selective fertility led to under-estimation of the beneficial effect of women's schooling on reducing child mortality in 11 of 14 countries. The magnitude of this under-estimation was large in certain countries (e.g., Tanzania and Nigeria). Methods that ignored the potential selective effect of fertility underestimated the

importance of women’s schooling by a factor of 3 for Tanzania and 2 for Nigeria. With regard to Sudan, selective fertility also led to underestimated child mortality, but by a small proportion (see Table 3).

According to Pitt (1995), the percentage of children who died before age 2 decreased with the level of education. Similarly, Farah and Preston (1982) studied child mortality differentials in Sudan and found that each additional year of mother’s schooling led to a proportionate reduction of 0.36 in the proportion of death among children, so that five years of maternal schooling is expected to reduce child mortality by 18%. Fathers’ education, while significant, had only about one-third of the effect of mothers’ education. Farah and Preston (1982) also observed that the regional dummy variables had a considerable effect on child mortality. For example, residing in one of the three southern regions (Bahr El Ghazal, Upper Nile and Equatoria) raised child mortality relative to those in Khartoum by 48-71%. Residing in one of the other northern regions also raised mortality relative to those in Khartoum, but by a smaller amount.

**Table 3 Marginal direct effect of raising female schooling by one year on child mortality rate (1-23 months) per thousand live births**

School years	Uncorrected fertility selected	Selection corrected	Percentage of children who died before age 2
At zero year of education	-4.499	-6.040	10.65
At 3 years of education	-4.136	-5.315	7.82
At 6 years of education	-3.785	-4.631	7.05

Source: Pitt (1995).

We observed that region of residence in itself was not a determinant of child mortality, but it acted as a proxy for other variables such as environmental diseases (malaria, for example) and general level of development including health and education system. In this regard, Farah and Preston (1982) observed that the mode of living variable had little explanatory power of child mortality in Sudan, compared with its explanatory power at the regional level.

When they restricted the analysis to Khartoum, Farah and Preston (1982) found that the most significant variable that affected child mortality was women’s education, which reduced child mortality by 36%. It might be noted that estimated value of this coefficient was identical to that reported for all Sudan, even though the level of female schooling was much higher in Khartoum. Husband’s education had a smaller significant effect on child mortality. Living in a dwelling built of traditional materials raised child mortality by 7% in all Sudan and by 6% in Khartoum. Labour force participation of mother increased child mortality by 27% in Khartoum and by 10% in all Sudan. Enormous mortality differentials according to husband’s income had also been observed for Khartoum.

Maglad (2000) examined the impact of parent’s education, health services and household standard of living (measured by permanent income) on child survival in rural Sudan. He used a sample of 1400 households resident in rural areas of the central region and in rural councils in Kordofan. His results suggested that child’s mortality increased linearly with women’s age. Child mortality was also negatively associated with parental education. The effect of mother’s education on mortality was more pronounced and statistically significant compared to father’s education. Mother’s primary education produced a reduction in child’s mortality rate by 3%, while father’s primary education reduced child’s mortality rate by only 2%. When health intervention programs and regional controls were introduced into the analysis, the impact of mother’s education became statistically insignificant, implying that mother’s education and health services were substitutes, an observation which had also been made by Rosenzweig and Schultz (1983). Maglad (2000) reported a negative relationship between child mortality and

government health services. Thus, for example, per capita hospital beds led to a reduction of 3-4% in average child mortality. Income had a favorable effect on child mortality, where the income elasticity of child mortality was estimated at -0.1, indicating that double sample meant income would reduce child mortality by 1%. Using the 2SLS to capture the endogeneity of income increased the income elasticity of child mortality to -0.7. The coefficient of father's education was reduced considerably, and was no longer significant as a determinant of child mortality, since its effect worked through income.

### 3. The empirical models

The analysis in this paper is built on the theoretical models of health production functions, with child mortality as the main outcome variable. Following Rosenzweig and Shultz (1983), let the hazard rate  $\lambda(t)$  of dying at age  $t$  (between zero and five years), corresponding to the mortality production technology be:

$$\lambda(t) = \lambda_0(t) \exp(\beta X) \quad (1)$$

where  $\lambda_0(t)$  is the baseline hazard,  $\beta$  is the vector of parameter estimates and  $X$  represents a vector of behaviors that do not vary over time, e.g., gender and age of mother at birth (individual characteristics).

