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ASYMMETRIC INFLUENCE ON SATISFACTION IN THE TAKEOVER-PROCESS OF SMES IN AUSTRIA

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Abstract

Business succession belongs to a crucial challenge for family owned businesses. This study investigates on the asymmetric influences on satisfaction in takeover-process of the successor and the incumbent. The empirical results are derived from n=216 incumbents and n=387 successors. Our findings indicate that the influencing factors on satisfaction differ significantly from the senior generation to the next generation. Whereas for the predecessor the willingness of the successor to take over has the highest impact on satisfaction, the trust of the predecessor in the successor is most important for the latter one. This shows the importance of not only considering both stakeholders in conducting family business research, but also which factors should be considered by both parties more carefully when taking over.

Keywords: Family business, takeover-process, satisfaction

Topic Groups: Entrepreneurship, Managerial and organizational cognition and psychology, Social sciences and business

1. INTRODUCTION

Family firms are characterized like no other business form by two values: family and ownership. According to the European Commission (2006) 690,000[1] European small- and

[1] This does not imply that family firms are fully congruent with small and medium-sized companies; however, most of these companies are family firms.

medium-sized enterprises change the owner each year, affecting 2.8 million jobs. In Austria around 75 % - 80 % of all companies are owned by family firms (Czernich et al. 2005). In absolute numbers this equals to about 233,000 market oriented companies, which contribute to 50% of the Austrian GDP and employ 75% of the Austrian workforce. For the time period between 2009 and 2018, Mandl (2008) estimated a succession-potential of 57,700 or equivalent to 18% of all small and medium enterprises shows that continuity is an issue.

Especially for family firms the transition process is considered as a crucial event within the life cycle of a business because the process has an influence on the firm's value, the firm's performance, and, potentially, the firm's survival (Diwisch et al., 2009; Bennedsen et al., 2007). However, many family businesses fail in a successful business succession. While 67% succeed into the second generation, only 32% manage the transition process in the third generation, and, even less, 16% get ahead with the family business (Leitl, 2007; Sharma et al., 2001; Wimmer et al. 2005). The reason for the failure cannot only be found in the lack of expertise or in the managerial aspects, but also in the interpersonal relationship between the predecessor and the successor.

Barach and Ganitsky (1995), and Kansal (2012) found out that the succession planning process gets adversely affected when the retiring owner tends not to let go and continues to interfere the daily business. The time of the succession can be postponed due to a lack of trust in the successor's ability, willingness, and desire to take control (Goldberg and Wooldridge 1993; Matthews et al. 1999).

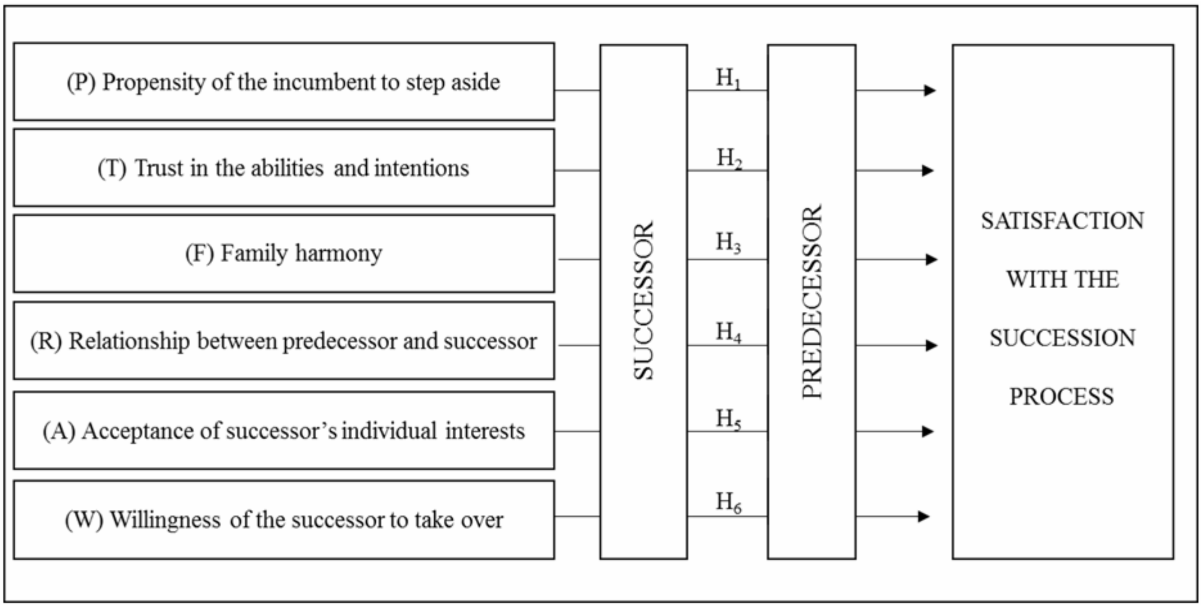
Theory and research conceptualize the family and a firm in broad systematic terms in which the family and the firm are two distinct and monolithic entitites that directly influence each other. A family is characterized by harmony, shared values, and principles, which can be considered as a main reference point in a family business and a decisive factor for a successful succession. (Churchill and Hatten, 1987; Friedmann,1991; Lansberg, 1994). Compared with non-family businesses, family firms are considered to build an ideal context to develop misunderstandings and conflicts (Bracci and Vagnoni, 2011; Brockhaus, 2004; de Massis et al, 2008). Although, emotions and conflicts arising within the succesion process are often discussed in theoretical elaborations, empirical studies which focus on psychological aspects regarding succssion in family businesses are relatively rare. This shows how little interpersonal aspects as the sole focus has been empirically investigated (Filser et al., 2013).

This study contributes to research on family business management. First, it extends previous research of Sharma et al. (2003), Lansberg & Astrachan (1994) and Venter et al. (2003) and improves their explanatory power. Second, this study is filling the research gap as pointed out by Filser et al. (2013) by focusing on psychological aspects as a single research approach, because the exisiting generic approaches are often insufficient and "watered down". Third, this study highlights the different roles and preception in the take-over process of the two stakeholders involved, the predecessor as well as the successor, and their influence on satisfaction.

2. THEORY

The development of the theoretical model applied refers to the findings of Sharma et al. (2003), Lansberg & Astrachan (1994), and Venter at al. (2003). This model indicates a direct influence of six factors on satisfaction in the succession process. According to Figure 1 this model shows in how far these six factors will influence the satisfaction of the predecessor and successor in the takeover-process: (1) propensity of the incumbent to step aside, (2) trust in the successor abilities and intentions, (3) family harmony, (4) relationship between predecessor and successor (5) acceptance of successor's individual interests (6) willingness of the successor to take over.

Figure 1: Determinants of satisfaction with the succession process in the family firm



Carbera-Suarez et al. (2001), Handler (1990), Sharma (1997), Sharma et al. (2001) as well as Venter et al. (2006) recommend in order to ensure a fruitful succession process, all different stakeholders involved in the process must be satisfied with its outcomes and the successor should have the ability to ensure the sustainability and financial security of the family business after the succession process has been completed. The satisfaction of the different stakeholders is grounded on the basic understanding of the success of an achievement, from which success or failure is not dervied from an objective performance but rather from the attainment of the main and individual targets (Spelsberg, 2010). The studies of Dess & Robinson (1984) and Venkatram & Ramanujam (1987) show in how far the perceived satisfaction of the succesion proccess can be used as an indicator for economic performance. The satisfaction of two stakeholders are therefore the only measures for a succesful succession process and is the dependent variable in our study.

2.1. Propensity of the incumbent to step aside

Levinson (1971) argues that the difficulties of a family business begin with its founder. Usually the business has three important meanings to the entrepreneur: First, unresolved conflicts with the father which lead to build a new business in order to escape from the fathers powerful authority, and, as a result of his ongoing 'need for control'. Second, the entrepreneur's business is concurrently his 'baby' and his 'mistress' and serves as an intense source of energy and interest. Third, the business is essentially an extension of the founder's personality and therefore a medium for his personal gratification and achievement above all. According to Handler and Kram (1988) the resistance of facing the thought of aging, dying or being incapcitated should be added as a fourth element to the list of psychological elements that reinforce the founder's bond the the business. Schein (2004), Ciampa & Watkins (1999) as well as Neubauer (2003) conclude that many businesspeople associate the term 'succesion' or 'take over' with the premonitions of a loss of power and nearing death, which leads to a conscious or unconscious repression of the succesion problem.

The literature incorrectly assumes that the founders and the incumbent are being identical, but there is one specific point on which the retiring founder differs from a retirer who did not actually found the company. Corbetta (1995) describes this phenomenon as a ‚cooling-off' of family patterns. This doesn't mean that the incumbent does not identify himself with the company, only that the level to which they do so tends to be less evident. It seems obvious, that the more the incumbent identifies with the business, the greater are the difficulties in the take-over process.

Matthews et al. (1999) assume that the succesion will be delayed until the predecessor either dies, becomes too ill to effectively manage the business, or until the former leader becomes aware of the self-need to pursue new interests. Incumbents struggling with the takeover-process experience strong feelings of rivalry and jealousy towards potential successors, the loss of influence in the company, and the leading role within the family.

2.2. Trust in the successor's abilities and intentions

According to Goldberg and Wooldridge (1993), the predecessor appears to have a natural aversion to let go. This repugnance can be accompanied by feelings of doubt about the succesor's willingness, ability and desire to take control. The reasons for qualms and mistrust originate from rivalry and jealousy towards the heir. Credibility influences the legitimacy of a succesful entry of the heir in the family business. If the younger and the older generation are not willing to accept each other, and if they do not spot each others competences and abilites, the difficulties of a successful integration into the firm may rise. Credibility in the potential successor is therefore crucial for a fruitful entry into the firm. Without credibility, the heir cannot attain legitimacy (Barach, et al. 1988).

The cognitive categorization of the successor/children with leadership skills by the predecessors/parents is important, because a person recognized as a leader will gain more social power and influence. (Shaw, 1990) Thus, the parent's trust and view of the child as a leader enhances their future leadership qualities and on the credibility of the predecessor in the abilities of the successor. Venter et al. (2005, 2006) show in their studies that trust in the abilities and intentions of the successors is the main factor that influences the satisfaction in the take-over process. The credibility in the successor and his intentions has a positive influence on the willingness to enter the family business, because trust is increasing the quality of the take-over process and the perceived satisfaction.

2.3. Family Harmony

The system perspective view recognizes the family and the business as two distinct yet overlapping groups (Handler & Kram 1988). In other words, different forces drive the business and the family. On the one hand, the business is a performance-based system, and, on the other hand, the family a relationship-based system. Family relationships can facilitate and hinder succession planning and successor training (Lansberg & Astrachan, 1994). Therefore, trust and respect of family members not actively involved in the family business may influence the harmony, because the most influential family members may not be actively involved in the business (Lansberg & Astrachan, 1994). A family business is built on the foundation of family values, which are critical for fostering family harmony. Various authors (Sharma, 2004; Venter, 2006, van der Merwe et al. 2012) found out that harmonious relationships among family members are important for successful succession as well as a successful family business, which ensures the continuity of the family business. Malone (1989) identified a positive relationship between perceived family harmony and continuity planning. This suggests that the greater the level of family harmony, the greater the possibility that successor will continue with the family business.

2.4. Relationship between predecessor and successor

The literature on family businesses and succession agrees on the importance of the relationship quality between the successor and the predecessor (Brockhaus, 2004, De Massis et al., 2008, Lansberg & Astrachan,1994). In most family-businesses the parents pass on the company to their children. Especially fathers and sons have a chronically ambivalent relationship. Sons identify themselves with their father, seeing the father as their role-model and want to follow their father suit. At the same time the relationship between them is characterized by rivalry and envy, which have their origin in childhood when they competed for the mother's attention (Cabrera-Suárez, 2005). Symptomatically, fathers and sons are terrible torn by these conflicts. The father considers his son as ungrateful and unappreciative, while the son feels both, hostile to his father and guilty for his hostility. The father thinks that his son never will be man enough to run the business, while the son yearns for his opportunity to run it and waits impatiently but still loyally in the wings for his place on the stage (Levinson, 1971). The roots of conflicts can be found (a) in the similarity or (b) in the differences of the characteristics of father and son (Baus, 2010). As a consequence, a mentoring relationship between a father and his son can be more challenging for the successor than the one that he could have with a non-family mentor (Cabrera-Suárez, 2005). Goldberg & Woolridge (1993) and Goldberg (1996) show that succesful heritors have a significant better relationship to their father/predecessor compared to less succesful heirs. The relation between incumbent/father and sucessor/son are potential 'war zones' in families. Possible solutions to solve these conflcits are realistic planning, active steering as well as binding rules for the entry of the successor and the exit of the incumbent (Baus, 2010).

2.5. Acceptance of successor's individual interests

Carlock (2001), Handler (1990, 1994) as well as Venter et al. (2005) suggest a positive correlation between individual needs and the willingness to take over. The more personal needs and career interests of the next-generation family member are aligned with opportunities offered by the family business, the higher is the willingness of the successor to take over.

Handler's studies (1990, 1994), for instance, distinguish at the interpersonal level between the personal need alignment and the personal influence. Personal need alignment signifies the degree to which an individual's needs – associated with career, psychological development, and life-stage – can be fulfilled in the context of the family business. Especially, the desire of the successor to have own career interests, their individual sense of personal identity and needs associated with exploration (while in their twenties), advancement (while in their thirties), and balance (while in their forties) met within the context of the family firm. Personal influence denotes the ability to take charge of one's situation within the family business. If successor experience low personal need alignment and personal influence they are likely to feel confined, unfulfilled, angry, resentful, and despairing. Handler shows in her studies a positive correlation between the ability or potential of the future successor to exercise personal influence in the family business and a positive succession experience.

2.6. Willingness of the successor to take over

Vital to the incumbent's willingness to hand over the family business is the successor willingness and interest to take over (Sharma, 2004; Sharma et al., 1997). According to Neubauer (2003), Sharma & Irving (2005), and Tagiuri & Davis (1996) the successor's interest and willingness to take over play a key role in a successful transition of the business from one generation to the next. Enjoyment, personal satisfaction and financial security with the family business would make the succession to the designated successor more appealing (Dumas, et al., 1995; Venter et al. 2003; Venter et al. 2005). In other words, if the potential successor is averse to take on the responsibility of the family business, for whatever reason, the succession is unlikely to be successful.

3. METHODOLOGY

The questionnaire has been developed based on the theoretical constructs of Lansberg & Astrachan (1994), Sharma et al. (2003), and Venter et al. (2003) with six multi-item dimensions and 31 items. The items were linked to a 7-point Likert scale ranging from '1 = completely disagree to 7 = completely agree. The only exception was the measurement on the item of the role of the stakeholder, predecessor, and successor.

In Austria exists no database, which contains reliable information on Austrian family firms. Therefore, we decided to use a convenience sample with a-priori sample size determination following the concept of Cohen (1988) with $\alpha_2 = 0.05$, $d = 0.3$ and power of the test = 0.8. This requires a minimum sample size of 175 for each stakeholder group, in total a minimum of 350 responses. Each participant had to fulfill the criteria of an SME as defined by the EU recommendation 2003/361 in which the SME has < 250 employees.

Due to the specific target group and their difficult accessibility, we were using the snowball-technique. Atkinson and Flint (2001) recommend the snowball-technique for finding research subjects which are considered to be as "hard to reach" among urban elites and where some degree of trust is required to initiate the contact. With this technique our friends, circle of acquaintances and several public institutions were asked to distribute the questionnaire to family businesses they know of in order to reach the predecessor and the successor. Hence, 1.700 written questionnaires via face-to-face contact and 7.200 questionnaire via online-survey, supported by public institutions were distributed.

We received 517 written responses from the face-to-face contacts, with a response rate of 30.26%. Three responses had to be removed because of the missing classification of the respective stakeholder. Another 89 questionnaires were collected via online-surveys, with a response rate of 1.24%. In total, we received 603 responses; 216 (35.82%) of these were filled out by predecessors and 387 (64.18%) by successors. Based from the a-priori sample-size estimation with 350 and a post-hoc analysis with 603 responses, we improved the total effect size from 0.3 to 0.23.

4. FINDINGS

Table 1 shows the results of the regression estimates for the predecessor and the successor for each dimension based on the conceptual model. The Cronbach's Alpha (α) for each dimension is between .881 and .947. The results of the regression analysis are shown in table 2. The aim of the regression analysis was to identify the regression coefficient for each dimension for each stakeholder in order to find out which dimension has a significant higher influence on satisfaction during the take-over process. The estimated regression coefficient for the predecessor for dimension (P) is .21, for dimension (T) .68, for dimension (F) .65, for dimension (R) .62, dimension (A) .59, and dimension (W) .80. For the successor the coefficients are .22, .62, .51, .46, .46 and .51, respectively. All dimensions, except dimension (P) show a significant higher impact on satisfaction for the predecessor than for the successor. Only dimension (P) has minor but higher influence on the satisfaction for the successor than for the predecessor. While for the predecessor the willingness of the successor to take over leads to a higher satisfaction, the successor needs the trust of the predecessor in order to achieve a higher satisfaction.

Table 1: Regression analysis

	Predecessor			Successor	
Dimension	**β**	**R^2**		**β**	**R^2**
(P) Propensity of the predecessor to step aside	0.21 *	0.09	<	0.22 *	0.10
(T) Trust in the sucessor	0.68 *	0.48	>	0.62 *	0.46
(F) Family Harmony	0.65 *	0.45	>	0.51 *	0.45
(R) Relationship between predecessor and successor	0.62 *	0.46	>	0.46 *	0.34
(A) Acceptance of successors individual interests	0.59 *	0.41	>	0.46 *	0.28
(W) Willingness of the successor to take over	0.80 *	0.59	>	0.51 *	0.34
Dependent variable: Satisfaction with the takeover process, *p < .001					

The propensity of the incumbent to step aside shows less influence (.22) on satisfaction but more for the predecessor (.21). In other words, the more activities and other interest the predecessor pursues besides the business the more satisfied is he with the takeover process. Therefore, we have to reject H1 and have to accept that the propensity of the incumbent to step aside has a higher influence on satisfaction for the successor than for the predecessor.

The trust in the abilities of the successor (.68) contributes more to satisfaction for the predecessors than for the successor (.62). This dimension shows the highest influence for the successor and the second highest for the predecessor. The higher the trust of the predecessor in the successor, the higher will be the satisfaction for both parties in the process. Consequently, we have to accept the hypothesis H2, that the trust in the successor abilities and intentions has a significant higher influence in satisfaction for the predecessor than for the successor.

The family harmony (.65) has an higher influence for the predecessor than for the successor (.51). For the sucessor family harmony is the second important dimension in order achieve satisfaction in take-over process and ranks only fourth for the predecessor. Despite the different order in impact, we have to accept H3, that family harmony has a significant higher influence in satisfaction for the predecessor than for the successor.

The relationship between predecessor and successor shows a coefficent of .62 for the predecessor and .46 for the successor. This means, that a good relationship leads for the predecessor to a higher satisfaction than for the sucessor. It seems, that for successors the relationship has less importance. Accordingly we accept H4: The relationship between the two stakeholders has a signficant higher influence on satisfation for the predeccessor than for the sucessor.

The acceptance of successors individual interests in a family business has a higher impact for predecessor (.59) than for the successor (.46). This result indicate a high respect and care of the predecessor towards the successor. Therefore, we accept also H5, that the acceptance of successors individual interests has a signficant higher influence on satisfation for the predeccessor than for the sucessor.

For the predecessor,the willingness of the successor to take over of the family business has the highest influence on satisfaction (.80). On the other hand, for the successor his or her willingness shows less impact with a coefficient of .51. Thus, accepting H6: The willingness of the successor to take over has a signficant higher influence on satisfation for the predeccessor than for the sucessor.

5. DISCUSSION

This study shows a significant influence of the willingness of the successor in the take-over process of family firms on the satisfaction of both stakeholders. For predecessor is this aspect even more important than for the successor. Sharma et al. (2003) also identified for the predecessor a significant higher influence on satisfaction if the successor is willing to take over. Venter et al. (2003) show similar results of trust and willingsness on satisfaction. According to Neubauer (2003) successors are willing to take over because 58% want to proceed with the family business, 32% pursue with the family tradition and 5% do not want to disappoint the predecessor. The highest influence for the successors is the trust of the family members into his abilities and competencies. This result is analogous with the findings of Venter et al (2003) and Chrisman et al. (2003). For both parties, the propensity of the predecessor has the lowest influence on satisfaction. Venter et al. (2006) identified an indirect relationship of the propensity of the predecessor on satisfaction because these activities bias the willingness of the successor to take over. This might be a reason why new activities within and outside of the family business are identified (Aronoff, 1998). Predecessors view the realization of the successors' individual interests within the family business as an opportunity and, therefore, the influence for the predecessor on satisfaction is higher than for the succesors. Venter et al. (2005) found out an influence of the individual's interests on the willingness to take over, but only an indirect impact on satisfaction.

Similar to the findings of Lansberg & Astrachan (1994) as well as Churchill & Hatten (1987), we found family harmony as major source for satisfaction for both parties. Friedman (1991) sees rivalry among siblings as a "war zone" in family businesses and offers different approaches to solve this conflict. Venter et al. (2006) detected a direct influence of family harmony as well as the relationship between incumbent and heir on satisfaction. Lansberg (1999) shows a signficant influence of the family harmony in the take over process. In other words, joint activities of the former and the new owner facilitate the relationship. Goldberg & Wooldridge (1993) and Goldberg (1996) demonstrate that a successful new owner has a better relationship to the former owner than less fruitful successors.

6. CONCLUSION AND IMPLICATIONS

The results show a significant asymmetric relationship between the predecessor and the successor. The trust in the successor, the family harmony, the relationship between the two stakeholders, the acceptance of the successor's individual interests, and the willingness of the successor to take over have a strong influence on satisfaction for both parties. The influence on satisfaction of these dimensions as well as their variance is much higher for the predecessor than for the successor. The lowest scores on the regression estimate and the variance are achieved on the dimension of the propensity of the incumbent to step aside. This means, that willingness of the predecessor to take over has only a marginal influence on the satisfaction. The focus in the take-over process should be therefore on trust, harmony, relationship, individual interests, and the willingness of the successor to take over in order to maintain successfully the family business.

As every study, also this study is confronted with several limitations. A replication study would improve the research results if pairs of predecessor and successors could be built. The snowball-technique limits the generalization. A database with all family-businesses in Austria would allow a random selection of companies and relevant participants. An extension of industry comparison and demographic data, like age and gender of the participants would refine the results. Due to the geographic limitations of our sample, the results offer future studies and comparison with other European States. Our study focuses on executed takeovers and bases solely on the perception of the participant. In order to close this gap, additional qualitative studies could give insights of interpersonal aspects during the takeover process.

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HUMAN CAPITAL DIMENSIONS – EDUCATION AND HEALTH – AND ECONOMIC GROWTH

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Abstract

The main scope of this paper is to analyse the role of human capital and its dimensions – education and health - as an essential factor of labour productivity and, consequently, of economic growth. Using a panel data model exclusively for developed countries for the 1980–2005 period and fixed effects methods, we conclude that the inclusion of health variables adds explanation power to the growth model. This empirical evidence corroborates the idea that health improvements have significant benefits on economic growth and therefore it should be considered as an important component of human capital along with education. Investing in individuals' education and health is important not only for an increasing wellbeing but also for a sustainable economic growth.

Keywords: Economic growth, health, education

Topic Groups: Economic Growth

INTRODUCTION

Gross domestic product (GDP) per capita is traditionally used as an indicator of the standards of living of a nation's population. Hence, a primary goal for governments and economic policy makers should be to raise the level of national output, assuring higher standards of wellbeing. Having this in mind, economists have tried from long time to explain what the main sources of economic growth are as well as to find the more suitable approaches to describe the growth process. While for the former it is largely accepted the role of capital investment and human capital as the main driving forces of economic growth, in what concerns the question of how to model and describe the economic growth process, there isn't a straight answer (López-Casasnovas *et al.*, 2005).

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In the last decades the human capital concept, traditionally associated to education, has been developed to include also health factors. In fact, health plays a relevant role in explaining the worker's productivity and, at the national level, the economy's performance. Therefore, it was necessary to adapt the theory of economic growth in a way to capture the effects of health factors as determinants of economic growth and convergence.

Assuming a broader notion of human capital that encompasses health along with education implies, however, additional difficulties namely with what concerns the empirical analysis. These difficulties are related with restrictions on the availability of adequate data, which limits international comparisons, but also with the multiple and complex pathways through which health can affect growth and that are directly associated with the reverse causality effects between health, education and growth.

In this paper our aim is to show how health capital has been integrated in the theory of economic growth and to present empirical evidence of its impact on developed countries' economic performance. With this purpose in the next section we explain the role of human capital as a production factor. Section 2.1 explains the main mechanisms through which health affects economic growth. In section 3 we describe the one of the most used methodologies in the economic growth theory that attempt to extend human capital to include health as an input factor. Sections 4 and 5 present our findings and discussion, respectively, and section 6 presents some conclusions and implications.

1. THEORY: HEALTH AS A FACTOR OF PRODUCTION

Health as a component of human capital has generated a great interest in the literature both from the theoretical point of view and empirical perspective[2]. If traditionally human capital is associated to the worker's education/skills, more recently it has assumed a broader notion to include health factors. The idea that human capital accumulation could be improved by investing in the population's health was already advanced in the sixties by Schultz (1961) and Mushkin (1962) and gained definitively relevance after Grossman's (1972) pioneer work.