Adopting the production function terminology, applied to health by Grossman (1972)  $x$  will be referred to as inputs. Some inputs are part of the behavioral decision process while others, like gender, are beyond parental control. In other words, while the parents do not have direct control over child health, they control inputs such as community variables (e.g., health services and water accessibility).

Household  $h$  is assumed to make a choice that maximizes its perception of well-being, since there is imperfect information. Following Dow (1999), the utility function  $U_{ih}$  of household  $h$  conditional on a choice  $i$  is specified as an additively separable and linear function of health  $H$  and non-health consumption  $G$ , so that:

$$U_{ih} = \omega_1 G_{ih} + \omega_2 H_{ih}, \quad i = 1, \dots, n \quad (2)$$

The household  $h$  faces a budget constraint such that:

$$P_G G + P_H H_{ih} = Y \quad (3)$$

where  $P_G$  and  $P_H$  are prices of non-health and health consumption inputs respectively.

Choices are also constrained by the health production technology, specified as dependent on an alternative specific intercept  $A_i$ , based on the fact that various inputs have different characteristics affecting the household choice, and a vector of other choice attributes to individual characteristics  $X_i$ .

$$H_{ih} = A_i + \gamma_i X_{ih} \quad (4)$$

Formally the household maximizes utility function in (2) subject to (3) and (4). Therefore a household will choose one alternative if and only if,  $V_{ih} > V_{jh}$ ,  $i \neq j$ .

$V_{ih}$  is the indirect utility function for a specific input choice  $i$  and a household  $h$ , which can be separated as:

$$V_{ih} = v_{ih} + \varepsilon_{ih} \quad (5)$$

where  $v_{ih}$  is the systematic or deterministic component of the indirect utility function. It is assumed to have an identical form for all households. Therefore the  $h$  subscript will be suppressed onwards.  $\varepsilon_{ih}$  is a stochastic or random component reflecting all the unobserved and unmeasured properties of the household.  $\varepsilon_{ih}$  is assumed to be independently, identically distributed. Substituting the constraint into the utility function yields the indirect utility function of the underlying parameters:

$$V_i = \omega_1(Y - P_H H)/P_G + \omega_2 A_i + \omega_2 \gamma_i X_{ih} \quad (6)$$

Thus the observed effect of change in an input  $X_i$  on child mortality is obtained by:  $\partial \lambda / \partial X_i$ .

Most studies found that child mortality ( $M$ ), which was defined as the number of under-five-year deaths, could be affected by household characteristics as well as by certain additional exogenous factors that affected the relative cost or availability of child health inputs for the parents.

Benefo and Schultz (1996) examined individual, household and community characteristics that might affect fertility in contemporary Cote d'Ivoire and Ghana, and the relation between child mortality and fertility, where child mortality was almost equal in the two countries (16 percent in Ghana and 17 percent in Cote d'Ivoire). The effect of one to four years of schooling was associated with one-sixth and one-third decline in child mortality in Ghana and Cote d'Ivoire, respectively. Also, they found that each year of secondary education completed by the mother in Cote d'Ivoire and each year of middle school completed by the mother in Ghana was associated with a reduction in child mortality rate by about 0.01. According to Maglad (2000), child mortality in rural Sudan was found to be inversely associated with parental education. Maternal primary education brought a reduction of 3% in average child mortality. Also he found that income produced a significant negative effect on child mortality, where the TSLS estimates suggested that the income elasticity of child death was -0.7. Building on the above, it may be argued that the factors affecting mortality include among others, income ( $y$ ), and some socio-economic variables such as education level of mother ( $E_m$ ), education level of father ( $E_f$ ), mother's age ( $A_m$ ), mother's age squared ( $A_m^2$ ), a dummy variable for mode of living ( $R$ ), the mortality equation may be specified in the general functional form:

$$M = M(y, E_m, E_f, A_m, A_m^2, R, C) \quad (7)$$

For purposes of the present study, we use income per adult as explanatory variable.

The set of community variables ( $C$ ) includes the availability of continuous water supply (which is introduced as a dummy variable, taking the value one for a continuous source of water in the house, and zero otherwise), the availability of vaccination in hospital and medical centers in the council (also introduced as a dummy variable, taking the value one if vaccination is available in the council, and zero if it is not available), the number of nurses and medical assistants, and environmental health care (which is measured according to the level of environmental and health services provided in the council area). The coefficients of community variables are expected to be negative.

#### **4. Data**

In this analysis, we used a sample of 600 households resident in urban and rural areas of the Algezira province in the central region of Sudan.

The households were selected by multi-stage stratified random sampling, in rural area villages were stratified according to the level of education and health services. Thus three strata were defined, namely (1) all services are available in the village (primary school, secondary school, medical center and environment health care); (2) some of the services are available; and (3) none of the services are available. A representative village was selected randomly from each stratum. Thus a total of twenty-one villages were selected from the province. However, because of the small number of households in these villages, each village is considered as a residential cluster on its own. The total number of the households selected from the rural area was 351.

In the urban areas, the two-stage sampling procedure was adopted. In the first stage, the residential areas were divided according to the population size. Thus two strata were defined, namely high-density populated areas (above one thousand households) and low-density populated areas (below one thousand households). From each

stratum, residential clusters (ahia) were selected randomly in proportion to the number of administrative units in the strata. So, sixteen residential clusters were selected from the province. Therefore the total number of the households was 267.

### **5. Estimation of the child mortality model**

Child mortality, which is defined as under-five years deaths, is assumed to depend on households characteristics such as age of mother, education years of mother, education years of father, household's income, and community health characteristics, which include environmental health care, continuous water supply, availability of nursing and medical assistants, and availability of vaccination services in hospitals and medical centers in the area councils.

Three versions of the child mortality model were estimated. The first version included the set of variables as explanatory variables related to household's characteristics and community health characteristics outlined above. In addition to these variables, a dummy variable representing the mode of living had been introduced to capture its effect on child mortality. The dummy variable took the value one for urban women and zero otherwise (Column (1), Table 5 & Table 6). In the second version, we excluded the mode of living variable from the model (Column (2), Table 5 & Table 6), while in version three we introduced interaction variables to the model, namely the interaction between mother's education and number of nurses and medical assistants, the interaction between mother's education and availability of vaccination services, and the interaction between mother's education and environmental health care (Column (3), Table 5 & Table 6).

Before proceeding to the empirical results, it might be useful to outline some preliminary statistical results related to child mortality. From the data, we observed that the mean child mortality was estimated at 0.479 children for all women and at a higher value of 0.561 for rural women, and a lower value of (0.307) for urban women. From Table 4, we also observed that the mean child mortality declined with the level of mother's education, which was also clear from Figure 1. According to Figure 1, mortality among children of mothers who had not obtained any kind of education was 222, representing about 28.7% of the sample size, while mortality of children whose mothers obtained university education level was zero. We now turn to the estimation of the child mortality model.

**Table 4 Means and standard deviations of child mortality by mother's education level**

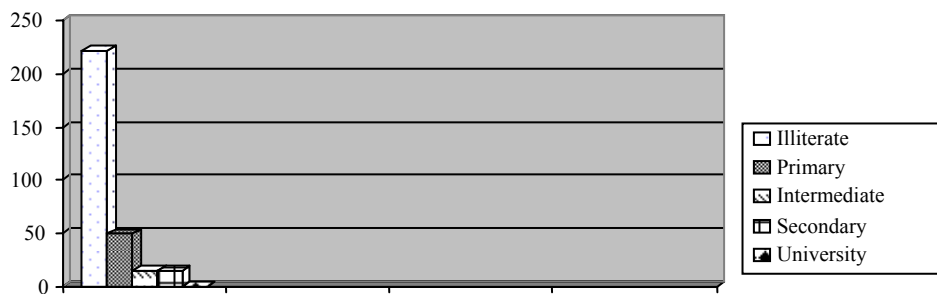
Variable	Mean	Std. deviation	Sample size
Illiterate	0.7994	1.3010	309
Primary	0.4105	0.8544	190
Intermediate	0.2043	0.5225	93
Secondary	0.1712	0.6143	146
University	0.0000	0.0000	35
Number of observations	773	773	773

Source: Own calculation based on household survey, 2001.

Table 5 presents the OLS estimates for three versions of the child mortality model, which are all significant at the 1% level. Although many studies, notably by Farah and Preston (1982) and Maglad (2000), confirmed the importance of the mode of living as an explanatory variable in the child mortality model, the coefficient of this variable in the first version of the model was statistically insignificant. This could be due to the similar characteristics of rural and urban areas in the Gezira province.