Indeed, Grossman (1972) was the first to consider explicitly this issue, relating a higher preference for health (as a consumption good) to more educated individuals. According to the same author, health can be also seen as a capital good, since the production of health determines how much time is spent in labour. Healthier individuals are less likely to be absent at work due to illness and so they are more productive. In this context, health status is an important part of human capital, directly linked with education, and it can be defined as an individual's health stock[3]. Like physical capital, health capital depreciates over time but individuals can invest to improve their health status.

At a macroeconomic level, the idea that human capital incorporates not only education but also health status of the population is more recent. Some pioneer studies that relate health conditions with per capita income are due to Preston (1975), who showed a positive link between national income levels and life expectancy, and reports of the World Bank (World Bank, 1993). Initially the focus was on the role of health to less developed countries (LDC)

[2] For a review of the literature, see for instance Becker (2007).

[3] WHO Constitution of 1948 defines health as "a state of complete physical, social and mental wellbeing, and not merely the absence of disease or infirmity". However, in a context of health promotion, the WHO has assumed a more objective notion of health, being considered as "a resource which permits people to lead an individually, socially and economically productive life". In this perspective, health must be seen as "a positive concept emphasizing social and personal resources as well as physical capabilities" (WHO, 1998).

as a mean to escape from the poverty trap[4]. Since then, there was an increasing interest in the economic growth literature, mainly to analyze differences between rich and poor countries' performances. Several studies showed that initial health conditions are the most robust predictors of subsequent growth, having a higher explanatory power than the initial level of education (Barro, 1996; Knowles and Owen, 1997).

To a lesser extent, in the last years the analysis has also been extended exclusively to rich countries. In fact, in what concerns the most developed countries (OECD countries for simplicity) health is also a central issue both at academic and political debates because of two main trends that affect especially this group of countries. One is the ageing of the population (explained by higher life expectancy and lower fertility rates) and the other is the higher prevalence of chronic diseases (major cause of mortality and morbidity in the OECD countries (WHO, 2008)). Higher average ages of the working population in countries with longer life expectancies may have negative consequences on resistance to change or innovation capacity, which is the driving force of economic growth according to new growth theories. On the other hand, the increasing incidence of chronic diseases, that affect not only the elderly but also individuals still at working age, causes incapacity and absenteeism and, consequently, lower productivity that affects negatively economic growth. Lastly, it is also important to note the severe challenge that ageing population represents to the social security systems and the pressure it causes on public finances.

1.1. Channels through which health affects economic growth

Improvements in the health status of the population have a positive impact on economic performance through different mechanisms widely discussed in the literature. Following Howitt (2005), we can identify five main channels:

(i) Productive efficiency

Health, like education, is a conditioning factor of an individual's productivity and efficiency. There is empirical evidence (Schultz, 2005; Cai and Kalb, 2006) that healthier workers have more physical and mental energy, being more creative and productive. Health also affects labour supply since health problems cause many times *absenteeism* at work (Bloom *et al.*, 2001; Bloom and Canning, 2008) but also *presenteeism*, a relatively recent concept meaning those individuals that even feeling too ill still go to work although being less productive (Productivity Commission, 2006).

(ii) Life expectancy

One important outcome of health status improvements is the raise of life expectancy, which has consequences on education and investment/saving decisions. It makes investment in education more attractive and at the same time it is an incentive to save more for retirement, since individuals expect to live longer (Kalemli-Ozcan *et al.*, 2000). Therefore an increase of life expectancy should raise schooling qualifications and saving rates[5]. An increase of life expectancy has also effects on the demographic structure of the population. By reducing infant mortality, a higher life expectancy will be reflected on a raise of the proportion of working age population. However, in the long term it is expectable that a decrease in the fertility rate will have the opposite

[4] See Sala-i-Martin (2005), among others.

[5] It is expectable that increased life expectancy at 65 years old will influence consumer's life-cycle behaviour, leading to higher saving rate in the "middle age", since individuals probably will live more years being retired.

effect, so the final result will depend on the predominance of these two forces[6]. In what concerns the OECD countries, the evidence shows that the prevailing factor is the decrease in fertility rate leading to a higher dependency ratio and lower proportion of the working age population[7].

(iii) Learning capacity

At a microeconomic level many studies empirically support the idea that an improvement on health status and nutrition are responsible for better cognitive capacities and educational outcomes. Miguel (2005), using panel data methods for rural areas of Kenya and India, shows that both children health status and parent's death have an important impact on education, namely on school attendance. Case *et al*. (2005), using a panel data for the Great Britain, analyzed the impact of health (measured by prenatal and childhood health) on educational outcomes and found a strong relation between poor children's health and lower educational returns. In general it is expected that healthier people have higher learning capacity explained not only by showing less absenteeism at school or at work but also for being more capable to assimilate and accumulate more knowledge.

(iv) Creativity

Health improvements induce better educational achievements, which are likely to have additional effects on the country's creativity and innovation activity. This idea is supported by Nelson and Phelps (1966) who showed that educational improvement speeds technological diffusion since educated individuals are likely to become good innovators and to be more flexible to technological changes. In this context, it is assumed that healthier workers are more able to have positive reactions to change, which is a determining factor for a successful change implementation. Healthier and more educated workers will be more receptive to technological change and innovation processes.

(v) Inequality

Investment on human capital qualification is one important explaining factor of wage differentials[8]. Having this in mind, promoting health can be seen as a vehicle to reduce income inequalities, since health policies will affect more the less favoured population. As Howitt (2005) notes, a reduction of income inequality will allow a higher proportion of individuals to finance their education and their health needs, being therefore more able to improve their economic situation. Since the link between health and income is reversal, a decrease of income inequality will cause a reduction on health inequality. Investing in the health sector is a way to reduce income inequalities, to increase labour productivity and therefore growth.

Having all these linkages in mind it is important to notice that the health sector gains a growing share in the economy especially in the most developed countries. In fact,

[6] For a discussion on this issue and possible consequences on economic growth, see Prettner *et al*. (2010).
[7] This is in fact a most relevant issue that justifies an increasing interest by policy decision makers. On this issue, see for instance a special report by The Economist (2009).
[8] According to Mincer (1994: 8), human capital investments consider, beyond years of schooling, "formal and informal job training and learning as well as job mobility involving search on and off the job".

the health sector (including social services) is responsible for an increasing proportion on total employment in the OECD countries.

2. METHODS: MODELING GROWTH TO INCLUDE HUMAN AND HEALTH CAPITAL

The economic literature that studies the macroeconomic impact of health on economic growth usually follows two different methods: the aggregate production function approach or the economic growth framework based on the regression analysis. The first approach carries out an accounting decomposition of the different sources that affect aggregate output and was primarily followed by Klenow and Rodríguez-Clare (1997) and more recently by Bloom and Canning (2005)[9]. Some of the restrictions of this method are that it imposes technology parameters based on microeconomic evidence[10] and it assumes an aggregate production function that works in a similar way as the production function at the firm level. The economic growth regression approach (which is also based on the production function) has a more solid theoretical background than the production function accounting decomposition approach and it is in fact the most used in the broader literature of economic growth.

2.1. The MRW (1992) model

The growth model

Empirical research that uses the growth regression approach traditionally follows the augmented Solow-Swan model as proposed by Mankiw, Romer and Weil (MRW, 1992). As Islam (2003) points out, with this version of Solow's model, MRW showed that it is possible to reconcile sustained growth rate differences between countries. From the theoretical point of view, this model reflects the conditional convergence hypothesis, showing that the Solow model only predicts absolute convergence in special conditions.

In this model the growth equation to estimate is given by:

$$gy_{i,t} = b\ln(y_{i,t-1}) + c_1\ln(n_{i,t} + g + \delta) + c_2\ln(k_{i,t}) + c_3\ln(E_{i,t}) + c_4\ln(H_{i,t}) + \varepsilon_{i,t} \qquad \textbf{(1)}$$

where $\varepsilon_{i,t} = \alpha_i + u_{i,t}$, with α_i denoting the country-specific effects or measurement errors and $u_{i,t}$ refers to the idiosyncratic error term.

The dependent variable, $gy_{i,t}$, is the growth of per capita income considering three year intervals. We regress $gy_{i,t}$ on $y_{i,t-1}$, the initial per capita income of each period whose coefficient reflects the convergence hypothesis[11] when appears with negative sign; $n_{i,t}+g+\delta$ is the annual growth rate of population plus the rate of technological progress (g) and the rate of capital depreciation (δ); $K_{i,t}$ denotes the investment share, $E_{i,t}$ is human capital (proxied by) and $H_{i,t}$ represents the health capital[12].

Having in mind the advantages in adopting panel data estimation techniques, this is the approach used in most empirical studies in the economic literature, and this will be the approach adopted in this paper.

[9] In this study, based on a panel of countries for the period 1965-1995, the authors show that health in the form of adult survival rates has a positive and statistically significant contribution to aggregate output.
[10] These parameters are used to calibrate the size of the effects at the aggregate level. For further reading, see Bond *et al.* (2001).
[11] Barro and Sala-i- Martin (1992) developed this idea.
[12] In the Annex we explain the set of variables considered in our empirical study and the data sources.

We estimate this equation using panel data for 20 OECD countries (given by the subscript *i*) over the period 1980-2005. Having in mind our aim – to capture the impact of different dimensions of health on economic growth – we opt to consider several health proxies (one at a time to avoid possible colinearity) that we consider pertinent to characterize two different dimensions of health in the OECD countries: (*i*) the health care resources measured by the availability of practice physicians[13] (*physicians*) and (*ii)* the health status of the population, using potential years of life lost for males and females which is a measure of preventable mortality (*pyllmales* and *pyllfemales*, respectively) and life expectancy at birth (*lifexpect*).

3. FINDINGS

Table 1 shows the empirical results obtained from the estimation of growth models using panel data for OECD countries and for the period 1980-2005, using fixed effects methods.

Table 1: Growth regressions for OECD countries - Panel data, Fixed Effects

Variables	*Growth regressions OCDE countries, 1980-2005*				
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
$ln(y_{t-1})$	-0.2537*** (-6.122)	-0.3192*** (-7.242)	-0.3048*** (-6.157)	-0.2890*** (-6.099)	-0.3190*** (-6.068)
$ln(n_{i,t} + g + \delta)$	0.0198*** (3.004)	0.0128** (2.452)	0.0198*** (2.979)	0.0208*** (3.149)	0.0163** (2.599)
$ln(s_{i,t})$	0.3061*** (7.317)	0.3193*** (8.211)	0.3146*** (7.763)	0.3040*** (7.426)	0.3333*** (8.389)
$ln(educ_{i,t})$	0.4829*** (4.452)	0.2923* (1.924)	0.4390*** (3.697)	0.4256*** (3.298)	0.3303*** (2.762)
$ln(phisicians_{i,t})$		0.1542** (2.498)			
$ln(pyll\ male_{i,t})$			-0.0901* (-1.809)		
$ln(pyll\ females_{i,t})$				-0.0781 (-1.466)	
$ln(life\ expectancys_{i,t})$					0.8622* (1.895)
constant	1.3202*** (2.986)	1.3202*** (2.986)	1.7367** (2.008)	1.4894* (1.676)	-2.4377 (-1.594)
Notes:					
Nr Observations	158	125	154	154	156
Nr Countries	20	20	20	20	20
R2	0.399	0.539	0.446	0.442	0.440
F	22.25	23.34	20.79	20.40	20.62

t-statistics in parentesis
*** p<0.01, ** p<0.05, * p<0.1

As Table 1 shows, by comparing "R2" coefficient of the traditional growth model (Model 1) to the other models, we can conclude that assuming health factors in the growth regressions increases their explaining power.

[13] Practising physicians are those seeing patients either in a hospital or elsewhere (OECD, 2009).

Another important aspect to notice is that the coefficient of the initial per capita income is negative and statistically significant (at 1% level) in all regressions and this is evidence that a convergence process has been taking place across the OECD countries. Our results also show that all the explanatory variables considered in the growth regression have their expected sign and show statistical significance, except "*pyllfemales*", although it has the expectable negative impact on growth.

Our empirical results highlight that capital investment (highly statistically significant in all models) and education are important driving forces of growth performance. With the exception of Model (2), education shows a very significant impact (at the 1% statistical significance level) on economic growth which is in line with what human capital theory predicts.

Another significant result from the estimation approach is that the variable "$n_{i,t}+g+\delta$" has a positive impact on growth at the 1% (models 1, 3 and 4) and 5% (models 2 and 5) significance level, showing that population growth is an important conditioning factor of growth.

Table 1 also shows that health factors are important to explain the growth and convergence process among OECD countries. The most important role comes from health care resources - measured by "*physicians*"- showing a positive impact on growth at the 5% statistical significance level. As expectable, improvements on life expectancy at birth have an economic positive effect, while potential years of life lost has a negative impact on growth (both "*life expectancy*" and "*pyllmales*" statistical significant at the 10% level). The fact that "*pyllfemales*" has no statistical significance may be related to the fact that women already have a higher life expectancy and so it is more difficult to obtain further reductions on "*pyllfemales*".

4. DISCUSSION

Our empirical analysis shows that human capital is a very important conditioning factor of growth and convergence processes among OECD countries which is in line with human capital theory and new growth theories. As (Sianesi e Van Reenen, 2003) note, human capital enhances productivity, not only through the knowledge or competencies incorporated on individuals but also through the stimulation of physical investment and adoption of technological development. It is also important to take into account externalities related to education that can enhance growth, namely a better health status, better job opportunities and wages, lower unemployment levels or criminality rates.

Our results also evidence that including health factors in the model is important to a deeper understanding of the growth and convergence processes. So, omitting health factors in the growth regression may lead to biased results. Human capital should be considered in a broad notion that includes both education and health dimensions.

5. CONCLUSION AND IMPLICATIONS

It is now consensual that health, along with education, is a determining factor of workers' productivity and, consequently, of per capita income growth. Therefore, for a more complete understanding of economic growth and the convergence processes, economic theory has incorporated health as a component of human capital.

With this paper our main scope was to present an empirical application of the Solow-Swan neoclassical approach adapted to the evolution of the human capital concept. This approach considers health dimension as an extra input – and so it is known as "the augmented Solow-Swan model" – on the production function and highlights its impact on the level of output.

In this perspective, health improvements lead to higher human capital accumulation, higher productivity and so to a higher economic growth. On the other hand, better education contributes to improve health conditions. In what concerns economic growth, as countries improve their economic performance they have the capacity to invest more on education and health services.

Having in mind the important challenges OECD countries have to face in the near future, namely the ageing population and the burden of chronic diseases, with this paper our aim was to reinforce the idea that human capital encompasses not only the education dimension but also health factors. In this context, it is important to emphasize that health improvements are crucial for a better economic performance. Health prevention must be seen as an individual, organizational and police decision makers' responsibility. Therefore, it is important the implementation of educational policies that may influence lifestyles and contribute to more conscious risk behaviour. At the individual level education plays a major role. At the organizational level, human resources management should privilege labour environment and employees' health wellbeing. Hence, promoting job quality should be a priority of developed countries' policy decision makers and also of employers. This strategy would result in a healthier workforce, higher productivity and better economic performance.

ANNEX

Table 2: Description of variables and data sources

Variable	Description	Source
y	Real GDP per capita (Laspeyres), dollars in 2000 constant price – RGDPL	Penn World Table 6.2.
n	Annual average growth rate of population	Penn World Table 6.2.
k	Investment share as a percentage of RGDPL in 2000 constant prices	Penn World Table 6.2.
Education	Number of patents per million of inhabitants aged 25 or over	Arnold *et al*. (2007)
life expectancy	Life expectancy at birth, in years	OECD, Health Data 2009
pyll males	Potential years of life lost, all causes, males (Years lost per 100 000 females aged 0-69 years)	OECD, Health Data 2009
pyll females	Potential years of life lost, all causes, females (Years lost per 100 000 females aged 0-69 years)	OECD, Health Data 2009
physicians	Practising physicians, density per 1 000 population	OECD, Health Data 2009

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THE INTERNATIONAL TRADE OF EUROPEAN CHEMICAL INDUSTRY

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Abstract

In order to analyze European chemical industry, it is important to evaluate ongoing trade within EU countries. Several indicators, which are based on export and import values, are used to measure the performance and competitiveness of a chemical sector for each European country. This research includes the results of chemical industry of EU countries during the period from 2000 to 2012. The methodology of this paper is based on the application of various indicators like intra-industry trade, trade balance, import penetration indicator, composition of manufacturing exports and other relevant indicators. The basic aim of this research is to measure international competitiveness and international trade of the chemical industry of chosen countries. The main results of paper indicate international competitiveness trends detected by measuring, evaluation of the EU chemical industry particularly on foreign markets, recommendations and proposals in order to reach a higher level of international trade.

Keywords: The Chemical Industry, EU countries, Competitiveness, International Trade

Topic Groups: Industry, Economics and Business

INTRODUCTION

The chemical industry is one of Europe's largest industries. The industry on its own is worth approximately €642 bn. Moreover, the European chemical industry is the world's top exporter and importer and has known a €41.7 billion trade surplus in 2011 (Cefic, 2013).

Chemical plants transform the raw material supplied by earth or other firms into final chemical products. This industry as a whole produces an enormous amount of different final chemicals, ranging from plastics to hydrocarbons and from fertilizers to rubber. The chemical industry supplies itself, but is also vital for most of the common manufacturing industries worldwide. This diversified industry can thus be divided into different subcategories. Although comparison of trade or total production of these different subsectors between different countries within the European Union can be very interesting, we decided, mainly because of the lack of data for such subsectors, to concentrate on the total chemical industry. Consequently, the data used in the pursuit of this essay will be the aggregated date over the total chemical industry.

The chemical industry is one of the largest European manufacturing sectors and, as an enabling industry, it has a crucial role in providing innovative materials and technological solutions which largely determinate Europe`s industrial competitiveness as a whole. The industry is currently in the process of rapid structural change facing major challenges such as increased competition from emerging countries, rising energy prices, new regulations and the need for innovation.

According to EUROSTAT (2011), Bezić et al. (2011), the main features of the chemical industry comprise high product heterogeneity, the importance of innovations and R&D activities, capital intensity, market structure concentration and a high dependency on energy-generating products. The chemical industry nowadays consumes about a quarter of the output. So far, the EU chemical industry has been facing serious challenges such as globalization, increased competition from Asia, the fluctuation of exchange rate, the increase of raw material prices along with intensive regulation and standardization of the EU legislation.

Economies of scale are very important within the chemical industry. Therefore this business consists mainly of vast and financially strong firms with plants in specific and concentrated areas in order to exploit economies of scale at the fullest. As a result, the chemical industry is very unevenly spread throughout Europe, with approximately 7 prevalent countries, namely Germany, France, Italy, the Netherlands, UK, Spain and Belgium.

These countries account for about 85% of the total EU27 chemical production. Other countries produce a far smaller amount of chemical products, as can be seen below. The most famous European chemical firms are BASF (Germany), Bayer (Germany), INEOS (UK), Imperial (The Netherlands), DSM (The Netherlands), Air Liquid (France) and most of these have plants in concentrated chemical areas to exploit the economies of scale.

In the framework of the defined research problem, the basic scientific hypothesis of the paper is set up, namely, that it is possible to estimate current state of international trade competitiveness of the chemical industry within 27 EU Member countries by implementation of various international trade and competitiveness indicators.

In this relation, the basic objective of the research is to measure international competitiveness, objectively estimate international trade of the chemical sector of EU27, and to propose measures and activities for improvement of international trade competitiveness of the European Chemical industry in the selected countries in accordance with the results.

The paper consists of five systematically interrelated parts. After the Introduction, the second part of the paper presents research methodology. The third part includes analytical framework and results of international trade competitiveness based on the analysis of foreign trade activity and international competitiveness of the European chemical sector. The final part comprises proposals, recommendations and conclusions.

METHODOLOGY

Analytical approach is based on scientific results of several indicators which measure the level of international trade competitiveness of the chemical industry of the 27 EU Countries. The above-mentioned indicators have been frequently used in contemporary economic research, which evaluate economy's structural strengths and weaknesses *via* the composition of international trade flows (Bezić and Galović, 2013). In another words, these indicators address the question of trade specialization and performance in international markets. The aim of implemented methodology also shows the importance of the foreign market for European chemical industry in a country and what degree of domestic demand is satisfied by imports. Moreover, the most commonly used indicators, indices, and ratios that are to assess trade patterns and characteristics, and changes in them. Besides elementary and well known indicators, this research uses basic indicators which are suggested by OECD Statistical Database (2013) and World Bank (2013).

Some analyses of factors influencing the success or failure of efforts to promote industrialization and growth conclude that a growing level of intraindustry trade (plays an important positive role (World Bank, 2013). Intraindustry exchange produces extra gains from international trade over and above those associated with comparative advantage because it allows a country to take advantage of larger markets.

Intra-industry trade (IITR) represents the value of total trade remaining after subtraction of the absolute value of net exports or imports of chemical industry. For comparison between countries and industries, the measures are expressed as a percentage of each industry's combined exports and imports. According to OECD Statistical Database (2013), intra-industry trade of chemical industry is calculated as follows:

$$\mathrm{IITR}_i = \left(1 - \frac{\left|expo_i - impo_i\right|}{expo_i + impo_i}\right) \times 100$$

wherein:
$expo_i$ - export activity of sector "*i*"
$impo_i$ - import activity of sector "*i*"

This index varies between 0 and 100. If a country exports and imports roughly equal quantities of a certain product, the index value is high. Whereas if trade is mainly one-way (whether exporting or importing), the index value is low.

The "contribution to the trade balance" or „CMTB‟ makes it possible to identify an economy's structural strengths and weaknesses *via* the composition of international trade flows (OECD Statistical Database, 2013). It takes into account not only exports, but also imports, and tries to eliminate business cycle variations by comparing an industry's trade balance with the overall trade balance. It can be interpreted as an indicator of "revealed comparative advantage" (Balassa, 1965:93; Balassa, 1978:203) as it indicates whether an industry performs relatively better or worse than the manufacturing total, no matter whether the manufacturing total itself is in deficit or surplus. If there were no comparative advantage or disadvantage for any industry *i*, a country's total trade balance (surplus or deficit) should be distributed across industries according to their share in total trade. The "contribution to the manufacturing trade balance" is the difference between the actual and this theoretical balance:

$$\mathrm{CMTB}_i = \left[\frac{\left(expo_i - impo_i\right) - \left(expo_{manuf} - impo_{manuf}\right)\dfrac{expo_i + impo_i}{expo_{manuf} + impo_{manuf}}}{expo_{manuf} + impo_{manuf}} \right] \times 100$$

wherein:
$expo_i$ - export activity of sector "*i*"
$impo_i$ - import activity of sector "*i*"
$expo_{manuf}$ - export activity of total manufacturing sectors
$impo_{manuf}$ - import activity of total manufacturing sectors

A positive value for an industry indicates a structural surplus and a negative one a structural deficit. The indicator is additive and individual industries can be grouped together by summing their respective values: by construction, the sum over all industries is zero.

Next indicator called "Export import ratio" shows exports as a percentage of imports. EXIM ratio can be calculated as follows:

$$\mathrm{EXIM}_i = \frac{expo_i}{impo_i} \times 100$$

wherein:
$expo_i$ - export activity of sector "*i*"
$impo_i$ - import activity of sector "*i*"

Another simple indicator is used within this paper. Hence, this indicator (TBAL) is calculated in real numbers of national currencies and highlights the trade pattern of each industry. It can be seen in the following formula:

$$\mathrm{TBAL}_i = expo_i - impo_i$$

Trade balance is one of the macroeconomic indicators which are used to gauge the competitiveness of a sector at national level. When exports exceed imports, the balance is in surplus, and when imports exceed exports, the balance is in deficit.

Furthermore, composition of manufacturing exports of goods indicator (XSHM) shows the exports in a given manufacturing industry (in this case EU chemical industry) as a percentage of total manufacturing exports. XSHM indicator is calculated as follows:

$$\mathrm{XSHM}_i = \frac{expo_i}{expo_{mauf}} \times 100$$

wherein:
$expo_i$ - export activity of sector "*i*"
$expo_{manuf}$ - export activity of total manufacturing sectors

Finally, import penetration (MPEN) indicator can be calculated as a ratio of imports to the sector's production adjusted for the foreign trade balance (difference between exports and imports) according to the following formula:

$$\mathrm{MPEN}_i = \frac{impo_i}{prod_i - expo_i + impo_i} \times 100$$

For a given country, a value close to 100 in a certain industry, implies that domestic demand is mainly fulfilled by imports and domestic production tends to be exported (OECD Statistical Database, 2013). A value close to 0 means self-sufficient, i.e. domestic demand is mainly satisfied by domestic production. A value above 100 illustrates measurement problems which may occur when combining production and trade data. It is important to bear in mind that exports can exceed production.

RESULTS

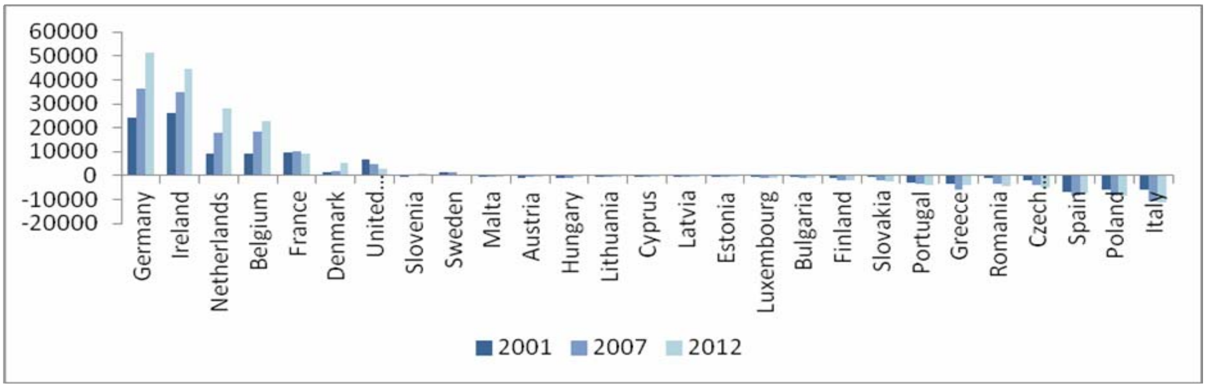
In the analysis of the outlined problem, the starting point is identification of international trade and competitiveness of the European Chemical industry of 27 EU member countries in the period between 2001 and 2012. In order to analyze European chemical sector, it is important to study ongoing trade within its countries. Several indicators, which are based on export and import, can be used to measure the performance and competitiveness of a certain sector for each country.

In a given year, the values of an indicator can differ between countries, which allow an international comparison. The value of an indicator may also differ between different years, within a different country. When evaluating at Germany for example, one can examine the evolution of these values over recent history.

In this particular study, six indicators will be calculated for the EU27 member states: IITR, CMTB, EXIM, TBAL, XSHM and MPEN. The analysis, generally speaking, considers the results of best Eurozone performer Germany and the worst Eurozone performer Greece. Only data from 2001 until 2012 is to be taken into account while calculating.

The data is extracted from Eurostat Database. Import and export tables show the member states' contribution to the EU27 trade for a certain sector, in millions of EUR. The tables of export and import show that for all countries, import and export rise steadily every year. Therefore it is relevant to follow only at 2001, 2007 and 2012 in order to clearly represent the evolution of the indexes.

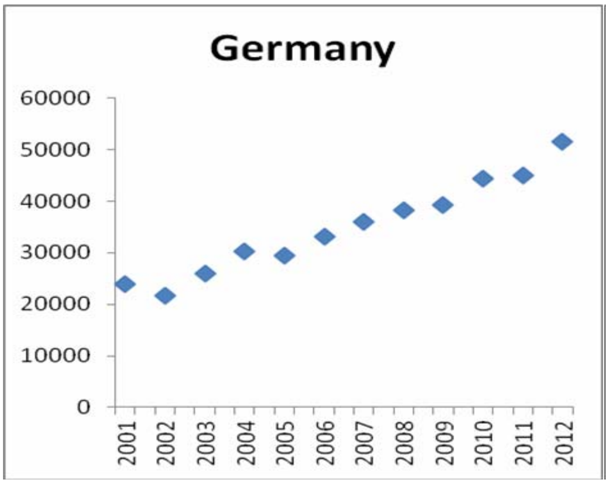
Figure 1: Trade balance (TBAL), in the years 2000, 2007 and 2012

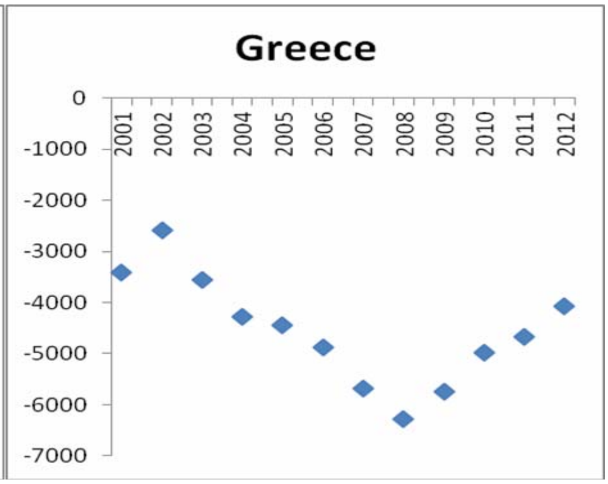


Source: Eurostat Statistical Database, 2013

Figure 1 represents the different countries on the horizontal axis and their respective trade balance in millions of EUR on the vertical axis. Noted in absolute value, the TBAL indicator makes comparison between countries difficult. It is self-evident that countries with a larger population will have a larger trade balance, whether it is positive or negative. Due to this effect, it is important to focus on which countries have a positive or negative trade balance and possibly discover trends. Wealthy countries that are active in the chemical industry like Germany, the Netherlands and Belgium seem to typically have a positive trade balance, which means they export more than they import and have balances that are in surplus. Southern European countries which were most struck by recent crises such as Italy, Spain, Greece and Portugal all have trade balances that are in deficit. Also remarkable is that countries with positive trade balances have a rising trade balance over the last decade whereas countries with a negative trade balance have descending ones.

Figure 2: Trade balance (TBAL) for Germany and Greece in the period between 2001 and 2012

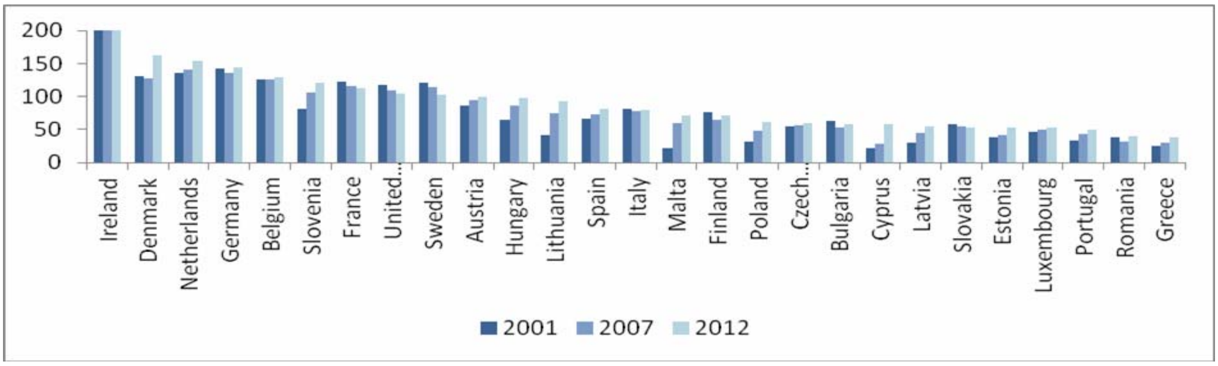




Source: Eurostat Statistical Database, 2013

Due to the population discrepancy, both countries are represented on different scales on the vertical axis in a way that volatility in TBAL can be examined. The data indeed shows that Germany's export rises proportionally faster than its import, which makes its trade balance more positive. Greece on the other hand follows an opposite trend as its import rises proportionally faster than its export which makes its trade balance more negative. Due the economic and financial crises, Greece's import and export grew less and eventually dropped. Its trade balance knew a turnaround in 2008 as its import dropped proportionally more. Germany suffered less; its import and export kept rising at more or less equal rates. An important cause for this phenomenon is that Germany's chemical sector mainly consists of pharmaceuticals, which are very inelastic whereas other chemical products suffered a lot due to the recent crisis. Figure 3 presents exports as a percentage of imports of the EU27 chemical manufactures in the years 2000, 2007 and 2012.

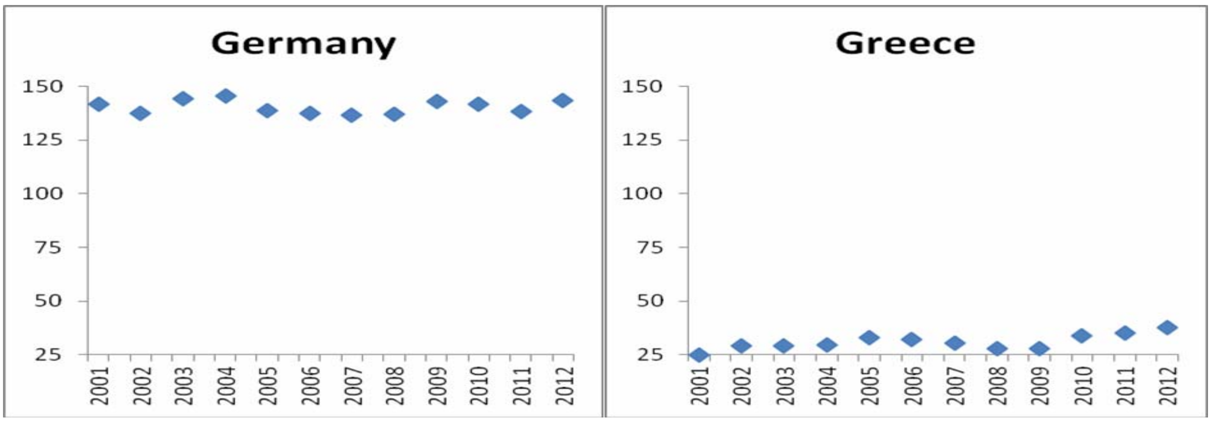
Figure 3: Export import ratio of European chemical industry in the years 2000, 2007 and 2012 (EXIM)



Source: Eurostat Statistical Database, 2013

Figure 3 shows the export import ratio of different countries in percentages. This indicator solves the population discrepancy problem and makes comparison between countries possible on the same scale. Ireland has an extremely high export import ratio of over 540 in 2012 (meaning Ireland exported 5.4 times as much than it imported in 2012) but the graph is cut off at 200 for clarity purposes. Ireland's export is so high compared to its import because it specializes in the export of pharmaceuticals. Germany, the Netherlands and Belgium again have relatively high export import ratios whereas those of Greece and Portugal are low. Furthermore, the final results of the export import ratio are presented in Figure 4.

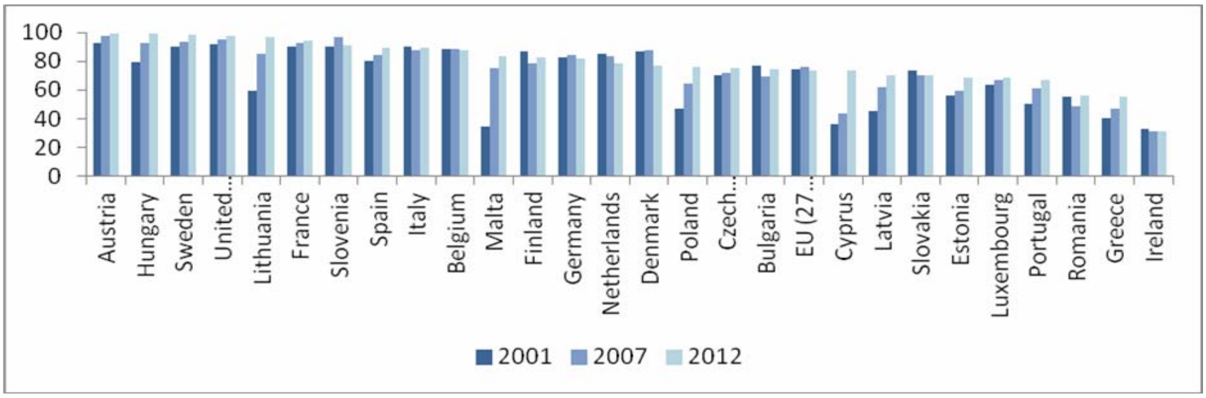
Figure 4: Export import ratio of German and Greek chemical industry in the period between 2001 and 2012 (EXIM)



Source: Eurostat Statistical Database, 2013

Germany clearly has always had a higher export import ratio but it has been stagnating at around 140% over the past decade while Greece's far lower ratio has been rising slowly but surely since 2008, from a little below 28% in 2001 to almost 38% in 2012. In addition, Figure 5 presents intra-industry trade of the chemical manufactures in the EU27 Member countries for years 2001, 2007 and 2012.

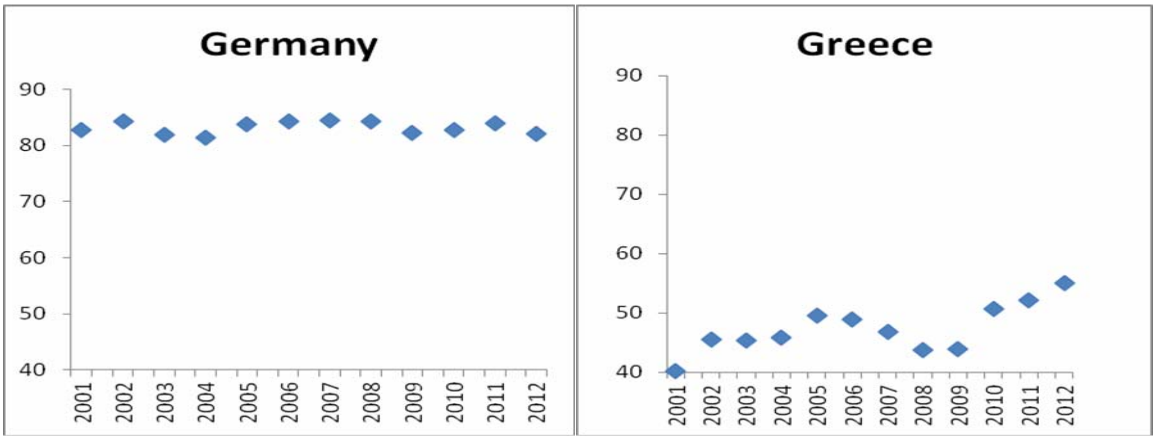
Figure 5: EU27 chemical intra-industry trade for the years 2001, 2007 and 2012 (IITR)



Source: Eurostat Statistical Database, 2013

Figure 5 illustrates the intra-industry trade of different countries in percentages. The EU27 can be seen as a mean and it shows that intra-industry trade in the EU27 member states on average has barely changed since 2001, stagnating at a value of roughly 73%. Most EU27 member states (including Spain and Italy) indeed have large indexes, meaning they all export roughly as much as they import. Ireland on the other hand has a low IITR index because they export far more than they import which has been indicated before by their extremely large export import ratio. Also Greece's IITR index is on the small side at 55% in 2012. Portugal comes from a low IITR index of 50% in 2001 but has been slowly converging towards the EU27 mean and had an IITR index of over 67% in 2012. Small countries like Malta and Cyprus seem to be more volatile which can be explained by their low GDP and therefore small chemical sector. Slight changes in their export and import can result in drastic changes in their IITR index. Figure 6 compares the results of IITR indicator for chemical industry of Germany and Greece.

Figure 6: Intra-industry trade of German and Greek chemical industry in the period between 2001 and 2012 (IITR)

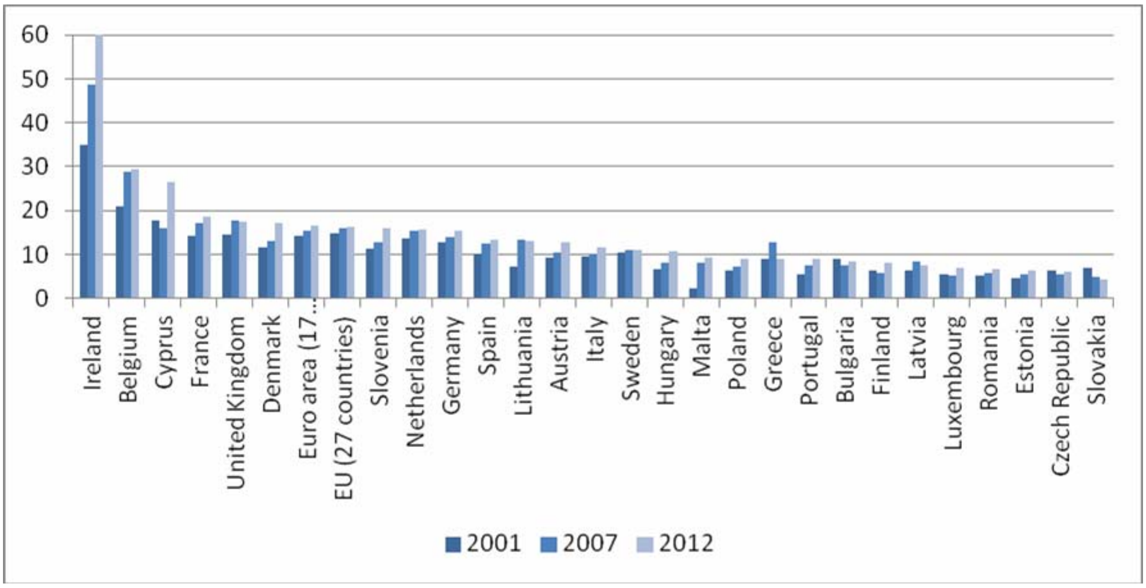


Source: Eurostat Statistical Database, 2013

Germany has a very steady IITR index which has been stagnating around 83% over the past decade, which has always been well over the EU27 mean. Greece on the other hand has always been below it but its more volatile index has been rising since the crises from under 44% in 2008 to 55% in 2012.

Figure 7 represents the composition of manufacturing exports of goods of the EU27 chemical industry in the years 2001, 2007 and 2012.

Figure 7: Composition of manufacturing exports of goods of the EU27 chemical sector in the years 2001, 2007 and 2012 (XSHM)



Source: Eurostat Statistical Database, 2013

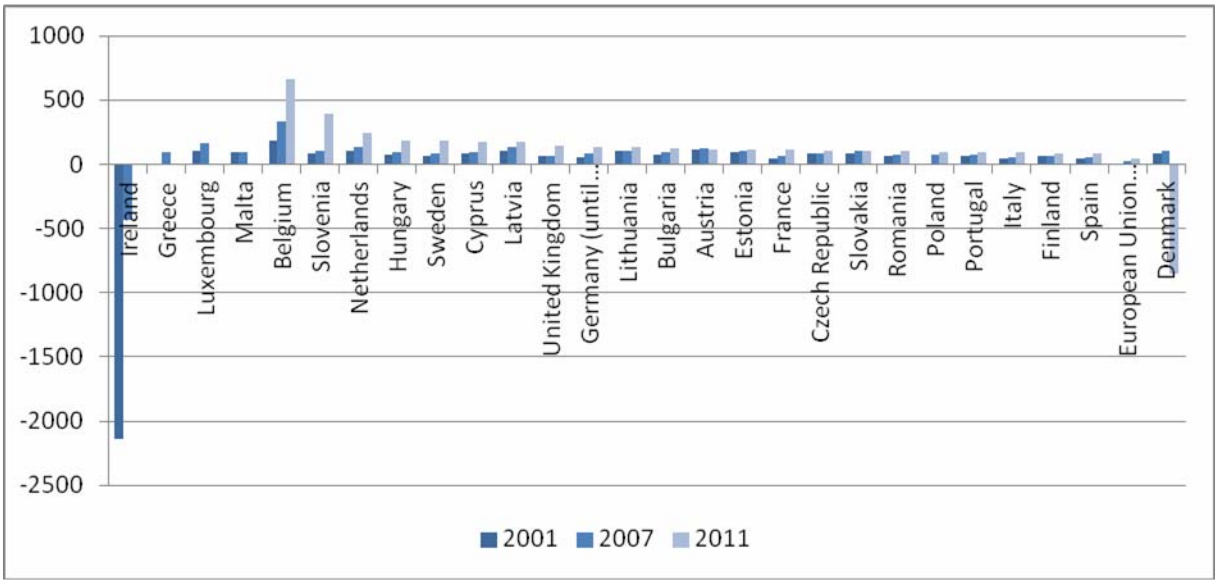
As seen before in previous clarified indicators, Germany, The Netherlands, Belgium and Ireland are the biggest exporters of chemicals within the European Union. Their trade balance in the chemical sector for example is strongly positive, which means they export significantly more than they import. Figure 7 explains how much percentage of the total chemical production in the country is exported. The chart thus indicates that mainly Ireland, but Belgium as well, and for the last years also Cyprus, are exporting substantial parts of their total chemical production.

This tendency can mainly be explained by the surface of the countries. Ireland, Belgium and Cyprus are noticeably small countries. Due to historical and geographical advantages however, they developed a highly concentrated and specialized chemical industry. The chemicals produced by this industry are generally used in other manufacturing industries. Since the countries are relatively small and specialized in the chemical industry, the total chemical output is relatively higher than ‘needed’ to supplies other national industries.

Therefore a substantial part of their production can be exported and is used in other nations manufacturing industries. Germany and Netherlands for their part are bigger countries and are specialized in a wider range of manufacturing industries. This allows them to allocate more chemical output within their nation, due to higher national demand. Hence Germany and Netherlands export chemicals as well, but relatively they export less of their total production in comparison with Ireland, Belgium and Cyprus. As a side note we want to mention that for the European Union as a whole approximately 15% of the total chemical production is exported to the rest of the world, to be used in other industries.

In addition, Figure 8 illustrates the import penetration of the EU27 chemical industry in the years 2001, 2007 and 2011.

Figure 8: Import penetration of the EU27 chemical sector in the years 2001, 2007 and 2011 (MPEN)



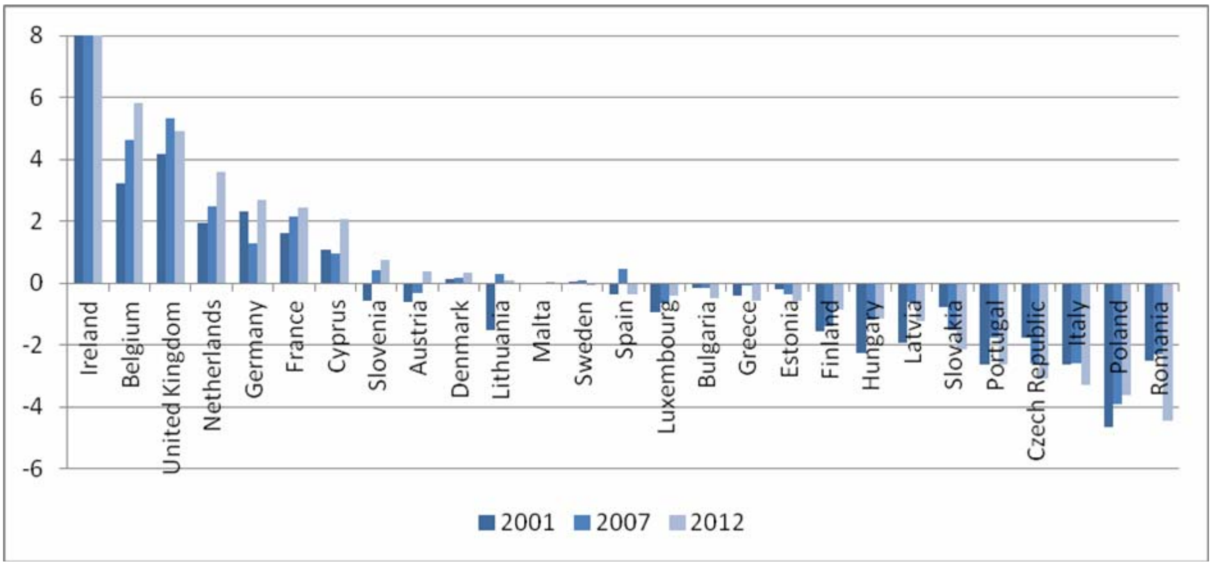
Source: Eurostat Statistical Database, 2013

The import penetration indicator illustrates the importance of the import fulfilling the domestic demand. Unfortunately the data provided by Eurostat does not include the whole industry. Thereby it is not able to calculate the MPEN properly due to the fact that the production data of the chemical industry does not include the relevant subsectors that are included within the export and import data in the Eurostat databases. Specifically in the data the exports of chemicals exceeds the domestic production, which of course is not possible. This results in very high and low percentages illustrated in the graph above.

Anyways, the results of the MPEN indicator show the adjusted scale in order to emphasis the other countries because some countries obtain a very high or low MPEN. Nevertheless, it has to be stressed out that for Sweden and the UK respectively the MPEN in 2007 was – 843 and – 1089 and in 2011 it was 4447 and -1630.

Furthermore, the final results of the contribution to the trade balance in European chemical sector are presented in Figure 9.

Figure 9: Contribution to the trade balance in European chemical sector in the years 2001, 2007 and 2012 (CMTB)



Source: Eurostat Statistical Database, 2013

Within the CMTB indicator authors edited the scale of the graph in order to provide a better overview of the different countries. Only Ireland has extremely high contribution to trade balance. For 2001 it was about +24 and for 2007 and 2012 it was approximately +32.

It can be noticed that Ireland has a very strong comparative advantage within the chemical sector compared to other countries. Therefore Ireland benefits of a very high structural surplus for their international trade in the chemical industry. It is also one of the biggest chemical industries and exporters of the EU27. Within the top countries of the EU27 in terms of CMTB the countries with large chemical industries and export are mainly identified. It can be pointed out that those countries are specialized in the chemical industry. As a result these chemical industries account for a great part of their trade balance.

As a middle mode, there is Spain. Spain's CMTB indicator is balancing around zero, despites the fact that Spain has a large chemical industry. This can be explained by the fact that Spain is a big importer of chemical goods. Their production is mainly used in their own manufacturing industries and the imports are used to meet national demand. These imports nullify their own industry production and export. Therefore it can be seen that Spain does not have a real comparative advantage in the chemical industry.