**Infant and child mortality in Sudan: Case of central region**



**Figure 1 Child mortality according to mother's education level**

**Table 5 OLS estimation of the mortality model**

Variable	(1)	(2)	(3)
Constant	0.349 (0.366)	0.0903 (0.099)	0.677 (0.729)
Age	0.059 (3.385)*	0.058 (3.360)*	0.06 (3.478)*
Age squared	-0.0006 (-3.031)**	-0.0006 (-3.025)*	-0.0006 (-3.172)*
Education year of mother	-0.0285 (-2.064)**	-0.0292 (-2.12)**	-0.182 (-3.181)*
Education year of father	-0.0398 (-1.513)	-0.0415 (-1.507)	-0.047 (-1.717)
Ln income per adult	-0.0826 (-1.883)**	-0.0622 (-1.87)**	-0.078 (1.962)**
Mode of living	-0.164 (-0.513)	-	-
<b>Community variables</b>			
Number of nurses and medical assistants	-0.0344 (-3.746)*	-0.0316 (-3.510)*	-0.0478 (-3.468)*
Availability of vaccination services	-0.136 (-0.812)	-0.202 (-1.243)	-0.434 (-2.054)**
Environmental health care	-0.222 (-2.746)**	-0.247 (-3.126)*	-0.416 (-3.679)*
Continuous water supply	-0.298 (-1.504)	-0.417 (-2.29)**	-0.443 (-2.402)**
<b>Interaction variables</b>			
Mother education VS Number of nurse and medical assistants	-	-	0.003 (1.635)
Mother education VS Availability of vaccination services	-	-	0.052 (1.997)**
Mother education VS Environmental health care	-	-	0.034 (2.365)**
Adjusted R <sup>2</sup>	0.13	0.13	0.14
F-Ratio	8.47	9.13	7.506
Number of observations	505	505	505

Notes: Dependent variable: child mortality; figures in parenthesis are t-ratios; \* coefficient is statistically significant at 1%; \*\* coefficient is statistically significant at 5%.

Source: Own calculation based on household survey, 2001.

There were no significant differences in the signs and significance levels of coefficients in the three versions. Women's age had a positive significant effect on child mortality. An old woman was likely to fall in the high order birth group, where the risk of child mortality is high, and hence to suffer more child losses. Child mortality and parental education were negatively associated. The coefficient of mother's education variable was more significant and became more so in the third estimated version of the model. According to these results, an additional year of mother's schooling is associated with a proportionate reduction of 2.9 in the proportion of deaths among children. These results were consistent with those of Maglad (1993) who observed that the negative effect of mother's education on mortality was more pronounced, and was statistically more significant compared with father's education. According to Pitt (1995):

Most recent studies of child mortality find a women's education to be related negatively to her experienced child mortality, although this effect of female education could be due partly to the child health inputs, she is able to purchase or produce with her education enhanced wage and improved marriage prospects.

The estimated coefficient of income per adult indicated the favorable effect of a rise in income on child survival; presumably because it could purchase better food and health inputs that reduce mortality. Based on the first version of the model, the computed average income elasticity of child deaths was -0.17. The most significant variable explaining child mortality was the number of nurses and medical assistants, the availability of which led to a significant reduction in child mortality. Although the availability of vaccination services reduced child mortality, it was not statistically significant except in specification three. This might be attributed to the limited coverage of this service in the study area. Environmental health care and availability of water supply produced large and statistically significant effects in reducing child mortality.

The interaction between mother's education and community variables showed that uneducated mothers were more likely to benefit from public community services than educated mothers. As such, mother's education and community variables were substitutes. This result was similar to those of Rosenzweig and Schultz (1983) for Colombia, and Maglad (1993) for Sudan. The coefficients of interaction between mother education and availability of vaccination services and interaction between mother education and environmental health care were more significant than the coefficient of interaction between mother education and the number of nurses and medical assistants.

To examine the effects of different levels of education on child mortality, four levels of education were introduced to the mortality model as dummy variables, namely primary, intermediate, secondary and university education levels. Table 6 reports the OLS results of the three versions of the model. We observed that father's education levels had more significant impact on child mortality compared to mother's education. Secondary and university levels of education of father in all versions produced larger reductions in child mortality compared with the corresponding education levels of the mother. This could be explained in terms of the fact that women who obtained these levels of education were more likely employed in the labour market, leaving their children without appropriate care. In addition, the effect of mother's education may be underestimated since the community variables may capture some of the variations in mother's education. All levels of mother's education were statistically insignificant. Mother's university education level had a more pronounced impact on child mortality relative to other education levels. The results of the impact of other household and community characteristics variables on child mortality were similar to those reported in Table 5. The income elasticity of child mortality is estimated at -0.14.