Observing the countries with low CTMB, it can be emphasized that the situation is getting ‘worse’ every year for the chemical industries trade balance of those countries. Poland however has a growing strength of her chemical industry year after year, which indicates that their chemical industry is getting a more important share in their total trade.

CONCLUSION REMARKS

As one of the largest industries globally, the European chemical industry supplies virtually all sectors of the economy, providing innovative and sustainable solutions to today’s economic and environmental challenges. European chemical industry is significant in providing all manufacturing sectors, as well as the construction, health and agricultural sectors, with essential products and services.

It is wealth and employment generator for millions of European citizens over the years. In the European Union, it represents the leading manufacturing sector in terms of value added per employee. The chemical industry is benefiting from its historic advantages of innovation, long-standing customer relationships, an efficient network of SMEs and large companies and a highly-skilled workforce.

As mentioned in the introduction, the chemical sector is quite concentrated and unevenly spread in order to achieve economies of scale. Analyzing the indicators, it can indeed be seen that a small number of countries are very active in the chemical sector, such as Germany, Belgium, France, Ireland and the UK.

It is remarkable that these countries all have important and big ports. In and around these ports large concentrated chemical industry is located. This makes shipping of large amount of chemical product convenient. Hereby it is possible to achieve economies of scale for inbound and outbound transport. Skilled workforces are also pooled in the surrounding areas, making it easier to find appropriated employees.

For the coming decades, any remarkable change it is not expected. Due to the needed economies of scale to survive in this industry, countries need to invest substantially in infrastructure to enable the possibilities to achieve these economies and stimulate the growth of the chemical industry.

Historically the chemical industries have grown in Western Europe, where GDP per capita is typically larger. This gives these countries a more attractive position for the chemical industry in these countries. It is probable that due to those barriers of entry the geographical concentration of the chemical industry will remain as it is.

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VALIDATING THE EKD4SFCA METHOD USING DATA OF THE LONG-TERM CARE SECTOR

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Abstract

This paper builds upon previous work presented on the Advances in Business-Related Scientific Research Conference 2013, in Rome, "Identifying Target Geographic Areas for New Market Entrants" (Polzin et al., 2013). It presents a case study that validates the Extended Kernel Density 4-Step Floating Catchment Area (EKD4SFCA) method that was adopted to identify the target markets for entrant firms.

More specifically, it applies the method in a construct validity exercise, based on the analysis of sensitivity to change, documenting changes on the measures of interest after an intervention. We test the sensitivity of the results produced by the EKD4SFCA method to

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change caused by a hypothetical intervention, namely the introduction of a new facility, owned by a new competitor in the market.

The results indicate that the method attains construct validity, such that it behaves as it is expected when changes in the data occur.

Keywords: Spatial analysis, Competition assessment, Long-term care, Public financing of care provision

Topic Groups: Research methods, Industry, area or region specific studies, Organizations and financing

1. INTRODUCTION

The EKD4SFCA method presented for the first time in Polzin et al. (2013) is a 2SFCA-based method that incorporates the Herfindahl-Hirschman Index (HHI) and a dominance identification method in the Extended Kernel Density 2-Step Floating Catchment Area (EKD2SFCA) method (Polzin et al., 2014), combining access analysis with competition assessment in an innovative way.

As we recall, another innovation embedded in the EKD4SFCA method is the adaptation and extension of the HHI index and of the dominance identification method of Melnik et al. (2008) for their application with small geographic units, a distance decay function and floating catchment areas. In particular, the widely known HHI is adapted to be calculated without fixed, predefined geographic boundaries, but with floating isochrones constructed with small geographic units. This way, fine spatial resolution results can be obtained, providing more detailed information for decision making and strategic geographic positioning of facilities or supply points.

The EKD4SFCA method enables the detection of geographic areas to improve the access of their residents to facilities and the identification of targets for new facilities, making it possible for business organizations to enter a market with a reduced risk of having to deal with entry barriers and fierce competition of incumbent firms.

Another use of the method, as seen in this new paper, can be to improve the allocation of public financing to firms, in order to improve the access of populations to products and services with scarce supply, and to identify where public admainistrations can explore competition between firms to attain more efficient publicly financed prices. Public bidding for contracting firms in competitive markets identified with the EKD4SFCA method can profit from the existing competitive pressure to establish lower prices than it would be possible without competition.

The objective of this paper is to assess validity of the EKD4SFCA method. We present a case study using data of the Portuguese long-term care sector. In this case study, we test the sensitivity of the results produced by the EKD4SFCA method to change caused by a hypothetical intervention in the data.

2. THEORY

2.1. Access analysis

We consider access as the ability of a population to use health care, while access barriers or facilitators affect this ability (Gulzar, 1999). There are two approaches for access to health care analyses: the realized access approach, which focuses on utilization patterns, and the potential access approach, which considers the potential barriers to utilization and measures access as potential utilization (Cooper et al., 2009; Joseph and Phillips, 1984). This paper focuses only on potential access analysis.

Potential access refers to barriers to health care utilization and is defined as the presence of enabling resources, which are resources that are required for utilization to take place (Andersen, 1995; Higgs, 2004). The analysis that considers enabling resources can identify deprived populations, that is, populations that face potential access barriers.

2.2. Competition assessment

Many studies, reports and competition authorities' guidelines establish that competition between business organizations (companies or firms) promotes productivity and efficiency. Among other benefits for industries, firms, markets and consumers, competition has been proved to spur innovation and to improve the quality of the provided products and services (CC, 2013; EC, 2004; Gaynor et al., 2012; Ikkersheim and Koolman, 2012; Motta, 2004; OECD, 2011, 2012; OFT, 2007).

The degree of competition in a market is indicated by its market concentration. Market concentration metrics capture the market structure and its calculation depends on the number of firms that are active in the market and their respective market shares. Hence, the measurement of concentration at different time moments can reflect changes in the market concentration as a result of firms' entries, exits and mergers.

Excessive market concentration reflects weak or lack of competition and may produce negative effects, such as, for example, excessively high prices, low quality products, diminished variety of products, inexistence of freedom of choice, restricted access of firms to essential resources or infrastructure, and predatory pricing (CC, 2013; EC, 2004; Gaynor et al., 2012; Ikkersheim and Koolman, 2012; Motta, 2004; OECD, 2011, 2012; OFT, 2007).

In highly concentrated markets, entrants typically have to face a high initial investment in the supply capacity and sometimes also high advertising costs, in order to be able to compete with the well-established incumbents. Besides, these highly concentrated and weakly competitive markets can be dominated by incumbent firms, who can make entry unprofitable or unsuccessful.

A firm can only be dominant if it has substantial market power, and firms usually have greater market power, that is, they face less competition, in more concentrated markets (Nakamba et al., 2002).

Competition assessment is used to evaluate if there are competition risks in a market.

2.3. Validity

According to Messick (1990), validity can be defined as "an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of interpretations and actions based on test scores or other modes of assessment" (Messick, 1990, p. 1). However, there is no consensus on how to assess validity. As Kaplan et al. (1976) notes, "because of the uncertainties, judgments, and assumptions that are required in assessing the correspondence between an operational measurement and a conceptual variable, different researchers have proposed many different methods – labeled with many different names – to assess validity" (Kaplan et al., 1976, p. 479).

Notwithstanding the fact that there are uncertainties, and subjective judgments and assumptions involved in the validation process, which inevitably influence the choice of the assessment methods, the most common types of validity found in the literature are content, construct and criterion validities (Haynes et al., 1995; Kaplan et al., 1976). In this paper, we verify the construct validity of the EKD4SFCA method. Construct validity is the degree to which the variance of the results of a method is consistent with predictions from the construct targeted by the method (Haynes et al., 1995).

Responsiveness or sensitivity to change is the kind of exercise that constitutes the most convincing evidence of construct validity (Burlingame et al., 2006; Vermeersch et al., 2000). This is because, in order to attain construct validity, it has to be shown that the method produces results that it is supposed to produce and that it detects real change in results, whether the change is induced experimentally or naturally (Hays and Hadorn, 1992).

Accordingly, we apply the EKD4SFCA method to data of the Portuguese long-term care sector, using number of beds as the main supply variable, instead of number of physicians, as in Polzin et al. (2013). We study the responsiveness of the method to the inclusion of a new facility. More specifically, we analyze what occurs with the introduction of the new facility and if the changes captured by the method reflect that what it was supposed to capture, in order to obtain relevant information to conclude that the method is valid, according to the construct validity definition.

3. METHODS

As in all 2SFCA-based methods, a geographic information system (GIS) is required for the application of the EKD4SFCA method. The GIS supplies the speed limit maps, the traffic rules and the centroids of the postcode areas needed to compute the travel times and to define the catchment areas.

The method is applied in four steps, as explained in Polzin et al. (2013). As we recall, the access analysis is carried out with the steps 1 and 2 of the EKD2SFCA method. The competition analysis is integrated as steps 3 and 4 of the EKD4SFCA method, involving the calculation of market concentration degrees, with the HHI, and the application of the market dominance identification method, respectively.

The first and second steps of the EKD4SFCA method are, respectively:

(1)

$$R_j^E = \frac{S_j}{\sum_{k \in \{d_{kj} \le \mathbf{d}_{\max}\}} P_k H_k g(d_{kj}, \mathbf{d}_{\max})}$$

and

(2)

$$A_i^E = \sum_{l \in \{d_{il} \le \mathbf{d}_{\max}\}} R_l^E Com_i g(d_{il}, \mathbf{d}_{\max})$$

where R_j^E is the supply-to-demand ratio of the method for the supply point in *j*, S_j is the number of beds of the supply point georeferenced at *j*, P_k is the population of the geographic unit georeferenced at *k*, H_k is the health needs score of the population at *k*, d_{kj} is the travel time between *k* and *j*, $\mathrm{d}_{\max}$ is the maximum travel time, $g(d_{kj},\mathrm{d}_{\max})$ and $g(d_{il},\mathrm{d}_{\max})$ the distance decay function (quartic function, applied only after an initial catchment with no evident proximity barrier), is the sum of the step 1 ratios associated to the supply points that

$$\sum_{l \in \{d_{il} \le \mathbf{d}_{\max}\}} R_l^E$$

are within reach of the population at *i*, Com_i refers to the commuting score of the population at *i*, and, finally, A_i^E is the access score computed by the method for *i*, namely the overall access score of the population that resides in that unit.

Steps 3 and 4 are the calculation steps that refer to the inclusion of the HHI and the method of Melnik et al. (2008), but adapted to be calculated with catchment areas and small geographic units, and extended with the inclusion of a distance decay function, as described by equations (3) and (4), respectively:

(3)

$$HHI_i = \sum_{G=1}^{\mathbf{N}} \left[\sum_{l \in \{d_{il} \le \mathbf{d}_{\max}\}} Q_{Gl} g(d_{il}, \mathbf{d}_{\max}) \right]^2$$

(4)

$$Q_i^D = \frac{1}{2} \left\{ 1 - \left[\left[\sum_{l \in \{d_{il} \le \mathbf{d}_{\max}\}} Q_{1l} g(d_{il}, \mathbf{d}_{\max}) \right]^2 - \left[\sum_{l \in \{d_{il} \le \mathbf{d}_{\max}\}} Q_{2l} g(d_{il}, \mathbf{d}_{\max}) \right]^2 \right] \right\}$$

where HHIi is the HHI calculated for the geographic unit i, G refers to groups of business units, namely the organizations that own the business units (G=1 is the largest group, G=2 is the second largest group, and so on, until the smallest group competing in the market i,

$$\sum_{l \in \{d_{il} \leq \mathbf{d}_{\max}\}} QS_{Gl}\, g(d_{il}, \mathbf{d}_{\max})$$

namely *G*=N), refers to the market share of the group G with business units that have catchments covering *i*, $g(d_{il}, \mathbf{d}_{\max})$ is the quartic distance decay function (applied only after an initial catchment with no evident proximity barrier), and Q_i^D is the dominance threshold for *i*.

Steps 3 and 4 are used in a similar way as proposed by McIntosh and Hellmer (2012), namely considering HHI over 2000 as a necessary condition and as a sufficient condition for

$$\sum_{l \in \{d_{il} \leq \mathbf{d}_{\max}\}} Q_{1l}\, g(d_{il}, \mathbf{d}_{\max}) > Q_i^D$$

eventually discarding the underserved geographic areas identified by steps 1 and 2 and considering the remaining areas as targets for public biddings to explore competition and set efficient prices for public financing.

4. CASE STUDY

Long-term care can be defined as it is defined by Law in Portugal (Law N. 52/2012, of 5 September), namely as the set of sequential health or social support interventions, centered on the global recovery, understood as the active and continuous therapeutic and social support process, which intends to promote autonomy by improving the functionality of the person that is in a situation of dependency, through his/her rehabilitation, re-adaptation and social and family reinsertion.

In Portugal, around 90% of all the people that are treated with long-term care, are treated in facilities of the National Network of Integrated Long-Term Care (*Rede Nacional de Cuidados Continuados Integrados, RNCCI*) (ERS, 2011). The RNCCI was created in 2006 by the Decree-Law N. 101/2006, of 6 June, with the aim of making more dynamic the implementation of financially sustainable care units and teams, directed to the people in a dependency situation. This network includes private and public providers and its objective is, more specifically, to improve access to technically and humanly adequate care provision of the citizens with loss of functionality or in a risk situation of losing it.

Demand for long-term care in Portugal can be characterized by the most frequent patient profile that is treated in the RNCCI. Patients are mostly elderly; women; married or widows; people that attended only until six years of school; people that have worked as non-qualified workers; dependent or incapable in terms of physical autonomy; supported by family, especially for hygiene and food; people that come from natural family or living alone; and people that have a medium or high risk of falling.

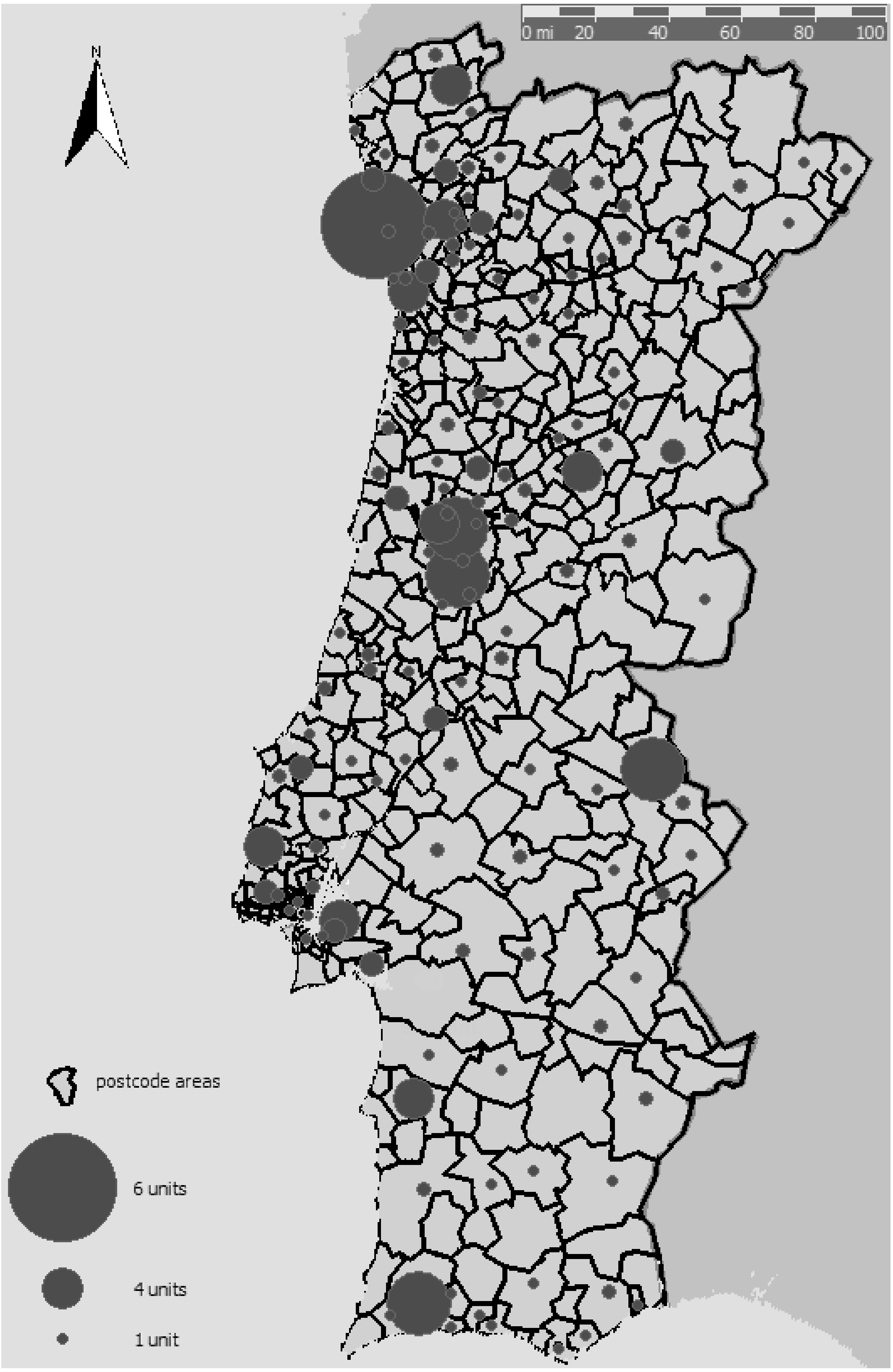
The strategic planning of the RNCCI was organized in three development phases considering originally a 10 years' time frame. Phase 1, between 2006 and 2008, had the aim of covering 30% of the existing needs. The second phase, between 2009 and 2012, had the target of attaining 60% of coverage. The third phase, from 2013 and 2016, was defined to attain the 100% coverage target, and this target shall be attained if the network of long-term care units gets to 15.308 beds in total (ERS, 2011).

However, in August 2012 there were still only 5.916 beds. Thus, the development process of the network is still ongoing, such that the application of the EKD4SFCA method can be useful to indicate the appropriate geographic distribution of supply, identifying deprived regions in terms of access, which shall be the priority regions in the evolution process of the RNCCI. Besides, since the EKD4SFCA method includes competition assessment, it can also indicate where public financing can profit from public bids, to set efficient prices. Until this moment, prices are administratively set (ERS, 2013).

4.1. Application of the EKD4SFCA method

While there are different kinds of long-term care supply teams and units, including different kinds of inpatient units, outpatient units, hospital teams and home visiting teams, our focus is the application of the EKD4SFCA method to all 268 long-term care inpatient units that existed in 2012, namely convalescence, medium-term and rehabilitation, long-term and maintenance, and palliative care, and we represent the supply capacity by the number of beds. Figure 1 presents the geographic distribution of the 268 inpatient units. The data set used in this paper consists of official data of August 2012 from the public unit that was responsible at the time for administering the network (*Unidade de Missão para os Cuidados Continuados Integrados*).

Figure 1: The geographic distribution of the 268 units



Steps 1 and 2: Access analysis

Regarding step 1 of the method, the health needs index was constructed considering variables that reflect the demand for long-term care, characterized by the most frequent patient. The following variables were considered: proportion of people aged 65 years old and above, age dependency ratio (the relation between the people aged 65 and above and the people with ages between 15 and 64), female population aged 65 and above, the proportion of widowers, and the proportion of people aged 15 and above without any level of education. In addition, as mentioned before, the supply capacity was measured in terms of number of beds, which can be considered a more exact supply metric than number of physicians, since it avoids multiple counting of resources, as in the case of physicians, who can work in more than one facility.

The results obtained with the five selected indicators satisfied the necessary criteria to construct an index with principal components analysis (PCA) using the first component: one factor with an eigenvalue greater than one (4.254) with a high percentage of the total variance explained (85.077%) and an adequate value for the Kaiser-Meyer-Olkin statistic (0.798).

In order to rescale the standardized health needs principal component scores, we applied the thresholds defined by Polzin et al. (2014). Accordingly, we converted the health needs standardized principal component scores from zero to one to the scale from one to 1.167, in a proportionate way, and the scores higher than one were transformed to values above 1.167, considering a linear extrapolation of the scale. The negative scores between -1 and zero were converted to a scale from 0.876 to one, and scores lower than -1 were rescaled to linearly defined values below 0.876. Applying these scale transformations in the validation exercise, we obtained health needs scores varying from around 0.79 to 1.70.

Finally, the commuting index in step 2 was the same as the one used by Polzin et al. (2014). Table 1 presents the distribution of the long-term care access scores calculated with steps 1 and 2 of the EKD4SFCA method across the three levels: low, medium and high. We used 60 minutes as the maximum travel time threshold, since this travel time was considered to be a reasonable maximum reference for palliative care, which is the kind of long-term care that values more proximity (Cinnamon et al., 2008; Schuurman et al., 2010).

Table 1: Distribution of the long-term care access scores across the three access levels

Statistic	**Cluster**		
	Low	**Medium**	**High**
Number of areas	100	236	124
Population covered (%)	23.1	60.1	16.8
Mean access score	0.22	0.49	1.31

The two bounds of the three access levels defined by the k-means clustering algorithm were 0.31 and 0.77 beds per 1,000 inhabitants. Hence, for scores until 0.31 we identified a low access level, for scores until 0.77 we identified medium access, and scores above 0.77 were high access scores. As can be seen in Table 1, there are 100 low access postcode areas with 23.1% of all population, with a mean access score of 0.22 beds per 1,000 inhabitants. As a reference for comparison, we note that the targeted ratio of the RNCCI is 1.82 beds per 1,000 inhabitants.

Steps 3 and 4: Competition assessment

In steps 3 and 4 we used the supply capacity (number of beds) to calculate the market shares. It was possible to identify 309 postcode areas with high market concentration (HHI>2000), and 279 of them were dominated, including 44 of the 100 low access areas, as can be seen in Table 2. The low access areas are the selected areas to identify target markets, namely the low access areas that present the lowest risk of occurrence of competition problems.

Table 2: Results of the EKD4SFCA method

Competition assessment	**Low access areas**	**Pop. covered (%)**
Areas with HHI>2000 and dominated areas	44	6.3
Market targets	56	16.8
Total	100	23.1

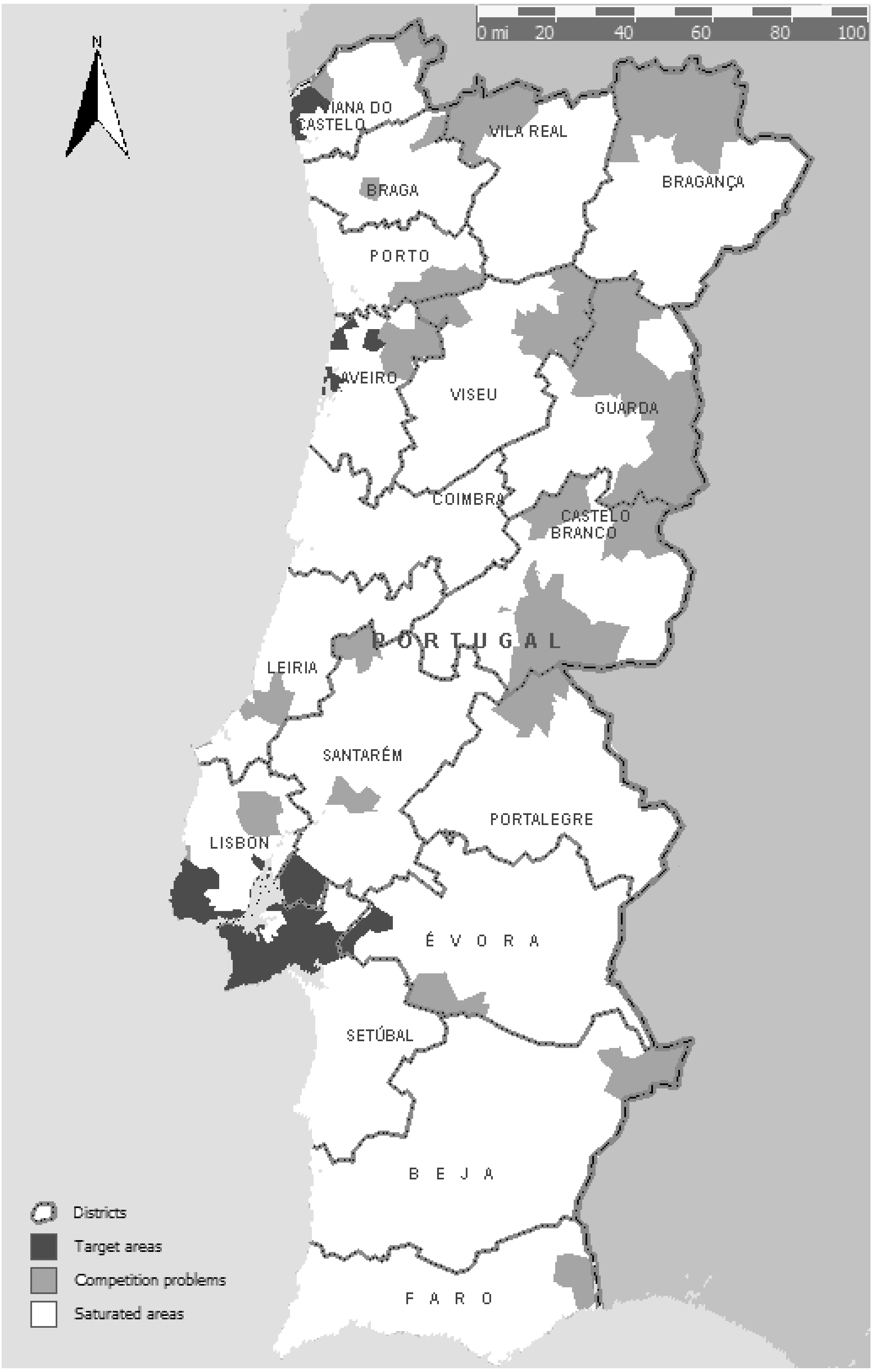
The remaining 56 areas are the market targets for public administrations to promote financing for new supply points.

These targets represent 12.2% of the 460 postcode areas, in 14 of the 18 districts of continental Portugal, and encompass a population that corresponds to 16.8% of the total population (almost 1,692,000 residents).

Figure 2 shows these results presenting the dark shaded areas as the target areas, the light shaded areas as the relatively underserved areas with potential competition problems, and the white areas as the areas that have the highest supply-to-demand ratios.

The target areas can be seen as target areas where public administrations can promote public biddings for contracting new providers and beds. More specifically, the application of the EKD4SFCA method in this case intends to identify where public administrations can explore competition between firms to obtain lower, more efficient publicly financed prices in public biddings, while at the same time promoting new supply to the most deprived populations.

Figure 2: Target geographic long-term care markets for promoting new financing



4.2. The introduction of a new facility

For the validation exercise to infer about the construct validity of the EKD4SFCA method we introduce a new facility with 40 beds in the target area of the Évora district, postcode area 7080, and analyze the changes that it produces.

Considering the variables and the calculations embedded in the model, we can expect the following changes:

(i.) The new competitor is a dominant competitor, such that the low access target area 7080 (dark shaded) becomes a low access area with competition problems (light shaded), if the new supply capacity (number of beds) is not enough to pass the threshold that separates the low access level from the medium access level (0.31 beds per 1,000 inhabitants), or a relatively high access area (white area), if the number of beds makes the supply-to-demand ratio pass the access level threshold (postcode area 7080 has an access score of 0.15 beds per 1,000 inhabitants).

(ii.) The new competitor is not dominant, then the target area continues to be a target area (dark shaded), if access remains low, or a relatively high access area (white area), if the access level rises to a higher level.

Regarding changes to other areas, we expect changes to all postcode areas covered by the new facility. These areas shall have their access scores increased, such that one or more of them can possibly increase their access level.

In terms of competition, the new facility, owned by a new competitor, shall increase competition, such that HHI values in surrounding areas shall decrease, and dominant areas can lose its dominance. However, if the new facility is an isolated area, far from other competitors, the closest areas shall suffer a decrease in competition, because the new competitor can become a dominant competitor in these areas, and will probably face weak competition from other firms in the areas that are closer to its facility.

We present next the results of the introduction of the new facility in postcode area 7080, where there was previously not any facility, and the responsiveness analysis. We begin presenting the access change and conclude analysis with the assessment of the change in competition.

Access change

After the introduction of the new facility, it was possible to identify access scores increases in 50 postcode areas of four districts, namely Évora, Setúbal, Santarém and Lisbon. This occurs because the 50 postcode areas are the areas that form the catchment area of the new facility. Following the logic, all the populations covered by the new facility get there access scores increased. Each population of the new facility's covered area has its access increased, because the step 2 calculation of the area considers now the new step 1 ratio of the new facility. The access scores of the populations that are not covered by the new facility do not change, because their available supply does not change.

The highest increase occurs in postcode area 7080, where the new facility is located, and it is an increase of around 0.46 beds per 1,000 inhabitants. As we identified, the higher the distance of the population from the new facility, the less its access score increases, and this is in accordance with the influence of the distance decay on access, which is duly captured by the method.

Focusing the analysis on the postcode areas that suffer access level changes (considering the two bounds of the three access levels defined by the k-means clustering algorithm, i.e., 0.31 and 0.77 beds per 1,000 inhabitants), these changes are somewhat perceptible when comparing Figure 3 with Figure 4 (see the districts of Évora and Setúbal), which present the results of the application of steps 1 and 2 of the method.

Figure 3: Access levels before the new facility' entry

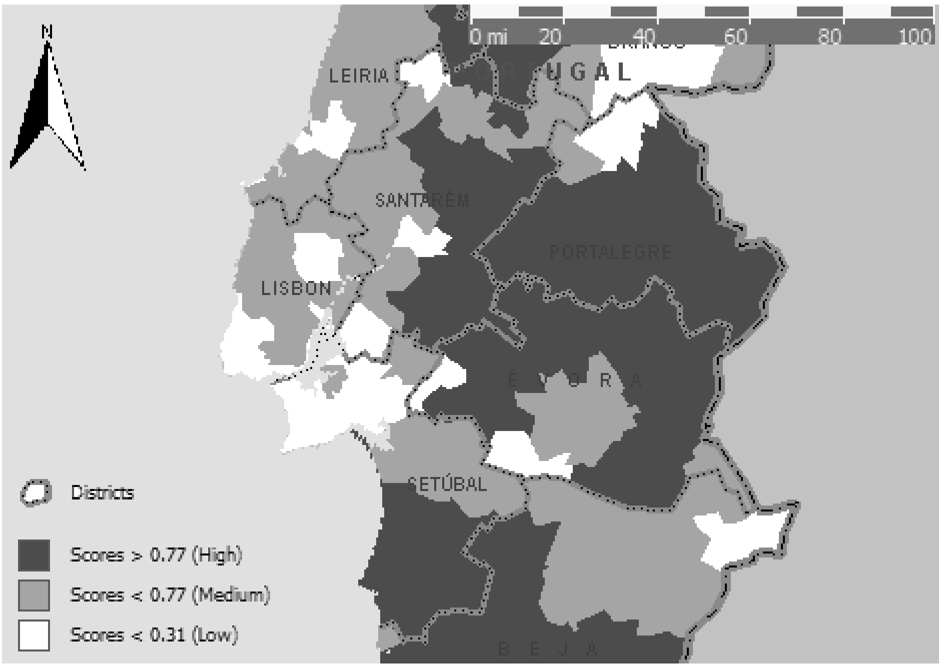
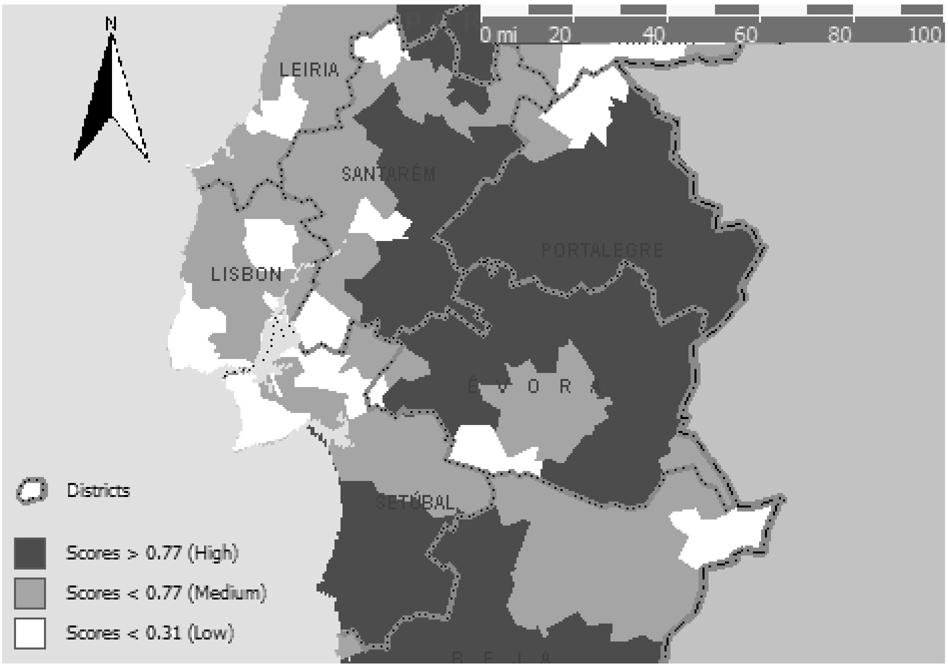


Figure 4: Access levels after the new facility's entry



When comparing the two figures it is possible to see that some regions in the districts of Évora and Setúbal change from white to light-shaded, i.e., low to medium access. These regions are formed by six postcode areas. The changes of the scores of these postcode areas and the identification of their corresponding district are presented on Table 3.

Table 3: Access score changes of the postcode areas that change the access level from low to medium (beds per 1,000 inhabitants)

Postcode areas	District	Access scores	
		Before	After
7080	Évora	0.154	0.612
2950	Setúbal	0.243	0.353
2910	Setúbal	0.231	0.311
2830	Setúbal	0.287	0.338
2840	Setúbal	0.307	0.358
2800	Setúbal	0.298	0.312

Considering these results, we understand that the method behaves as it should to measure the change to the potential access after the introduction of a new facility.

Competition change

We introduce a new facility of a new competitor in an area without other competitors in the Alentejo region, where it will face weak competition from other firms, and will have some influence in areas that are closer to its competitors. This way, we expect that the competition in the areas close to its competitors will present a stronger competition and, hence, lower HHI values and higher dominance thresholds. However, it is expected that the area where the facility is located will present higher HHI values, because this area shall be dominated by the new competitor. There shall be weak competition in this area from other competitors.

As we could identify, the areas that suffered changes in competition are the same 50 postcode areas that had their access scores changed.

The major changes are the change in postcode area 7080, with its highest market share now higher than the dominance threshold, and the change from high market concentration to medium concentration in the adjacent postcode area 2985 (see Table 4) – although, since this area was not dominated and remains not dominated after the change, this does not have an influence on the identification of target markets.

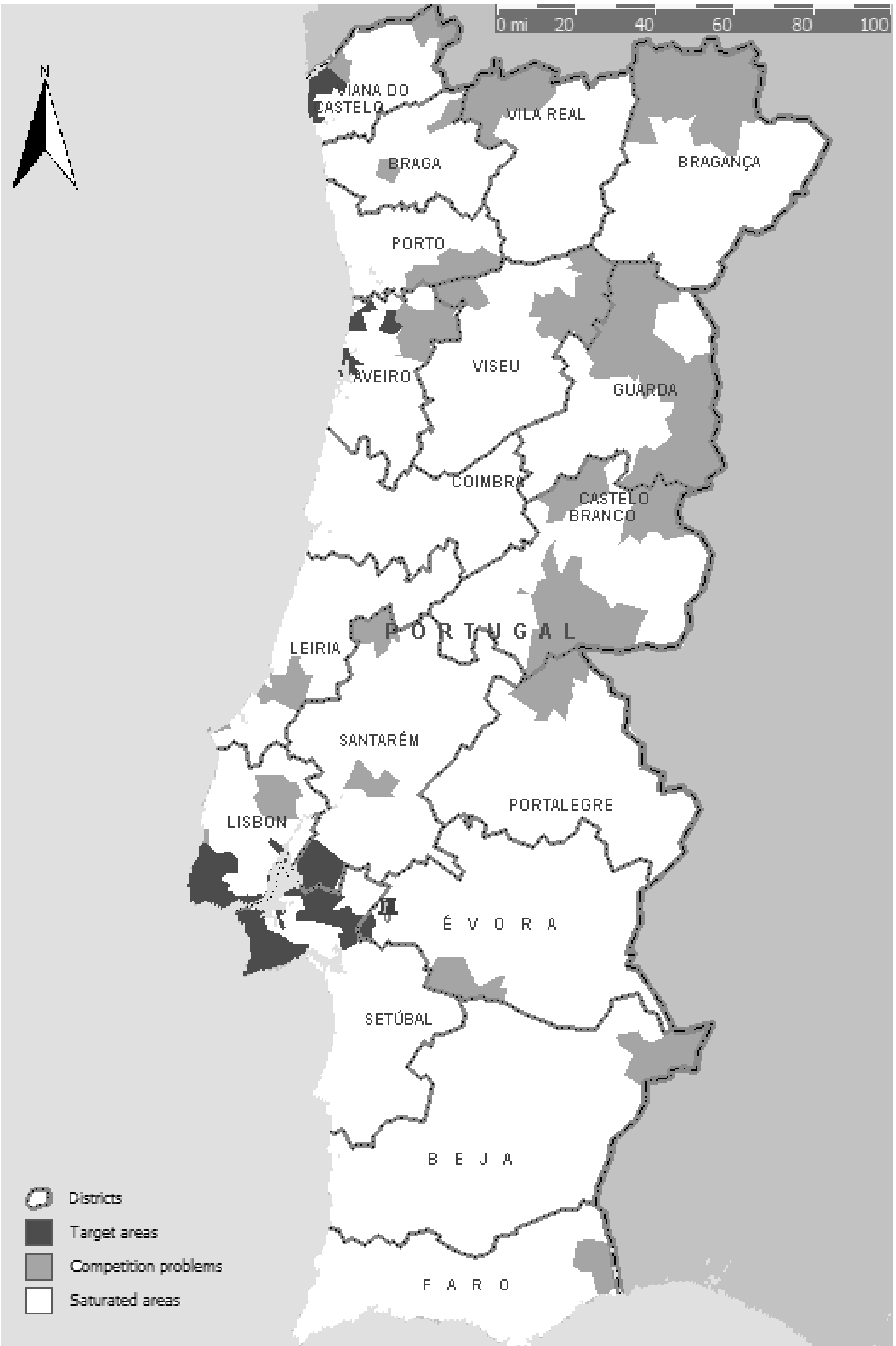
Table 4: Changes in competition

Postcode area	District	HHI		HHI change	Highest market share	Dominance threshold
		Before	After			
7080	Évora	2242.53	3038.01	795.49	49.7%	36.4%
2985	Setúbal	2427.63	1973.64	-453.99	29.7%	42.3%

To sum up, the identification of target markets is influenced by the six access level changes from low to medium. The competition changes do not affect the results of the method, because most postcode areas do not suffer changes in terms of market concentration level (low, medium or high) and the major change on 7080 does not influence the result, because this postcode area loses its status as a target market candidate, because its access level changes from low to medium.

Figure 5 presents the new target areas after the introduction of the new competitor's facility and also the location of this new facility, and the dark-shaded regions (target areas) that change to white.

Figure 5: New target areas after the introduction of the new competitor's facility



Considering these new results, the number of target areas decrease, such that a reduced set of postcode areas (the dark-shaded areas in Figure 5, compared to the results presented on Figure 2), should be targeted by public policy to increase financing to new supply to serve deprived populations. This new financing could be promoted by public biddings to set more efficient prices, profiting from the existing competition in the target areas.

We understand that the analysis of these changes presented in this subsection confirm the notion that the EKD4SFCA method is valid, according to the construct validity definition.

5. CONCLUSIONS AND IMPLICATIONS

This paper validates the EKD4SFCA method to identify target geographic areas, building upon previous work presented on the Advances in Business-Related Scientific Research Conference 2013, in Rome, "Identifying Target Geographic Areas for New Market Entrants" (Polzin et al., 2013).

To show how the method works, we present an application in the Portuguese long-term care sector in a case study. The fine-resolution results indicate that this method can be useful for government or public administrations that wish to identify in a precise way candidate regions to finance, such that access of deprived populations can be improved by promoting new supply, and exploring the existing competition between business organizations, such that efficient prices can be set in public biddings.

The exercise that we presented in the case study, of introducing a new facility, owned by a new competitor in the market, produced changes in results that we consider being in accordance with what was expected. This way, we conclude that the method attains construct validity.

We note that the new method can be adapted to be applied to any industry in which the consumers need to travel to supply points in order to obtain the relevant products or services and satisfy their needs. In particular, the health needs index introduced in our method can be substituted by an index that captures other populations' characteristics that may be of interest.

Finally, we note that a further enhancement that could be introduced would be the inclusion of the consideration of supply in Spain, close to the border with Portugal, to enhance analysis in these border regions.

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ORGANIZATIONAL COMMITMENT AS AN ANTECEDENT OF RELATIONSHIP COMMITMENT IN FINANCIAL SERVICES

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Abstract

This qualitative research establishes a link between relationship commitment, involving the seller and the buyer, and the behaviors stemming from the seller's organizational commitment in a financial context. Our results indicate that sellers' management practices should seek to reinforce their own affective organizational commitment. Indeed, affective organizational commitment is related to organizational behaviors that could be linked to sellers' extra and intra-role performance. Their performance is an implicit manifestation of their desire to maintain the relationship with the buyer and vice versa. In this way, the development of a lasting relationship between them and their clients is promoted. This article's originality is based on, among others, exposing the relation between commitment from a marketing perspective and commitment from a human resource management perspective.

Keywords: Relationship commitment, organizational commitment, relationship marketing, human resource management.

Topic Groups: Human resource management, marketing, organizational behavior.

INTRODUCTION

Theory in the field of marketing historically focused on the different exchanges between the buyer and the seller (Dwyer et al., 1987), which were then limited to the transaction as central element (Bagozzi, 1975; MacNeil, 1980). The relationship marketing is defined as "attracting, maintaining and—in multiservice organizations—increasing relationships with clients" (Berry, 1983: 25). Relationship marketing appeared in service-marketing literature relative to services where the relationship between the client and company personnel was crucial given the nature of the service (intangibility, heterogeneity, inseparability, and perishability).

Since then, the importance of establishing and maintaining long-term relationships with clients has been clearly proven (Zineldin, 1996). When attributing a greater importance to the relationship between the buyer and the seller, it becomes relevant to look at the variables that encourage establishing and maintaining such a relationship.

Among these variables is buyer commitment to the business relationship with the seller. In this respect, we hypothesize that sellers' commitment to their organization (organizational commitment) positively influences partners' (seller and buyer) commitment to a business relationship (relationship commitment). First, we want to discover if sellers' organizational commitment can lead them to exhibit certain behaviors. Second, we want to determine if these behaviors subsequently have an impact on buyers' and sellers' commitment to the aforementioned relationship. In short, this article presents a qualitative research that enabled us to establish a relationship between commitment considered from a marketing perspective and commitment considered from a human resource management perspective. More specifically, we want to answer the following question: How does the sellers' organizational commitment influence the relationship commitment between the partners involved?

1. THE CONCEPT OF COMMITMENT

Organizational commitment is a concept that has been extensively addressed in the literature since the 1960s. However, it is in the 1990s that a consensus is reached regarding a definition. In fact, most studies define the concept of commitment as a force that leads an individual to a course of action of relevance to a target (Meyer & Allen, 1991; Meyer & Herscovitch, 2001). In this way, commitment inevitably leads to a target that refers to, for example, the organization (Meyer et al., 2002), the profession, the work team, the career (Chang, 1999), the occupation (Blau, 2001; Snape & Redmen, 2003), the union (Cohen, 1993) or the relationship (Morgan & Hunt, 1994).

The construct of commitment can be broken down in a number of dimensions. It is in fact recognized as a multidimensional concept by many authors (Angle & Perry, 1981; O'Reilly & Chapman, 1986; Penley & Gould, 1988; Meyer & Allen, 1991; Mayer & Shoorman, 1992; Jaros et al., 1993). There would therefore be various types of commitment to a target. Among the multidimensional definitions of commitment, the one most widely used was proposed by Meyer and Allan (1991) and contains three components: affective, normative, and continuance. Affective commitment refers to a psychological state that is expressed by a desire to pursue a course of action of relevance to the target and thus by a psychological and social attachment to this target (Bansal et al., 2004; Ganesan et al., 2010). This dimension suggests an emotional connection with the target (Chênevert et al., 2007). The normative dimension refers more to the sense of obligation related to the target (Meyer & Herscovitch, 2001), which is to say a sense of moral obligation (Chênevert et al. 2007). The third dimension, called continuance, rests on the perceived cost of putting an end to courses of action of relevance to the target (Ganesan et al., 2010; Gundlach et al., 1995). Individuals then consider the investments made in the target and the losses incurred due to this halt in actions (Vandenberghe et al., 2009).

The concept of commitment is generally apprehended from two distinct but related angles: attitude and behavior. Attitude research tackles commitment as a state of mind toward a target (Meyer & Allen, 1991) and seeks to identify its antecedents and consequences (Meyer & Herscovitch, 2001). Behavior research takes into consideration the right conditions for repeating a behavior and the effects this behavior has on attitudes (Meyer & Herscovitch, 2001). While research tends to focus only on one view of commitment at a time, our exploratory research is innovative because it is based on both, studying the connection between the behaviors that stem from sellers' organizational commitment and the relationship commitment between the partners involved.

1.1. Relationship commitment

Individuals' commitment necessarily supposes actions aimed at a target. For the purposes of this article, the target we are particularly interested in is the relationship. From a relational angle, commitment represents either an implicit or explicit commitment to a lasting relationship between the partners (Dwyer et al., 1987). A relationship commitment exists when a partner considers that the ongoing relationship with the other partner is sufficiently important to exert the necessary effort to maintain it (Morgan & Hunt, 1994) or to invest in it a number of resources (Gounaris, 2005; Theron et al., 2008). In this article, we use the expression "relationship commitment" as understood by Morgan and Hunt (1994), therefore taking into consideration reciprocity between the partners.

Marketing literature looks at the three components of commitment as put forth by Meyer and Allen (1991). Although the normative component can also be taken into consideration (Bansal et al., 2004), marketing research generally focuses on two of the three dimensions of commitment: affective and continuance (Geyskens et al., 1996; Fullerton, 2003; Gounaris, 2005; Ganesan et al., 2010). We consider all three dimensions in our study.

Several researchers have demonstrated the importance of commitment in relationship marketing, but commitment antecedents and consequences between buyer and seller have only recently attracted more attention. For the purposes of this article, we are more specifically interested in the antecedents of relationship commitment. Literature identifies a few (Morgan & Hunt, 1994; Sharma & Patterson, 2000; Theron et al., 2008), as shown in Table 1.

A relationship of trust exists when one of the partners believes in the other partner's reliability and integrity (Morgan & Hunt, 1994). Volition is crucial within the concept of trust, for trust is given in direct proportion to a partner's will to get involved (Moorman et al., 1993). In this regard, the studies show a positive link between trust and relationship commitment (Morgan & Hunt, 1994; Sharma & Patterson, 2000; Jayakody & Sanjeewani, 2006; Liang & Wang, 2007; Theron et al., 2008). More specifically, some studies have shed light on the link between trust and the affective component of relationship commitment

(Geyskens et al., 1996; Bansal et al., 2004; Gounaris, 2005) as well as between trust and the continuance component (Geyskens et al., 1996; Gounaris, 2005).

Satisfaction also comes up in relationship commitment antecedents. Sharma and Patterson (2000) define the client's satisfaction with the service as the overall satisfaction of the client when receiving the service from the seller, and link it positively to relationship commitment. However, other studies show zero correlation between satisfaction and affective relationship commitment (Bansal et al., 2004). Satisfaction, in addition to being considered as an antecedent of relationship commitment, also constitutes a consequence of such a commitment between partners (Chenet et al., 2010).

Table 1: Antecedents of relationship commitment

Antecedents	Links with relationship commitment
Trust	Positive link with relationship commitment. Positive link with affective and continuance relationship commitment.
Satisfaction	Positive link with relationship commitment. No link with affective relationship commitment.
Communication	Positive link with relationship commitment.
Shared values	Positive link with relationship commitment.
Alternatives attractiveness	Negative link with relationship commitment. No link with continuance relationship commitment.
Cost related to terminating the relationship	Positive link with continuance relationship commitment.
Subjective norms	Positive link with normative relationship commitment.
Relational benefits	Positive or no link with relationship commitment.

Communication is also considered as a significant antecedent of relationship commitment, since it is positively correlated to it (Theron et al., 2008). It refers to the formal or informal sharing of important and current information between partners (Anderson & Narus, 1990).

In addition to trust, satisfaction, and communication, the studies on relationship commitment antecedents consider shared values as significantly and positively linked (Morgan & Hunt, 1994; Mukherjee & Nath, 2007; Theron et al., 2008). Morgan and Hunt (1994) define these values as common beliefs among partners "about what behaviors, goals, and policies are important or unimportant, appropriate or inappropriate, and right or wrong" (Morgan & Hunt, 1994: 25).

Another antecedent of relationship commitment is alternative attractiveness (Sharma & Patterson, 2000; Theron et al., 2008), defined "as the client's estimate of the likely satisfaction available in an alternative relationship" (Sharma & Patterson, 2000: 475). Indeed, Sharma and Patterson (2000) as well as Theron et al. (2008) establish a negative correlation between alternative attractiveness and relationship commitment. Nevertheless, Bansal et al. (2004) reveal the absence of a link with the continuance component of relationship commitment.

Another antecedent of relationship commitment is the cost related to terminating the relationship (Morgan & Hunt, 1994; Lancastre & Lages, 2006) or switching business partner (Sharma & Patterson, 2000; Bansal et al., 2004). These are synonymous in the literature. Cost is defined as the expected losses stemming from the termination of the relationship and resulting from one or several of the following reasons: 1) the perceived lack of comparable potential partners, 2) the perceived expenses caused by the dissolution of the relationship, and 3) the perceived cost of switching business partner (Morgan & Hunt, 1994). Generally speaking, studies show a significant positive link between these losses and the relationship commitment (Morgan & Hunt, 1994; Sharma & Patterson, 2000; Lancastre & Lages, 2006). However, Mukherjee and Nath (2007) note an absence of relationship. Other studies deal specifically with continuance commitment, identifying a positive link with the cost of switching business partners (Bansal et al., 2004).