**Infant and child mortality in Sudan: Case of central region**

**Table 6 OLS estimation of the mortality model by parent's education level**

Variable	(1)	(2)	(3)
Constant	0.500 (0.510)	0.0735 (0.078)	0.190 (0.205)
Age	0.0684 (3.874)*	0.0677 (3.837)*	0.0603 (3.430)*
Age squared	-0.0006 (-3.352)*	-0.0006 (-3.333)*	-0.0006 (-3.103)*
Woman education			
Primary	-0.190 (-1.345)	-0.180 (-1.280)	-0.212 (-1.207)
Intermediate	-0.211 (-1.140)	-0.199 (-1.079)	-0.315 (-1.139)
Secondary	-0.169 (-0.884)	-0.162 (-0.848)	0.332 (-0.951)
University	-0.228 (-0.827)	-0.240 (-0.870)	-0.444 (0.950)
Husband education			
Primary	-0.108 (-0.759)	-0.117 (-0.818)	0.153 (-1.041)
Intermediate	-0.321 (-1.731)***	-0.323 (-1.738)***	-0.358 (1.899)**
Secondary	-0.321 (-1.835)**	-0.349 (-2.006)**	-0.380 (-2.175)**
University	-0.373 (-1.699)	-0.403 (-1.882)**	-0.453 (-2.088)**
Ln income per adult	-0.0657 (-2.019)**	-0.0462 (-1.873)**	-0.0436 (-1.906)**
Community variables			
Number of nurse and medical assistants	-0.0339 (-3.561)*	-0.0312 (-3.335)*	-0.0396 (-2.902)*
Availability of vaccination services	-0.098 (-0.578)	-0.162 (-0.987)	-0.235 (-1.169)
Environmental health care	-0.207 (-2.506)**	-0.231 (-2.867)*	-0.263 (-2.545)**
Continuous water supply	-0.365 (-1.821)**	-0.481 (-2.607)**	-0.397 (-2.128)**
Residence	-0.166 (-0.482)	-	-
Interaction variables			
Mother education VS Number of nurse and medical assistant	-	-	0.0016 (0.874)
Mother education VS Availability of vaccination services	-	-	0.0001 (0.007)
Mother education VS Environmental health care	-	-	0.0018 (0.182)
Adjusted R <sup>2</sup>	0.14	0.14	0.13
F-Ratio	6.27	6.53	5.084
Number of observations	540	540	540

Notes: Dependent variable: child mortality; figures in parenthesis are t-ratios; \* coefficient is statistically significant at 1%; \*\* coefficient is statistically significant at 5%; \*\*\* coefficient is statistically significant at 10%.

Source: Own calculation based on household survey, 2001.

Interactions between mother education and community variables had positive but insignificant effects on child mortality. This suggested that there was substitutability between mother's education and community

variables.

## 6. Summary of results and policy implications

(1) Child mortality was inversely associated with parental education. Years of mother education had more significant effect in reducing child mortality than years of father education. In the basic child mortality model, an additional schooling year for mothers brought a reduction of 5% in average child mortality;

(2) In the extended child mortality model, father's education levels had a more pronounced significant effect on child mortality than mother's education levels. Intermediate, secondary, and university education levels of fathers reduced child mortality by 36%, 38% and 45%, respectively;

(3) Income and mode of living had negative, but insignificant effects on child mortality, such that an increase in income reduced child mortality by 8.26%, 6.22% and 7.8% in the first, second and third versions of the basic model, respectively. The income elasticity of child mortality in the basic model with education years was -0.17, compared to -0.14 in the extended model with education levels as explanatory variables;

(4) While child mortality was positively associated with women's age, it was negatively and significantly associated with all community variables, except the coefficient of availability of vaccination services. In particular, Continuous water supply in the house brought a reduction of 62% in average child mortality, while environmental health care reduced child mortality by 46.3%. An increase in the number of nurses and medical assistants brought a reduction in average child mortality by 7.0% only;

(5) The interactions between mother's education and community variables had a positive significant effect on child mortality, except the coefficient of interaction between mother's education, and number of nurses and medical assistance, which was positive but insignificant. In the model of education levels, the effect was still positive but insignificant. This meant that mother's education was a substitute for community and health services, and that uneducated mothers benefited more from hospital services in terms of child death reduction.

The most important policy implication of the results is that, government must adopt policies to improve access to community infrastructure, such as health facilities and sanitation, and parental education, which are important ingredients in reducing child mortality.

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