Subjective norms are also considered as an antecedent of relationship commitment (Bansal et al., 2004). They refer to the conformity that comes from social pressure. One of the only empirical studies focusing on the normative dimension of relationship commitment established a link between this dimension and the subjective norms (Bansal et al., 2004).

A final antecedent of relationship commitment concerns relationship benefits, which is to say the perceived value of an advantage coming from a business relationship (Morgan & Hunt, 1994; Mukherjee & Nath, 2007). Studies report a positive correlation between relationship benefits and relationship commitment (Morgan & Hunt, 1994; Mukherjee & Nath, 2007).

Despite having identified these antecedents of relationship commitment, the number of studies tackling this issue is rather limited. The links between relationship commitment and other antecedents would benefit from further study in order to improve our understanding of this concept. In this regard, we propose that sellers' organizational commitment should be considered as a significant antecedent of partners' relationship commitment.

1.2. Sellers' organizational commitment

Organizational commitment is defined as employees' attachment to their organization (Meyer & Allen, 1997). Like all other forms of commitment, this one is composed of three dimensions: affective, normative, and continuance (Meyer & Allen, 1991). Some studies tackle the history of employees' organizational commitment (Behrman & Perreault, 1984; Mathieu & Zajac, 1990; Meyer et al., 2002). Most of these have mainly shed light on the relationships between organizational commitment and its antecedents (Meyer & Herscovitch, 2001). Table 2 shows antecedents grouped according to their corresponding component.

Table 2: Organizational commitment component antecedents

Antecedents	Components
Personal caracteristics (Bauer et al., 2007; Angle & Perry, 1981; Cohen, 1993; Riketta, 2002): demographic caracteristics and personality.	Affective
Work experience (Chênevert et al. 2007; Cohen-Charash & Pector, 2001; Humphrey et al. 2007; Meyer et al., 2002; Mansell et al. 2006): related to position, role, organization, or immediate superior.	
Personal caracteristics (Erdheim et al. 2006; Mathieu & Zajac, 1990; Meyer et al., 2002): demographic caracteristics and personality.	Normative
Socialization experiences (Bentein et al., 2000; Meyssonnier, 2006; Wiener, 1982): personal and professional experiences.	
Target-related experiences (Cohen-Charash & Spector, 2001; Ilouga, 2006; Malhotra et al., 2007; Meyer et al., 2002; Paillé, 2002; Vandenberghe & Peiro, 1999): target's investment in building a relationship and management practices.	
Personal caracteristics (Erdheim et al., 2006; Mathieu & Zajac, 1990; Meyer et al., 2002): demographic caracteristics and personality.	Continuance
Perceived alternatives (Peyrat-Guillard, 2002; Meyssonnier, 2006): availability and attractiveness of employment alternatives.	
Investments (Bentein et al., 2000; Malhotra, et al., 2007; Meyer et al., 2002; Whitener & Walz, 1993): investment in the target and consequent rewards.	

In addition to being interested in antecedents, studies on organizational commitment also look at the behaviors it evokes in employees. In this respect, Meyer et al.'s (2002) meta-analysis identifies three categories of behavior correlated with organizational commitment: withdrawal behaviors, behaviors related to psychological distress, and on-the-job behaviours. Table 3 shows the behaviors associated to organizational commitment.

Table 3: Behaviors associated with organizational commitment

Behaviors	Indicators	Links with components
Withdrawal behaviors	Absenteeism	Negative link with affective organizational commitment
	Intention to leave	Negative link with affective, normative, and continuance organizational commitment
Behaviors related to psychological distress	Job stress	Negative link with affective and normative commitment, and positive link with continuance commitment
	Job burnout	Negative link with affective commitment
	Work/family conflicts	Negative link with affective commitment

On-the-job behaviors	Organizational citizenship behaviors	Positive link with affective and normative commitment, and negative link with continuance commitment
	Participation	Positive link with affective and normative commitment

Within the withdrawal behavior category, a relationship is established with voluntary absenteeism (Somers, 1995), which refers to someone's decision to be physically absent from work (Steel & Rentsch, 2003). More specifically, studies show that affective organizational commitment generally correlates negatively with voluntary absenteeism (Mathieu & Zajac, 1990; Hackett et al., 1994; Gellatly, 1995; Somers, 1995; Meyer & Herscovitch, 2001; Meyer et al., 2002). Although the normative dimension is negatively correlated with absenteeism in a few studies (Meyer et al., 1993), continuance and normative commitments do not explain voluntary absenteeism (Hackett et al., 1994; Somers, 1995; Meyer et al., 2002). In addition to voluntary absenteeism, there is also a link between organizational commitment and another withdrawal behavior: the intention to leave the organization (Carmeli, 2005). The intention to leave refers to the "conscious and deliberate willfulness to leave the organization" (Tett & Meyer, 1993: 262). Studies clearly show a negative correlation between affective organizational commitment and the intention to leave (Meyer et al., 1993; Tett & Meyer, 1993; Ko et al., 1997; Meyer & Herscovitch, 2001; Snape & Redman, 2003), as well as normative organizational commitment, although to a lesser degree (Somers, 1995; Ko et al. 1997; Meyer & Herscovitch, 2001). Finally, whereas some studies show a significant negative correlation between the continuance dimension of organizational commitment and the intention to leave (Meyer & Herscovitch, 2001; Meyer et al., 2002), others show a weak correlation (Ko et al., 1997).

There are currently few studies on the second category of behaviors (related to psychological distress) and some show links with job stress and job burnout (Lee & Ashfort, 1996). Job stress happens when work-related factors interact with worker characteristics and leads to a break in the psychological homeostasis (Beehr & Newman, 1978). Job stress would therefore be a situational condition for job burnout, including both physical and mental burnout, negative affects, as well as a gap between a person's expectations and motivation and the demands of work and the lack of recognition obtained in return (Rascle & Bruchon-Schweitzer, 2009). In support of this, two meta-analyses highlight that affective organizational commitment is negatively correlated with stress and job burnout (Lee & Ashforth, 1996; Meyer et al., 2002). With respect to the other two dimensions of organization commitment there are again mixed results. While some studies show a positive correlation between continuance and stress (Meyer et al., 2002), others show no relationship at all (Reilley & Orsak, 1991). Regarding normative commitment, Meyer et al. (2002) concluded zero correlation with stress whereas Reilley and Orsak's (1991) results indicate a negative correlation. In addition to job stress and job burnout, studies reveal correlations between organizational commitment and other behaviors related to psychological distress, such as work/family conflicts (Meyer et al., 2002). This type of conflict corresponds to the difficulty of participating in the family role due to one's involvement in the work role (Greenhaus & Beutell, 1985). Thereupon, the affective dimension of organizational commitment would be negatively correlated with work/family conflicts (Meyer et al., 2002); however, there are no data available for the other two dimensions.

Finally, studies pertaining to the third category of behaviors (on-the-job behaviors) show that organizational commitment is associated with organizational citizenship behaviors (Organ & Ryan, 1995) and participation (Snape & Redman, 2003). Organizational citizenship behaviors correspond to individual actions that are left up to employees and that contribute significantly to the organization's efficiency (Paillé, 2006). These are actions taken on a voluntary basis, which are generally expressed through a helpful behavior accompanied by individuals' sustained interest in the actions carried out by the organization to which they belong and resulting from team spirit (Paillé, 2006). In general, studies show a positive link between affective commitment and organizational citizenship behaviors (Meyer & Herscovitch, 2001; Meyer et al., 2002). Regarding continuance commitment, the trend is less obvious. While some studies show no significant link (Meyer et al., 1993; Meyer et al., 2002), others show significant negative relationships with organizational citizenship behaviors (Organ & Ryan, 1995). We must however mention that Meyer et al.'s (2002) meta-analysis of organizational commitment underlines that there is zero correlation between continuance commitment and organizational citizenship behaviors. For its part, normative commitment would be positively correlated to organizational citizenship, although to a lesser degree than affective commitment (Meyer et al., 2002). Lastly, the participation of individuals also shows links with organizational commitment. It can take on different forms: active, routine (rank-and-file), or passive (Snape & Redman, 2003). Routine participation refers to daily activities, for example discussing with colleagues and attending meetings, whereas activist participation is expressed through an involvement that goes beyond these regular daily activities. Passive participation is a form of participation that is less involved, in which individuals consult, for example, magazines specialized in their field of work. The affective dimension of organizational commitment is positively correlated with the participation of individuals in activities belonging to the target (Meyer & Allen, 1993; Snape & Redman, 2003). Among the three dimensions of commitment, this one is the most strongly correlated with respect to routine and passive participation. As for normative commitment, it is also positively associated with individuals' participation. For this dimension, the link is strongest with activist participation, even more so than for the affective dimension. Finally, the continuance dimension does not show any relationship with any of the forms of participation to target activities.

1.3. SELLERS' PERFORMANCE

The seller's performance is a concept that is complex to define (Parissier et al., 2005). Nevertheless, we notice in the literature some recurring ideals associated with the different typologies related to this concept. The main ideals are result performance, behavioral performance, in-role performance, and extra-role performance. Result performance refers to the skills employed and effort exerted by sellers to obtain results that can be attributed to them (Jaworski & Kohli, 1991). These results concern more specifically sales, market shares, new accounts (Parissier et al., 2005; Babakus et al., 1996), profit, commission, number of orders, and penetration rate (Parissier et al., 2005). Traditionally, these are the results managers use to base the rewards given to the personnel in contact with clients (Sprimont, 2003; Parissier, et al., 2005). These essentially quantitative results are no longer sufficient to evaluate individual sellers, notably because of the current complexity of the commercial environment (Sprimont, 2003). With a more qualitative perspective, behavioral performance adds a much needed aspect to result performance.

Behavior performance is the evaluation of the strategies adopted and the various activities undertaken by sellers when they carry out their work-related responsibilities (Jaworski & Kohli, 1991). Cravens et al. (1993) contribute additional information by distinguishing "nonselling" from "selling" behavioral performance. The first refers to activities that are not directly related to the short-term sales generation (Cravens et al. 1993). These are quantitative as well as qualitative (Parissier et al., 2005; Sprimont 2003; Cravens et al., 1993) undertaken by personnel in contact with clients. On the contrary, selling behavioral performance generates sales through activities directly related to sales (Cravens et al. 1993). These are qualitative behaviors that add value for the client, such as sales skills, technical knowledge (Parissier et al., 2005), and sales presentations (Sprimont, 2003; Cravens et al., 1993).

Other than the constructs of result performance and behavioral performance, the literature on organizational behavior differentiates extra-role performance from in-role performance (MacKenzie et al., 1998; Organ 1988; Podsakoff et al., 1994; Williams & Anderson, 1991). Three reasons can justify this distinction (MacKenzie et al., 1998): 1) managers use both types of performances to evaluate overall performance, 2) both types of performances have a significantly different influence on financial performance, and 3) both types of performances have diverging antecedents and consequences.

Extra-role performance concerns employees who go beyond their formal obligations. It then chiefly refers to prosocial, spontaneous, and contextual behaviors (MacKenzie et al., 1998). As part of extra-role performance, these behaviors can be viewed as informal (Parissier et al., 2005). Finally, the last of the four types of performances enumerated, in-role performance, considered as being traditional (Williams & Anderson 1991), takes place when employees accomplish tasks and activities prescribed by the organization (Podsakoff et al., 1994). In the case of sellers, the role is fixed by the business and not by the clients. This type of performance is thus similar to result performance and is notably measured by the volume of sales, quotas, and commissions (MacKenzie et al., 1998).

2. METHODOLOGY

This study sought to answer the following research question: How does account managers' organizational commitment influence the relationship commitment of both partners, that is, of the account managers and their business clients? In this respect, the main objective is to analyze the influence of account managers' organizational commitment on business partners' relationship commitment. Below are secondary objectives:

- Analyze account managers' commitment to their financial institution.
- Identify and analyze the consequences of account managers' commitment to their financial institution.
- Analyze the influence of these consequences on account managers' performance.

We hypothesize that account managers' organizational commitment has a positive influence on the relationship commitment between business partners (i.e., account managers and their business clients). We put forward three secondary hypotheses. First, the affective, normative, and continuance components of account managers' organizational commitment are related to three categories of behaviors. Second, these three categories of behaviors are related to account managers' and clients' affective, normative, and continuance relationship commitment to one another. Third, performance influences the relationship commitment between account managers and their clients.

Qualitative data were collected from a case study. Our sample included account managers from a Canadian financial institution and their business clients. With 42,000 employees, this institution has over 6 million clients, individuals and businesses. We conducted thirty-five semi-structured interviews in a dyadic perspective: eleven accounts managers and twenty-four business clients. Of the thirty account managers we contacted for the study, thirty-four of them accepted to participate. Account managers gave us a list of their business clients and of the ten we contacted, eight accepted to participate. The number of interviews was fixed according to a theoretical saturation, which means that data collection ended when new data no longer contributed to our understanding of the phenomenon being studied. Each interview lasted about one hour. We taped, transcribed, and analyzed the contents of the interviews.

3. RESULTS

3.1. Results for account managers

The analyses of the interviews conducted show that account managers all assume they possess a high organizational commitment. The most significant dimensions are affective and continuance.

First, affective commitment is expressed in their sense of belonging to the organization and the values they share with their employer. This affective commitment gives rise to positive behaviors like organizational citizenship behaviors and, later, intention to stay in the organization. With respect to organizational citizenship behaviors, the participating account managers mentioned the importance of teamwork, cooperation among colleagues, and excellent customer service, the latter seeming particularly crucial to account managers. They explained how they sought to build a win-win relationship, that is, profitable for both the financial institution and the clients. One of the participants described his commitment to his clients: *The idea is to give them your best. You have to give them a good service.* Regarding the intention to stay in the organization, one participant described his sense of belonging in the following words: *Go somewhere else? I don't think so. It's like a big employee family, here. We stick together. It's a big family, so I can't see why or what would make me leave.* The affective organizational commitment, expressed through a sense of belonging to the institution, is therefore clearly linked to the intention to stay there.

Second, account managers' continuance commitment is linked to the intention to stay in the organization. The continuance commitment rests on account managers' perceptions of the limited number and attractiveness of employment alternatives. Some factors (remuneration, work environment) should be considered in the evaluation of the attractiveness. For example, the attractiveness of alternatives is higher when considering remuneration than work environment. Indeed, the participants considered that their employer offers more advantages than other institutions (work team, flexibility, organizational structure, empowerment). To this effect, one participant said: *I think that my institution, at the level of working conditions and humanity, I think that we are better off here. If I wanted huge bonuses and a bigger salary, then maybe I would look elsewhere, despite the fact that there have also been adjustments in our institution because there was a gap at some point and they fixed it.*

Thus, account managers' affective and continuance commitment to the organization was expressed by a desire to pursue the relationship with their employer. These behaviors seemed to be related to extra-role performance, because account managers went beyond their formal obligations. They adopted prosocial behaviors, which increased their in-role performance by accomplishing tasks prescribed by their employer. One participant explained the influence of collaboration among team members on in-role performance: *In the end, by working like this as a team, it allows us to work harder in order to reach our collective objectives in a way that makes everybody happy at the end of the year, because we all performed well*. During our semi-structured interviews, the participants focused more on the in-role than the extra-role performance of account managers, whose role was more defined by the financial institution than by the clients. One participant said: *First, we work for the organization because if I give a loan that isn't profitable, if I cut the interest rate by half, well, at the end of the day, if everybody does this, if we exaggerate, there won't be any institution left. So, the institution has to turn profits for us to be here in the morning and keep offering services to people at the best possible prices in a professional manner.*

Regarding the account managers' relationship commitment, the continuance and affective dimensions were revealed as the most important. First, the continuance commitment can be observed because account managers do not choose their clients; the financial institution assigns them to the account managers. This distribution is done in cycles, that is, account managers take turns being assigned newly acquired clients. This means that account managers do not have the opportunity to choose their clients according to their interest in a project. Second, the affective commitment is expressed by the importance of trust for the account managers. The participating account managers told us that trust should be at the heart of their relationship with their business clients. This trust may in fact be linked to account managers' performance. On participant said: *When you can feel that the person trusts you, my God it's fun to work with them and give them your best. This is how it is for me, it's like a relationship. Actually, it's like in any relationship (couple, friends, family), when you feel that there's trust and respect, well, you feel like putting more into it. For sure!*

3.2. Results for business clients

The interview analysis identified affective and continuance commitment, but not normative commitment among the business clients. Regarding affective commitment, business clients considered trust to be a major component in a long-term relationship. This view is in line with the account managers' position. According to the participating clients, trust must emanate from both partners. They mentioned that trust in their account managers is necessary, but that managers must also trust their clients' loyalty. One participant said: *Except, I don't go from one institution to another. I mean, when I tell them to make me their best offer, I don't turn around to see another account manager in another institution. Otherwise, it never ends. Because when you start going from one to the other like that, they aren't interested anymore. You lose a lot of credibility and they let you go.* With respect to continuance commitment, the clients did not choose their account manager and considered that they did not have access to alternatives in the financial institution. Account managers were assigned to clients according to the financial institution's personnel availability. Some participants mentioned to this effect that they had to change account directors several times when the financial institution underwent restructuring. During these changes, the clients were sometimes assigned managers whom they deemed did not have the right skills. The clients also complained about having to build a new relationship each time a change occurred. Such changes therefore caused much irritation among clients. Nevertheless, when this happened, clients did not ask for a new account manager; they accepted the manager and remained with the institution. This reveals that their attachment was more directed toward the financial institution than toward their relationship with account managers. Indeed, forced to choose between their account managers and the financial institution, all of the participants claimed that they would choose the institution. Despite this, the participants said that their current account manager performed well. They attributed this performance to managers' ability to evaluate clients' needs and answer clients' technical questions, and to managers' honesty and kindness. The criteria evaluated by the clients derived therefore both from in-role and extra-role performance. A number of participants, however, mentioned that it could take a while before they obtained an answer, noting thus a weakness at the level of in-role performance.

4. DISCUSSION

In this article, we hypothesized that account managers' behaviors stemming from their organizational commitment are connected to their relationship commitment to their business clients. Studies tend to demonstrate that organizational commitment gives rise to behaviors, whether negative or positive. These behaviors would notably be related to account managers' extra-role and in-role performance. Indeed, affective commitment is generally positively correlated with performance (Angle & Lawson, 1994; Shore et al., 1995; Meyer & Herscovitch, 2001; Meyer et al., 2002). Although the relationship is weaker, the normative dimension of commitment also positively correlates with performance (Meyer et al. 1993; Meyer & Herscovitch, 2001; Meyer et al., 2002). However, the results relating to continuance commitment are less clearly defined. While some studies show a negative correlation with performance (Meyer et al., 2002), others reveal none at all (Hackett et al., 1994).

In this regard, while on-the-job behaviors generally have a positive impact on performance (Coleman & Borman, 2000; Van Dyne et al., 1995), behaviors related to psychological distress (Frone et al., 1997) and withdrawal (Bishop et al., 2000) have a negative impact. By respecting and even going beyond their prescribed role, account managers would be implicitly expressing a desire to continue their relationship with their clients, which in turn would create a similar desire in their clients. In fact, relationship commitment implies the idea of reciprocity since it is not simply a financial transaction (Cook & Emerson, 1978), but rather an exchange based on mutual trust between partners, which is only possible if one expresses the desire to continue the relationship with the other. It is therefore through this in-role and extra-role performance, stemming from behaviors related to organizational commitment, that account managers express their desire to pursue the relationship.

Interview analyses showed that the consequences of account managers' organizational commitment may indeed be more closely related to continuance and affective relationship commitment than normative commitment. In fact, the behaviors stemming form account managers' organizational commitment could be related to the clients' attachment to a relationship in which the partner shows an interest in the relationship. The behaviors related to in-role and extra-role performance would give rise to this attachment.

Our results demonstrated that the behaviors stemming from account managers' affective and continuance organizational commitment would be mostly related to relationship commitment. Although links can be established, they do however seem to be less significant with respect to normative organizational commitment. Indeed, the link between organizational commitment and the consequences in terms of behavior among employees are clearly more significant in the affective and continuance dimension. For this reason, management practices directed toward account managers should target these dimensions of commitment in a way that will encourage the development of lasting relationships between the partners. In this regard, numerous antecedents have been found for organizational commitment, but since affective and continuance commitment show the most significant link with behaviors susceptible to lead to a relationship commitment, it is important to emphasize the antecedents specifically related to these dimensions. More precisely, the strongest relationships with affective commitment are those involving antecedents related to work experience (Meyer et al., 2002). Authors underline the impact of organizational justice (Cohen-Charash & Spector, 2001; Chênevert et al., 2007), organizational support (Ko et al., 1997; Mansell et al., 2006), clearly defined roles (Chatterjee, 1992), autonomy (Rodwell et al., 1998), promotion opportunities (Chênevert et al., 2007), the possibility of developing competences (Tremblay et al., 2000), and the possibility of expressing oneself (Meyer & Allen, 1988). Human resource management practices should therefore seek to develop work experiences among account managers. In addition, the most important antecedents of continuance commitment are the organizational rewards for employee investment (Malhotra et al., 2007; Meyer et al., 2002; Whitener & Waltz, 1993), employment availability, and alternative employment attractiveness (Peyrat-Guillard, 2002; Meyssonnier, 2006). In this sense, human resource management practices employed with account managers definitely have a significant impact on the relationship commitment of partners. Such human resource management practices are conducive to developing and maintaining relationships from the point of view of relationship marketing. This way, the multidisciplinary perspective takes on its full meaning.

Despite the affective and continuance organizational commitment among account managers, business clients are more committed to the financial institution. It does not mean that there is no relationship commitment between account managers and their clients, but the clients' commitment to the institution is greater.

In a theoretical perspective, this study sought to increase our understanding of the relationship between sellers and clients from a multidisciplinary standpoint. Based on marketing and human resource management literature, we carried out an analysis of the antecedents of relationship commitment that is more complete and original than our predecessors. In a managerial point of view, this first examination enabled us to note that human resource management practices influence sellers' performance and consequently their long-term relationship with clients, and the wealth of information gathered from the semi-structured interviews enabled us to clarify this conclusion. Although our general hypothesis was confirmed, we found that clients' commitment was more directed toward the institution than toward their relationship with account managers. This opens an interesting research avenue for future studies.

However, despite this contribution, our study also contained some limitations. It is impossible to generalize the results, neither to all seller-buyer relationships nor to all financial institutions. For this reason, this study should be followed by a quantitative research using a statistically representative sample. In line with our main objective, the observations made enabled us to shed light on how sellers' organizational commitment influences the relationship commitment of partners. And yet, this influence can be different from one relationship to the next. Only one case was studied here and this case may not necessarily be representative of all Canadian financial institutions.

For further research, it would therefore be appropriate to analyze a variety of cases in different financial institutions of various sizes and backgrounds, as well as in other types of organizations. This broader number of cases should lead to a more comprehensive understanding of this phenomenon. It would also be interesting to study the same phenomenon in different industries, not only in the financial sector. For instance, it would be appropriate to study the insurance industry because of its similarities with the financial one.

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TOWARDS COSMOPOLITAN OUTLOOK: DEVELOPMENT OF GLOBAL MINDSET IN INTERNATIONAL MANAGEMENT EDUCATION

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Abstract

The paper explores the outcomes of development of global mindset in international management students in multicultural learning environment. A comparative analysis was conducted within four international programs, all of which offer international management education in English language for local and international students. The study applies the concepts of cultural knowledge development, global mindset and cosmopolitanism. It presents a typology model of four cultural learning approaches the students are likely to take in their cultural learning and the triggers for such learning. It also provides tentative recommendations for the steps that higher educational institutions (HEIs) and international organizations can take to promote cross-cultural exchange, cultural knowledge creation and individual and organizational global mindset development.

Keywords: global mindset, cosmopolitanism, cultural knowledge creation, international management education, multicultural learning environment

Topic Groups: Management education, training and development, International business, Human resource management and career development

INTRODUCTION

In the last twenty–five years, the comparative advantage of employing the managers and professionals, able to integrate operations over national and cultural borders, coordinate diverse work force and to serve customers with disparate requirements and needs has been recognized both for the global and national firms (Barlett & Ghoshal, 1990). Therefore, the need for the employees of the MNEs, and, thus, the business students, to develop skills to work successful in cross and multicultural environments has also been recognized - the global mindset, or the complex knowledge structure that ‘combines an openness to and awareness of diversity across cultures and markets with a propensity and ability to synthesize across this diversity' (Govindarajan & Gupta, 2001, p. 111).

The international higher educational institutions (IHEIs) attempt to develop the graduates cognitive skills and the awareness of the cultural difference, however, the majority of international business students need practical abilities and skills that prepare them for future careers (Grisby, 2009) as '(t)he increasing globalization and the interconnectedness of multinational work environment have intensified the demand for graduates capable of operating in culturally diverse context' (Jones, 2013, p 95). Yet while international job experience and experience of living in a foreign country, or having a family member for a foreign county appears to relate positively to global mindset (Arora et al., 2004), the international education generally does not positively influence the development of the global mindset (Nummela et al., 2004). It could be due to the fact that IHEIs are more likely to support what Hayden and Thompson (1995) call ideological approach to internationalization of education that merely places the culturally diverse students in the same learning environment, instead of engaging them in meaningful interactions during the education process (Hayden & Thompson, 2000). This study examines the experience of international, local and exchange students in international management programs and describes the process of developing complex cognitive abilities to generate and share cultural knowledge, or a global mindset, as the students experienced and made sense of it. In addition, it presents a typology model, which presents intermediate stages of incomplete development.

THEORY

The terms of 'global mindset' (Rhinesmith, 1992, Levy et al., 2007a, Levy et al., 2007b), global (or globalized) manager (Black et al., 1999), 'transnational mentality' (Barlett & Ghoshal, 1989) or 'transnational manager' (Adler & Bartholomew, 1992) are used mostly in international management literature, and the term 'intercultural competencies' (e.g. Deadroff, 2006, Spitzberg & Changnon, 2009) is more commonly applied to education. Maznevski and Lane (2004) define global mindset as the 'ability to develop and interpret criteria for personal and business performance that are independent from the assumptions of a single country, culture, or context; and to implement those criteria appropriately in different countries, cultures and contexts' (172) – while the second part of the implementation might be beyond the present ability of business students or even graduates, the developmental part is consistent with the objectives of the business education programs, as Gupta and Govindarajan (2002, p. 120) suggest that individual development of global mindset is fostered by (a) curiosity (b) explicit and self-conscious articulation of current mindsets (c) exposure to diversity and novelty and (d) a discipline attempt to develop an integrated perspective (120).

According to Beechler and Javidan's (2007) Global Mindset Framework, individuals with global mindset possess global intellectual capital, psychological capital and social capital. Javidan and Teagarden (2011) further elaborate that intellectual capital includes global business savviness, cognitive complexity and cosmopolitan outlook, the psychological capital - passion for diversity, quest for adventure and self-assurance, and social capital - intercultural empathy, interpersonal impact and diplomacy, with the social capital indicators highly correlating with the first two ones. Javidan et al. (2010) expressly state that global capital is the key to global managers' success. Levy et al. (2007) name two main themes - cosmopolitanism and cognitive complexity - in global mindset literature. The cosmopolitans are willing to engage with the others and have 'openness towards divergent cultural experiences, as search for contrasts rather than uniformity' (Hannerz, 1996, p. 163). Therefore, cosmopolitanism is consistent with intercultural competence, and yet it is more than ability – it is mindset (Kanter, 1995), or an attitude.

The recent research questions the effectiveness of the study abroad programs (Forsey et al., 2012, Koskinen & Tossavainen, 2004), international educational experience (c.f., Ladd & Ruby, 1999, DeVita, 2005) and multicultural learning environments and interaction with international peers (Jon, 2013, Dunne, 2009) in development of global mindset or cultural competence, yet Arora et al. (2004) found that both training in international management and experience of foreign cultures are significant for development of managers' global mindset It might be because the international experience is commonly used as a 'proxy for global mindset' (Levy et al., 2007b) without examining the process of its development, yet in a dynamic, intercultural environment the individuals come across many a variety of non-linear experiences that can trigger either functional or dysfunctional changes (Bird & Osland, 2004).

METHODS

Design

I used a constructivist grounded theory approach (Charmaz, 2006) to examine the experience of the international management students in the multicultural learning environments. During the study, I examined both the academic and the social experience of the students, including formal instructions, independent group work, and social events as they all contribute to the process of creating and sharing of cultural knowledge and to the development of the global mindset.

Study Setting

The data was collected from 2007 to 2009 at four undergraduate international business programs: at a University of Applied Science (UAS) in Finland, two business schools in the Czech Republic, and in a university in Ecuador. One of the Czech universities cooperated with a UK college, and the other university with a large US state university. I selected these cases based on the theoretical aspects to 'allow for theoretically interesting comparison' (Eriksson & Kovalainen, 2008, p. 122). English was not a native language for the majority of the enrolled students and the learning environments were multicultural. The national cultures of Finland, the Czech Republic and Ecuador are distant (c.f. Hofstede, 1980) from each other. All the programs were at small HEIs (the graduating class in each school was under 150 students at the time of the study), and all the students had to engage in everyday meaningful academic and social interactions with their cross-cultural peers and to take part in educational process conducted in English language by the mostly international faculty.

Participants

A total of 95 individuals (79 students, 12 faculty member and 4 academic administrators) from 23 countries participated in the semi-structured qualitative interviews. The students were undergraduate full-time degree-seeking international business/management majors.

Data Collection

I combined multiple data collection methods (Eisenhardt, 1989) at each location: semi-structured in-depth qualitative interviews, review of organizational materials and the participant observation. The participant observations took place during classes, social and formal academic events, and in everyday situations of academic life. During the interviews, I asked the students to describe their academic experience and the relationships with peers and faculty. I used the documents to clarify the organizational processes and procedures, as they influenced the students' experience and the academic environment.

Analysis procedures

I analyzed the data collected using the constructivist grounded theory method (GTM) (Charmaz, 2006): in particular, the dimensional analysis (Kools et al., 1996, Schatzman, 1991) – the on-going coding (at the initial, focused and theoretical levels), constant compassion analysis and inductive theory building - to describe and explain the students' experience of, and the approaches to, the development of global mindset. I considered the theoretical themes as the dimensions of the data and used the most salient dimensions for construction of the explanatory matrix, based on the symbolic interactionism (Blumer, 1969). I selected the most prominent dimension is the underlining perspective, from which I analyzed the data. The other dimensions were placed in the matrix as the context, the conditions that influenced actions, process, resulted from the conditions and context, and outcomes, or the consequences.

Early in the analysis process, which took place simultaneously with the data collection, informed by the developing theoretical themes, the *in vivo* code of *'being in that for a long haul* has emerged and this theoretical code was consistently re-visited in all four schools, although due to the language and cultural differences not in the exact, *in vivo,* phrase. The dimension of the students' attitude to a long term expertise development, a cultural knowledge development rather than a short term learning experience, was consistently present. In addition, the dimension of a socially connected learning community, where the participant engage in long term knowledge sharing has emerged strongly and it had the most explanatory power. The perspective of '*Doing It Our Way'* has the annotation of shared knowledge creation and cosmopolitan outlook, as opposed to adjusting to the school learning or the national culture of the setting. Next, I selected the dimensions that related to this perspective and organized them in the explanatory matrix, presented below. While four different universities addressed the issue of building their academic and social communities in different ways, the various angles were identified and illuminated, and eventually, the data was saturated in the fourth university.

I used Nvivo 10 CAQDAS software to assist me with coding and comparison analyses, as well for the development of the theoretical models. In the findings part below the explanatory matrix from the perspective of 'Doing It Our Way' presents the contexts, conditions, process and the outcomes as they were experienced and perceived by the participants.

FINDINGS

The main process was identified as cultural knowledge creation, which is consistent with the process-oriented view to the cosmopolitan outlook (Harnerz, 1996) and the consolidation perspectives and knowledge across domains (Jeannet, 2000), as well as the definition of the global mindset as a knowledge structure (Govindarajan & Gupta, 2001).

Figure 1: The explanatory matrix presented from the perspective of 'Doing it Our Way'

Context	Multicultural learning environment Local cultural and social environment	
Conditions	Individual	Curiosity
		Motivation
		Social capital
		Trust
	Learning environment	Suppotive
		Not suppotive
Processes	Cultural knowledge creation	
Concequences	Developing strategies	Tourist
		Ambassador
		Chameleon
		Cosmopolitan

The process took place in the context of multicultural learning environment as well as in the local cultural and social environments, which in all four cases happened to be a multicultural large city, and a capital one in the first three cases (Helsinki, Prague and Guayaquil). In addition to the intense and constant interactions with their peers and instructors, the students mentioned that their social and private lives, outside the university, are also characterized by cross-cultural interactions and in turn, by cultural knowledge creation and sharing, even for the local students and residents. The most salient individual conditions that emerged from the data were curiosity, motivation, social capital and trust. The level of these qualities and abilities the students possess and the extent to which they able to develop these qualities further, influence the final developing strategy, or the consequences/outcomes of the cultural knowledge development process.

In addition, the level to which the HEI administration supported the students' development, by creating the favorable condition for the social interaction inside and outside the class and thus the shared knowledge creation contributed to the strategy selected by the students: a long-term, consistent and socially shared knowledge development, or a cosmopolitan strategy was most likely to be attempted in a supportive social environment.

THE PERSONAL CONDITIONS

Curiosity

Not surprisingly, the curiosity, or an interest in other cultures (Gupta & Govindarajan, 2002), was consistently mentioned by participants in all settings, as the desire to find out more of the way of life, doing business or the prevailing attitudes. Curiosity is consistent to the openness to experience, valuing diversity and respecting the other cultures. The students who decided to study international management in cross-cultural and multicultural learning environments, can be expected to possess curiosity in other cultures.

Motivation

The motivation as process of a goal directed voluntary behavior controlled by the individual (Vroom, 1964) is consistent with knowledge development. All the participants stated that one of the main goals of education was the preparation for international business and management careers, for which cultural competence or global mindset is essential and expressed a desire to engage in such development (Gupta & Govindarajan, 2002). However, some of the participants, mostly, but not only, exchange students, found the entertainment value of the study abroad sojourn to be more important - they were more likely to visit tourist attractions and socialize within their own group rather than engage in building long-term networks in their academic environments.

Social Capital

The social capital as 'the aggregate of the actual or potential resources which are linked to possession of a durable network' (Bourdieu, 1985, p. 248) is beneficial for knowledge creation and sharing (Beechler & Javidan, 2007); however, it is particular challenging to access and develop in a new and foreign cultural environment. However, the excessive social capital, or closed 'bonding' networks (Putman, 2001) is not conductive for knowledge creation. Therefore, there is a delicate balance between the strength of one ties and the ability to create new ones and thus extend the knowledge sharing network – since '(w)eak ties provide people with access to information and resources beyond those available in their own social circle; but strong ties have greater motivation to be of assistance and are typically more easily available.'(Granovetter,1983, p. 209). The participants who were able and willing to build networks, were expected to stay in touch with their classmates and faculty, were planning to access their academic networks for business and professional purposes were also more likely to develop and share cultural knowledge among their peers.

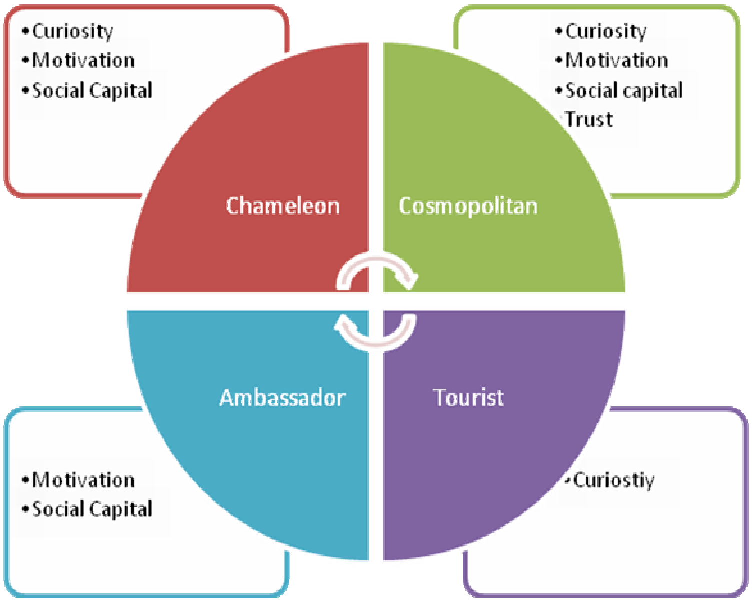
Trust

Trust, as an *in vivo* code of '*trusting teachers*', '*trusting students*', '*trusting each other*', '*trusting others*' and '*trusting the school administration*' was consistently used by the participants in the sense of the 'intention to accept willingness to be vulnerability based upon positive expectation of the intentions or behavior of another' (Rousseau et al., 1998, p. 395). To develop social capital, one has to be willing and able to trust, yet of such intention can be can depend on the appropriateness of the decisions. 'Wise or prudent trust decisions enhance our reservoir of individual social capital; conversely, poor decisions deplete it' (Kramer, 2009, p. 69). The ability, the desire and the appropriateness of the decision to extend trust to their peers, the administration and the others was the main personal conditions that resulted in the successful adoption of the cosmopolitan learning strategy and subsequent development of the global mindset by the student participants.

Developing Strategy

The following model, presented in Figure 2, illustrates the four cultural knowledge development strategies and the personal conditions that were likely to lead to the adoption of the strategy.

Figure 2: Students' cultural knowledge developing strategies



Tourist

Tourists have a curiosity about a new culture, yet they are unlikely to engage in a long-term cultural knowledge creation and sharing process. They have little interest in adaptation to new cultural conditions: tourists look for thrills and exotic adventures and their reference group tends to consists of the members of their own culture, sometime those who stay at home and are connected through social media or other means of telecommunication. They are clear on their own values and use other cultures just as an adventure and experience, not an equal or valuable choice of values.

The most important thing is that I managed to visit Santa Claus in Finland. (Edite, exchange student, School A)

While such statement can be considered humorous and even cute, the fact that many of the exchange students in School A that participated in the interviews did not seem to form an opinion about the program, could not think how they could use the social networks created in the program in the future, and during the breaks in class discussed shopping trips and night clubs more often than anything else, seems to indicate that they perceive their time in School A as a vacation from the real studies back at home, not an opportunity to develop their cultural and business knowledge.

Some students even jeopardize their educational process and personal safety in order to gain such an experience, putting themselves in potentially dangerous situations of being attached or being exposed to hostile environment. They often refer to the local residents as 'real people', perceiving their classmates to be unreal – too privileged, too cosmopolitan, not exotic enough.

Ambassador

Ambassador strategy is used by participants that believed that it was their goal, or even a moral duty to promote their own culture, either as part of their professional duties (*Brian,* *international teacher, School D*), or in their role as international exchange students (*Fang, Mai and Zhen, School A*) or as the hosts (*Luisa, School C*) who should educate visitors on the local culture. It should be pointed out that the forceful position of promoting their own cultural values did not necessarily seems to preclude ambassadors from leaning about the other cultures and even applying such knowledge as appropriate, but it did take a back seat to the advocating the values of theirs cultures and they tend not to engage in collaborative learning and sharing. If they realize that there is little interest among their peers in their home culture, they can become withdrawn and upset (*Ken, international student, School B*), but still do not try to find a common ground or expend their knowledge.

'*I don't understand why Finns are not interested in China more – it's the country of the future, it has so many opportunities!' (Mai, international student, School A)* In such situation this strategy can become dysfunctional.

Chameleon

Chameleon is the strategy of a surface, shallow adjustment of their social behavior. In most locations it is possible for a foreigner to blend in and not to draw attention to one's otherness. The main characteristic of chameleon strategy is a blind mimicking of behavior or voicing an attitude without an attempt to reconcile it with one's personal values or adjust the behavior to one's personality and preferences.

Two students in School C while reporting feeling comfortable in the city and enjoying their studies, but they were bewildered by the attitude of their classmates toward peer evaluations – when asked to evaluate other students' presentations in class, these two students gave everyone an A '*because they wanted to be nice to their classmates'* and so they were upset that the classmates did not reciprocate and both of them ended up with an average of C. When asked whether the grade was fair, they both agreed that it might be, but that was not the point – if a teacher had given them such grade, they would not complain or even be surprised, but their own classmates! '*And we even went to lunch with them many times'* (*Dimitrios and Niko, international students, School C).* Their classmates actually put on their evaluations (group evaluation) that both of the students do the work well, easy to cooperate with, but cannot stand any critique and take it personally. So in short, the chameleons successful intermingle with their social environment, however either cannot, or do not attempt, to understand the values that govern the behavior and to create a shared understanding and knowledge.

Cosmopolitan

This strategy is a long-term development strategy that utilizes expertise development with high intensity and collaborative learning. The learners that successfully employ this strategy often (but not always) come from cross-cultural family backgrounds or travelled a lot during their forming years, are often in relationships with partners from other cultures and have plans for moving on to new cultural challenges - '*I can move anywhere' (Goran, international student, School C*). Another important characteristic of successful cosmopolitans is their intention to share knowledge with other learners and to arrive to common understanding and cooperation. Student participants who use cosmopolitan strategy also recognize the need for collaboration and support, not only for students but for instructors and like to participate in support groups, social networks and other forms of cooperation *(Ana, local student, School D).* They are often proactive in arranging international activities on campus, like research seminar *(Alejandro, local student School D)* or student led enterprises *(Leah,* *international student, School B*) to improve quality of their education and student life and are very clear on the need for long-term intense collaboration to further develop global mindset. A crucial factor that separates them from those who practice chameleon strategy is a large social capital. They have wide social networks and are actively involved in social and academic life; on the other hand, they are often have specific and constructive suggestions of how the cultural learning experience of others can be improved and express willingness to participant in these improvement projects.

DISCUSSION

The main theoretical themes have emerged from the data by the process of compassion and dimensional: 'Doing it our way' – collaborative, social and gradual aspects of the knowledge sharing and creation.

The participants attitudes to cultural knowledge creation are consistent with the practice of acquiring global mindsets in business environment (Rhinesmith 1992) and such development takes place in social networks, therefore, the contexts and social activities are central for the global mindset and knowledge creation (Holden & Glisby, 2010). In addition, it supports the construct of the cultural sense making process of building joint frames (Bird & Osland, 2006), where the learners gradually identify novel cultural situations, scan for conflicting interpretations, and reconcile the disparate explanations. In addition, such approach is consistent with the process of cultural knowledge creation in team, described by Skobeleva (2008) - the team-members build on their shared knowledge to create new cultural and business knowledge in multicultural and cross-cultural environments. The students seem to possess the global mindset, as demonstrated by their consideration of the international opportunities both for educational purposes and for future careers and enterprises, and, although their attitudes were pragmatic, they did engage in cosmopolitan learning (Rizvi 2008) albeit on a limited scale. The process was similar in all four settings (schools): the differences were in the degree of the student development.

The main limitations of the study are consistent with qualitative constructivist approach to theory building, as it has a subjective, interpretive and explanatory nature of the inquiry. Neither causal relationship, nor generalization to a large context can be drawn from the findings, however, the study does provide a understanding and sense-making of the process as it was experienced by the participants.

CONCLUSIONS

The cosmopolitan strategy or the global mindset is consistent with Skobleva's (2008) model of knowledge development that stresses shared goals, symmetrical shared knowledge and novel solutions to common problems. While such team work is possible in a course group projects, the long terms approach to expertise development promoted by Ericsson and colleagues (Ericsson et al., 1993 and Ericsson, 2007) requires an embedded approach to development, faculty participation as mentors and advisors and a systematic commitment of the HEI to assist students in development of trust and building a social and professional networks.

IMPLICATIONS

The HEIs should pay more attention to the social aspects of educational process and assist the students in development of social networks. The global, embedded approach that stresses the long-term expertise development is more likely to be more effective than one-on course or even a short term immerging cultural experience. The school should create positive conditions for social network in and outside the class, as organized social, academic and professional events, clubs, and activities. Faculty should act as mentors and advisors and to provide safe place where students can build trust, social capital and networks.

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IMPACT OF INVESTMENT AND FINANCING POLICIES ON PROFITABILITY AND RISK

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Abstract

Purpose: The paper seeks to empirically investigate the relationship between investment and financing policies profitability and risk.

Design/methodology/approach: The analysis is based on 164 companies classified into 19 Industrial Sectors(as per BSE 200 index) in India in respect of whom data from 2000-2010 has been taken from CMIE database. The regression analysis has been used.

Findings: The pooled data of all the industrial sectors found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment but a positive relationship between profitability and aggressiveness of working capital financing policies. Also, there is a positive relationship between degree of aggressiveness of investment policy as well as financing policy and risk of variation of sales. There is similar positive relationship between degree of aggressiveness of investment as well as financing policy & the risk of variation of profitability as measured by return on assets & return on equity.

Practical implications: The findings suggest that managers can increase profitability by efficiently managing current assets and current liabilities.

Originality/value: The paper addresses gap in literature relating to working capital management of Indian companies.

Keywords: Working capital Management, Investment Policy, Financing Policy, Return on Assets, Return on Equity.

The corporate finance literature has traditionally focused on the study of long-term financial decisions. Researchers have particularly examined investments, capital structure, dividends or company valuation decisions, among other topics. However, short-term assets and liabilities are important components of total assets and needs to be carefully analysed. Management of these short-term assets and liabilities warrants a careful investigation since the working capital management plays an important role for the firm's profitability and risk as well as its value (Smith, 1980). Firms try to keep an optimal level of working capital that maximizes their value (Howorth and Westhead 2003, Deloof 2003, Afza & Nazir 2007).

Finance textbooks typically begin their working capital sections with a discussion of the risk and return tradeoffs inherent in alternative working capital policies. High risk, high return working capital investment and financing strategies are referred to as aggressive; lower risk and return strategies are called moderate or matching; still lower risk and return is called conservative (Pinches 1991, Brigham and Gapenski 2004, Moyer et. al. 2005, Gitman 2005).

A firm may adopt an aggressive working capital management policy with a low level of current assets as percentage of total assets. Moreover, an aggressive working capital management policy may be used for the financing decisions of the firm with high level of current liabilities as percentage of total liabilities. Excessive levels of current assets may have a negative effect on the firm's profitability whereas a low level of current assets may lead to lower level of liquidity and stockouts resulting in difficulties in maintaining smooth operations (Van Horne and Wachowicz 2004).

Aggressive policy is promoted by those managers who want to achieve a high turnover with minimum stocks implied. In this case, permanent capital absorbed in these physical or financial assets generates a working capital inferior to circulating assets during the year and for covering the deficit of working capital the company always calls on treasury credits. The strategy of funding the required working capital based on short-term bank loans involves some inconvenience. Thus, resorting to short-term loans over the medium and long term can lead to cost savings, but triggers the risk of insolvency in the case of resources' insufficiency and the need to call on other short term loans for financing current activity, showing a certain risk concerning the credit terms (higher interest rates, inability to renew loans, etc.). Under these circumstances, funding required working capital through short-term loans, better adapted to company's needs, may be more risky, the arbitrage between long-term and short-term actually relying on the anticipation of interest rate changes. For these reasons, this policy can be judged as being a risky decision because the company depends on the bank's decisions concerning loans and interest. However, if the profitability is higher than the interest, this policy of the working capital is acceptable because it appears the positive effect of obligation.

Conservative policy is practiced by leaders who aim to achieve a high turnover with high stocks and liquidities. For any increase in turnover, managers are concerned about the adequate increase of stocks that ensure the continuity of exploiting activity (current and safety stocks). Financing the financial necessary of the exploitation is carried out especially from permanent resources (working capital) ensuring the company's solvency, but in the same time assuming a higher cost of resources in relation to that of short-term bank loans, but also a coverage of loans' renewal risk and of interest increase rate; in other words, although the policy is costly and less profitable, it is more conservative.

Balanced policy has a neutral effect, because it is based on the principle of harmonization between the duration of temporal immobilization of circulating assets and the eligibility of liabilities meant to cover the financing needs in terms of minimizing financing costs and the risks the company is facing. "According to this policy, the increase of the activity is done with a current stock adequate to the turnover increase; in turn, safety stock is determined at optimal level, i.e. at the level where there is equality between the costs due to the lack of stock (out of stock) and excessive costs (over the strict requirements of the operation)." (Onofrei M, 2006)

Working capital management is of crucial nature because it effects the firm's profitability and as well as its risk, and consequently its value (Smith, 1980). Working capital management is important because of its effects on the firm's profitability and risk, and consequently its value (Smith, 1980). Greater the investment in current assets, the lower the risk, but also the lower the profitability obtained(Afza Nazir, 2008)

The impact of working capital policies on profitability is highly important, however, a little empirical research has been carried out to examine this relationship. This paper investigates the potential relationship of aggressive policies with the accounting measures of profitability as well as the risk factor of Indian firms. The present study is expected to contribute to better understand these policies and their impact on profitability and risk especially in the emerging markets like India.

The paper is organized as follows:
In section II, deals with a brief review of literature on the management of working capital. Section III covers the objectives, database and methodology adopted in this study; the empirical analyses are presented in section IV and conclusions are reported in section V

REVIEW OF LITERATURE

No evidence was found of an empirical examination that directly addresses the question of aggressive/conservative working capital policy. However several studies have addressed areas of peripheral importance to the issues examined in this paper.

Jose et al. (1996) examined the relationship between aggressive working capital management and profitability of US firms using Cash Conversion Cycle (CCC) as a measure of management of working capital where a shorter CCC represents the aggressiveness of working capital management. The results indicated a strong negative relationship between cash conversion cycle and profitability indicating that more aggressive working capital management is associated with higher profitability.

Pandey and Parera (1997) provided an empirical evidence of working capital management policies and practices of the private sector manufacturing companies in Sri Lanka. The information and data for the study were gathered through questionnaires and interviews with chief financial officers of a sample of manufacturing companies listed on the Colombo

Stock Exchange. They found that most companies in Sri Lanka have informal working capital policy and company size has an influence on the overall working capital policy (formal or informal) and approach (conservative, moderate or aggressive). Moreover, company profitability has an influence on the methods of working capital planning and control.

Weinraub and Visscher (1998) have discussed the issue of aggressive and conservative working capital management policies by using quarterly data for a period of 1984 to 1993. Their study looked at ten diverse industry groups to examine the relative relationship between their aggressive/conservative working capital policies. The study also showed a high and significant negative correlation between industry asset and liability policies and found that when relatively aggressive working capital asset policies are followed they are balanced by relatively conservative working capital financial policies.

Filbeck and Krueger (2005) highlighted the importance of efficient working capital management by analysing the working capital management policies of 32 non-financial industries in USA. According to their findings, working capital practices were significantly different over time. Moreover, those working capital practices change significantly over time within industries. Similar studies are conducted by Gombola and Ketz (1983), Soenen (1993), Maxwell et al. (1998), and Long et al. (1993).

Pinches (1991), Brigham and Gapenski(2004), Moyer et. al. (2005), Gitman (2005) have worked on the issue of risk/return trade off between the different working capital policies. More aggressive working capital policies are associated with higher return and higher risk while conservative working capital policies are concerned with the lower risk and return (Carpenter and Johnson (1983), Gardner et al. (1986)). Shin and Soenen (1998) analysed the relation between the working capital and profitability for a sample of firms listed on the US stock exchange during the period 1974-1994. Their results show that reducing the level of current assets to a reasonable extent increases firms' profitability.

Deloof (2003) analyses a sample of large Belgian firms during the period 1992-1996. His results confirmed that Belgian firms can improve their profitability by reducing the number of days accounts receivable are outstanding and reducing inventories. Teruel and Solano (2005) suggested that managers can create value by reducing their firm's number of days accounts receivable and inventories. Similarly, shortening the cash conversion cycle also improves the firm's profitability.

Afza and Nazir (2009) made an attempt in order to investigate the traditional relations between working capital management policies and a firm's profitability for a sample of 204 non-financial firms listed on Karachi Stock Exchange (KSE) for the period 1998-2005.The study found significant different among their working capital requirements and financing policies across different industries. Moreover, regression result found a negative relationship between the profitability of firms and degree of aggressiveness of working capital investment and financing policies. They suggested that managers could crease value if they adopt a conservative approach towards working capital investment and working capital financing policies.

Lazaridis and Tryfonidis (2006) investigated the relationship between corporate profitability and working capital management using listed companies on the Athens Stock exchange. They discovered that statistically significant relationship existed between profitability and the cash conversion cycle. They concluded that businesses can create profits for their companies by handling correctly the cash conversion cycle and keeping each component of the cash conversion cycle (i.e. accounts receivable, accounts payable and inventory) to an optimum level. Gill, Biger and Mathur (2010) seeks to extend Lazaridis and Tryfonidis's findings regarding the relation between working capital management and profitability. A sample of 88 American firms listed on New York Stock Exchange for a period of 3 years from 2005 to 2007 was selected. They found statistically significant relation between the cash conversion cycle and profitability, measured through gross operating profit. It follows that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level.

OBJECTIVES OF THE STUDY

The impact of working capital policies is highly important; however, not much empirical research has been carried out to examine the impact of working capital policies on profitability and risk of firm in India. Following are the main objectives of the present study:

- To investigate the relationship of the working capital investment and financing polices with profitability.
- To investigate the relationship of the working capital investment and financing polices with risk.

DATA BASE

The present study aims to find out working capital investment and financing policies BSE 200 companies. The study has included 164 companies(ignoring those belonging to banking and financial services sector)classified into 19 industrial sectors (as per BSE 200 classification), in respect of which data for 10 years i.e. from the year 2000-2001 to 2009-2010 has been taken. The data has been taken from the PROWESS database of Centre for Monitoring Indian Economy. The analysis has been done by using SPSS 17.0software package.

METHODOLOGY

The study used aggressive investment policy and aggressive investment policy as measuring variables of working capital investment and financing policies.

- The degree of aggressiveness of investment and financing policies has been measured as. A manager following Aggressive Investment Policy (AIP) keeps minimal level of investment in current assets as compared to fixed assets. In contrast, a conservative investment policy put a larger proportion of capital in current assets with the opportunity cost of lesser profitability. In order to measure the degree of aggressiveness of investment policy, following ratio has been used

$$\text{Aggressive Investment policy} = \frac{\text{Total Current Assets (TCA)}}{\text{Total assets (TA)}}$$

(Lower ratio indicates a relatively aggressive policy)

A manager following Aggressive Financing Policy (AIP) utilizes higher levels of current liabilities and less long-term debt. In contrast, a conservative financing policy uses more long-term debt and capital. In order to measure the degree of aggressiveness of financing policy, following ratio has been used

$$\text{Aggressive Financing policy} = \frac{\text{Total Current Liabilities (TCL)}}{\text{Total assets (TA)}}$$

(Higher ratio indicates a relatively aggressive policy)

- The financing and investment policies have an impact on profitability of the firm. The profitability of the firm has been measured using ROA which measures operating profit of the firm and ROE measuring the return on the ownership interest. To study the impact of investment and financing policies on profitability the following regression equations have been developed using ROA and ROE as dependent variables and TCA/TA & TCL/TA as independent variables:

  Regression Equation 1 $ROA = \alpha + \beta_1 (TCA_i / TA_i) + \beta_2 (TCL_i / TA_i) + \varepsilon$

  Regression Equation 2 $ROE = \alpha + \beta_1 (TCA_i / TA_i) + \beta_2 (TCL_i / TA_i) + \varepsilon$

  Where ROA= Return on Total Assets

  ROE = Return on Equity

  TCA/TA_i = Total Current Assets to Total Assets Ratio of Firm $_i$ for time period t

  TCL/TA_i = Total Current Liabilities to Total Assets Ratio of Firm $_{i.}$ for time period t α = intercept

  ε = error term of the model

- To study the impact of Working capital management and Financing Polices on relative risk will be measured by applying regression models. The risk has been taken as the dependent variable and measured in terms of variation in sales, ROA and ROE.

  Regression Equation 3 = Standard Deviation $_{Sales\ i} = \alpha + \beta_1 (TCA/ TA_i) + \beta_2 (TCL/ TA_i) + \varepsilon$

  Regression Equation 4 = Standard Deviation $_{ROA\ i} = \alpha + \beta_1 (TCA/ TA_i) + \beta_2 (TCL/ TA_i) + \varepsilon$

  Regression Equation 5 = Standard Deviation $_{ROE\ i} = \alpha + \beta_1 (TCA/ TA_i) + \beta_2 (TCL/ TA_i) + \varepsilon$

  Where Standard Deviation represents the risk of the Firm $_{i.}$

EMPIRICAL ANALYSIS

Table 1 shows the investment and financing policies followed by various industrial sectors under study. The average investment and financing policy of all sectors has been compared with the mean value of pooled investment (0.42) and financing policy (0.24) to find out whether a relatively aggressive policy has been followed. The table shows that sectors like Healthcare, Capital Goods, Miscellaneous, Information Technology, Consumer Durables and

Housing related have followed a relatively less aggressive investment policy. The sectors like Capital Goods, FMCG, Miscellaneous, Chemicals & Petrochemicals, Transport Equipments, Housing Related, Diversified and Oil& Gas sectors have followed a relatively more aggressive financing policy.

Table 1: Investment & Financing policies of the various Sectors

Sector	**Investment Policy TCA/ TA**	**Financing Policy TCL/TA**
Agriculture	0.35	0.18
Capital Goods	0.72	0.52
Chemicals And Petrochemicals	0.40	0.33
Consumer Durables	0.53	0.23
Diversified	0.30	0.24
FMCG	0.39	0.41
Healthcare	0.89	0.20
Housing Related	0.45	0.26
Information Technology	0.55	0.20
Media And Publishing	0.34	0.20
Metal Products and Mining	0.35	0.19
Misc	0.69	0.35
Oil& Gas	0.34	0.24
Power	0.31	0.14
Telecom	0.25	0.20
Textiles	0.39	0.14
Tourism	0.15	0.11
Transport Equipments	0.41	0.31
Transport Services	0.22	0.11

Table2: Classification of industries on basis of relative aggressiveness of investment and financing policies

Investment Policy → **Financing Policy ↓**	**More Aggressive**	**Less Aggressive**
More Aggressive	Chemicals & Petrochemicals FMCG Transport Equipments Oil & Gas Diversified	Capital Goods Housing Related Miscellaneous
Less Aggressive	Agriculture Media & Publishing Metal Products & Mining Power Telecom Textiles Tourism Transport Services	Consumer Durables Healthcare Information Technology

IMPACT OF INVESTMENT AND FINANCING POLICY ON PROFITABILITY

Table 3: Impact of Investment and Financing Polices on profitability: Sectors with More Aggressive Investment & More Aggressive Financing Policy

	ROA			ROE		
Variable	Regression coefficient(β)	't' value	Sign t	Regression coefficient(β)	't' value	Sign t
TCA/TA	-9.55	-3.13	.002	-32.79	-4.04	.000
TCL/TA	43.34	13.28	.000	13.25	15.32	.000
Constant(α)	6.78	6.75	.000	11.073	4.15	.000
	Multiple R=.597	R^2 =.357	Adj R^2 =.354	Multiple R=.644	R^2 =.415	Adj R^2 =.412

Table 3 shows the impact of more aggressive investment policy along with more aggressive financing policy on Return on Assets & Return on Equity. The results of regression equation 1 show that as TCA/TA increases, degree of aggressiveness of investment policy decreases the return on assets also decreases. As TCL/TA increases,the degree of aggressiveness of financing policy increases the return on assets also increases. The results of regression equation 2 show similar results whereby higher degree of aggressiveness of investment as well as financing policies has a positive relationship with return on equity. Thereby higher level of current assets is associated with decreasing return on assets as well as on equity. Lower level of current liabilities is associated with increasing return on assets as well as equity.

Table 4: Impact of Investment and Financing Polices on profitability: Sectors with More Aggressive Investment Policy & Less Aggressive Financing Policy

	ROA			ROE		
Variable	Regression coefficient(β)	't' value	Sign t	Regression coefficient(β)	't' value	Sign t
TCA/TA	18.487	6.546	.000	19.184	4.371	.000
TCL/TA	18.367	-3.486	.001	28.885	-1.677	.094
Constant(α)	10.338	8.309	.000	-20.708	6.645	.000
	Multiple R= .288	R^2 = .083	Adj R^2 = .079	Multiple R= .189	R^2 = .036	Adj R^2 = .032

Table 4 shows the impact of investment & financing policies on profitability of those industrial sectors which have followed a more aggressive investment policy along with a less aggressive financing policy. The results of regression equation 1 show a positive relationship between investment policy & return on assets and a similar positive relationship between financing policy & return on assets. The results of regression equation 2 show a positive relationship between investment policy & return on assets as well as positive relationship between financing policy & return on assets. Thus, return on assets and return on equity can be increased by maintain a low level of current assets. Higher level of current liabilities is associated with decreasing return on assets and increasing return on equity.

Table 5: Impact of Investment and Financing Polices on profitability: sectors with Less Aggressive Investment & More aggressive Financing Policy

	ROA			ROE		
Variable	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t
TCA/TA	-1.511	-.529	.597	-.792	-.084	.933
TCL/TA	1.071	.324	.746	18.403	1.691	.092
Constant(α)	12.518	10.626	.000	27.913	7.208	.000
	Multiple R= .031	R^2 = .001	Adj R^2 = -.006	Multiple R=.143	R^2 =.021	Adj R^2 =.014

Table 5 shows the results of regression equations 1& 2 for those industrial sectors that follow less aggressive investment policy along with a more aggressive financing policy. The results of regression equation 1 show that as degree of aggressive of investment policy decreases the return on assets also decreases as shown by negative regression coefficient of TCA/TA. The positive regression coefficient of TCL/ TA shows that as degree of aggressiveness of financing policy increases the return on assets also increases. The results of regression equation 2 are similar as shown by negative regression coefficient of -.792 for TCA/TA and positive regression coefficient of 18.40 for TCL/TA. Thus, higher level of current assets is associated negative return on assets and equity. Lower level of current liabilities is associated with increasing return on assets as well as equity.

Table 6: Impact of Investment and Financing Polices on profitability: sectors with Less Aggressive Investment & Less Aggressive Financing Policy

	ROA			ROE		
Variable	Regression coefficient(β)	't' value	Sign t	Regression coefficient(β)	't' value	Sign t
TCA/TA	2.362	2.221	.027	4.627	2.758	.006
TCL/TA	7.557	1.304	.193	23.106	2.626	.009
Constant(α)	16.198	10.121	.000	24.12	9.682	.000
	Multiple R= .151	R^2 = .023	Adj R^2= .016	Multiple R= .217	R^2 = .047	Adj R^2=.040

Table 6 shows the impact of less aggressive investment as well as less aggressive financing policy on return on assets as return on equity. The results of regression equation 1 shows that as degree of aggressiveness of investment policy decreases the return on assets increases whereas as degree of aggressiveness of financing policy increases the return on assets increases. Similar results are shown by regression equation 2 whereby as degree of aggressiveness of investment policy decreases the return on equity increases whereas as degree of aggressiveness of financing policy increases the return on equity increases.

Table 7: Impact of Investment and Financing Polices on Profitability: Summarized Result

		More Aggressive Investment Policy		Less Aggressive Investment Policy	
		ROA	ROE	ROA	ROE
More Aggressive Financing Policy	TCA/TA	-	-	-	-
	TCL/TA	+	+	+	+
Less Aggressive Financing Policy	TCA/TA	+	+	+	+
	TCL/TA	+	+	+	+

Table 7 shows the matrix of regression coefficients of the impact of investment and financing policies on profitability. The combined result of the sectors that maintain more aggressive investment along with a more aggressive financing policy show investment policy has negative impact on both ROA and ROE while aggressive financing policy has the positive impact on ROA & ROE. Maintaining a less Aggressive investment policy along with a more aggressive financing policy generates similar results. The table shows that maintaining a more aggressive investment policy along with a less aggressive financing policy generates positive impact on both ROA and ROE. Similar results are shown by less Aggressive investment policy along with a less Aggressive investment policy.

Table 8: Impact of Investment and Financing Polices on profitability: Pooled Data

	ROA			ROE		
Variable	Regression coefficient(β)	't' value	Sign t	Regression coefficient(β)	't' value	Sign t
TCA/TA	4.978	6.095	.000	6.156	3.241	.001
TCL/TA	3.519	1.965	.050	40.856	9.868	.000
Constant(α)	11.473	19.585	.000	18.091	13.365	.000
	Multiple R= .182	R^2 = .033	Adj R^2= .032	Multiple R= .287	R^2 = .082	Adj R^2= .081

Table 8 shows the relationship between investment and financing policies on accounting measures of returns of the all the sectors on pooled basis. The results of regression equation 1 points out that as TCA/TA increases, the degree of aggressiveness of investment decreases the return on total assets tends to increase by 4.97 units, hence, showing a negative relationship between degree of aggressiveness and return on assets. The positive β coefficient of TCL/TA shows that as degree of aggressiveness of financing policy increases the profits tends to increase by 3.51 units. It points out the positive relationship between the aggressiveness of working capital financing policy and return on assets. The regression equation 1, thus, shows negative relationship between degree of aggressiveness of investment policy and return on assets and positive relationship between the aggressiveness of working capital financing policy and return on assets. The second regression model produced with Return on Equity (ROE) as dependent variable and TCA/TA & TCL/TA as independent variables has shown the same results. As TCA/TA increases, the return on equity tends to increase by 6.15 units, hence, showing a negative relationship between degree of aggressiveness and return on equity. The positive β coefficient of TCL/TA shows that as degree of aggressiveness of financing policy increases the profits tends to increase by 40.85 units. It points out the positive relationship between the aggressiveness of working capital financing policy and return on equity. Thus, the regression equation 2 also shows negative relationship between degree of aggressiveness of investment policy and return on equity and positive relationship between the aggressiveness of working capital financing policy and return on equity.

IMPACT OF INVESTMENT AND FINANCING POLICY ON RISK

Table 9: Impact of Investment and Financing Policy on Risk: More Aggressive Investment & More Aggressive Financing Policy

	SD Sales			SD ROA			SD ROE		
Variable	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t
TCA/TA	-54.10	-.389	.699	-.22	-.097	.923	1.55	.172	.865
TCL/TA	12.26	.696	.490	6.02	2.078	.044	39.97	3.478	.001
Constant(α)	70.40	1.147	.258	3.35	3.319	.002	5.18	1.295	.203
	Multiple R= .110	R^2 = .012	Adj R^2= -.036	Multiple R= .328	R^2 = .108	Adj R^2= .064	Multiple R= .517	R^2 = .267	Adj R^2 = .231

Table 9 shows the impact of more aggressive investment policy and more aggressive financing policy on relative risk of variation in sales and profitability. The results of regression equation 3 show that as TCA/TA increases the degree of aggressiveness decreases and so does risk of variation in sales. This means that as degree of aggressiveness decreases the variation in sales also decreases. The positive regression coefficient of TCL/TA shows that as degree of aggressiveness of financing increases the risk of variation in sales also increases. Similar results are found for regression equation 4 whereby as degree of aggressiveness of investment policy decreases the risk of variation in return on assets decreases and as degree of aggressiveness of financing policy increases the risk of variation in return on assets increases. The results of regression equation 5 shows a negative relationship between TCA/TA i.e degree of aggressiveness of investment policy & variation in return on equity and a positive relationship between degree of aggressiveness of financing policy and the risk of variation in return on equity.

Table 10: Impact of Investment and Financing Policy on Risk: More Aggressive Investment & Less Aggressive Financing Policy

	SD Sales			SD ROA			SD ROE		
Variable	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t
TCA/TA	-15.45	-1.29	.201	-1.063	-.410	.683	-9.505	-1.33	.187
TCL/TA	11.26	.026	.979	13.183	1.39	.168	1.766	.068	.946
Constant(α)	25.33	3.081	.003	5.37	3.006	.004	21.27	4.34	.000
	Multiple R= .175	R^2 = .031	Adj R^2= -.05	Multiple R= .188	R^2 = .035	Adj R^2= .00	Multiple R= .180	R^2 = .032	Adj R^2= -.03

Table 10 shows the results of impact of investment and financing policies on risk of the sectors that follow a more aggressive investment policy along with a less aggressive financing policy. The results of regression equation 3 show that as degree of aggressiveness of investment policy decreases the risk of variation in sales also decrease. As degree of aggressiveness of financing policy increases the risk of variation in sales also increases as shown by positive regression coefficient of TCL/TA. Similar results are shown by regression equation 4 & 5 i.e a positive relationship between degree of aggressiveness of investment policy as well as financing policy and risk of variation in measures of profitability of return on assets and return on equity.

Table 11: Impact of Investment and Financing Policy on Risk: Less Aggressive Investment & More Aggressive Financing Policy

	SD Sales			SD ROA			SD ROE		
Variable	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t
TCA/TA	50.18	1.371	.181	-2.711	-.541	.593	1.905	.123	.903
TCL/TA	-41.57	-.941	.354	3.033	.501	.620	24.369	1.300	.203
Constant(α)	92.54	.677	.504	6.27	3.349	.002	10.28	1.774	.086
	Multiple R= .247	R^2 = .061	Adj R^2= -.02	Multiple R= .100	R^2 = .010	Adj R^2= -.05	Multiple R= .389	R^2 = .152	Adj R^2= .09

Table 11 shows the impact of investment and financing policy on risk of the sectors that follow a less aggressive investment policy along with a more aggressive financing policy. The results of regression equation 3 show that as TCA/TA increases the degree of aggressiveness of investment policy decreases but risk of variation in sales increases. The regression coefficient of TCL/TA shows that as degree of aggressiveness of financing policy increases the risk of variation in sales decreases. The result of regression equation 4 shows that as degree of aggressiveness of investment policy decreases the risk of variation in return on assets decreases. The positive regression coefficient of 3.03 of TCL/TA shows that as degree of aggressiveness of financing policy increases the risk of variation in return on assets increases thus showing a positive relationship between degree of aggressiveness of financing policy and standard deviation of return on assets. The results of regression equation 5 show a negative relationship between degree of aggressiveness of investment policy and variation in return on equity. As TCA/TA increases, the degree of aggressiveness of investment policy decreases and risk of variation in return on equity increases. The β coefficient of 24.36 shows a positive relationship between degree of aggressiveness of financing policy and risk of variation in return on equity.

Table 12: Impact of Investment and Financing Policy on Risk: Less Aggressive Investment & Less Aggressive Financing Policy

	SD Sales			SD ROA			SD ROE		
Variable	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t
TCA/TA	12.92	1.728	.096	-3.469	-1.57	.128	-5.356	-1.50	.145
TCL/TA	10.68	4.355	.000	15.589	2.15	.041	25.345	2.16	.039
Constant(α)	-11.02	-1.42	.165	7.04	3.098	.005	12.65	3.445	.002
	Multiple R= .656	R^2 = .430	Adj R^2= .387	Multiple R= .506	R^2 = .25	Adj R^2= .19	Multiple R= .501	R^2 = .251	Adj R^2= .19

Table 12 shows the relationship impact of investment and financing policies on relative risk of the sectors that follow a relatively less aggressive investment policy along with a relatively less aggressive financing policy. The results of regression equation 3 show that as TCA/TA increases the degree of aggressiveness of investment policy decreases but risk of variation in sales increases by 12.92 units. The regression coefficient of TCL/TA(10.68) shows that as degree of aggressiveness of financing policy increases the risk of variation in sales also increases, thus showing a positive relationship between the two variables. The result of regression equation 4 shows that as degree of aggressiveness of investment policy decreases the risk of variation in return on assets also decreases. The positive regression coefficient of 15.58 of TCL/TA shows that as degree of aggressiveness of financing policy increases the risk of variation in return on assets increases thus showing a positive relationship between degree of aggressiveness of financing policy and standard deviation of return on assets. The results of regression equation 5 show a similar positive relationship between degree of aggressiveness of investment policy & variation in return on equity and between degree of aggressiveness of financing policy & risk of variation in return on equity.
Table 13 shows the summarized results of the impact of investment and financing policies on risk.

Table 13: Impact of Investment and Financing Polices on Risk: Summarized Result

		More Aggressive Investment Policy			**Less Aggressive Investment Policy**		
		SD Sales	**SD ROA**	**SD ROE**	**SD Sales**	**SD ROA**	**SD ROE**
More Aggressive Financing Policy	TCA/TA	-	-	+	+	-	+
	TCL/TA	+	+	+	-	+	+
Less Aggressive Financing Policy	TCA/TA	-	-	-	+	-	-
	TCL/TA	+	+	+	+	+	+

Table 13 shows the matrix of regression coefficients of the impact of investment and financing policies on risk. The result of the sectors that maintain more aggressive investment along with a more aggressive financing policy show that as investment policy becomes less aggressive the risk of variation in Sales, ROA and ROE decreases while as financing policy becomes more aggressive there is positive impact on Standard Deviation of Sales, ROA & ROE. Similar results are shown by the sectors that follow a more aggressive investment policy along with a less aggressive financing policy. Other investment policies and financing policies has a mixed impact on variation of sales and profitability.

Table 14: Impact of Investment and Financing Policy on Risk: Pooled Basis

	SD Sales			**SD ROA**			**SD ROE**		
Variable	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t	Regression coefficient (β)	't' value	Sign t
TCA/TA	-16.10	-.761	.448	-2.133	-1.68	.094	-6.740	-2.01	.046
TCL/TA	63.84	1.448	.149	4.580	1.738	.084	26.701	3.834	.000
Constant(α)	28.80	2.127	.035	6.23	7.693	.000	14.26	6.663	.000
	Multiple R=.118	R^2 = .014	Adj R^2= .02	Multiple R= .167	R^2 = .028	Adj R^2= .016	Multiple R= .299	R^2 = .090	Adj R^2= .078

Table 14 shows the results of impact of investment and financing policies on pooled data of all the industrial sectors under study. The results of regression equation 3 show that as

TCA/TA increases the degree of aggressiveness of investment policy decreases but risk of variation in sales also decreases by 16.10 units. Thus there is a positive relationship between degree of aggressiveness of investment policy and risk of variation of sales. The positive regression coefficient of 63.84 of TCL/TA shows that as degree of aggressiveness of financing policy increases the risk of variation in sales also increases, thus showing a positive relationship between the two variables. The results of regression equation 4 & 5 show a similar positive relationship between degree of aggressiveness of investment as well as financing policy & the risk of variation of profitability as measured by return on assets & return on equity.

CONCLUSION

The study investigated the impact of working capital investment & financing policies on profitability & risk. The pooled data of all the industrial sectors found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment but a positive relationship between profitability and aggressiveness of working capital financing policies. Also, there is a positive relationship between degree of aggressiveness of investment policy as well as financing policy and risk of variation of sales. There is similar positive relationship between degree of aggressiveness of investment as well as financing policy & the risk of variation of profitability as measured by return on assets & return on equity. The above results are contradictory with Gardner et al. (1986), and Weinraub & Visscher (1998), as well as in accordance with Afza and Nazir (2007).

Thereby, the financial managers need to plan and control properly the level of investment current assets as well as in current liabilities of their firms. It is expected that a well designed and implemented investment and financing policy will help the managers to manage their working capital more efficiently and contribute positively to the creation of firm's value.

The study recommends that there should be reduction in volume of investment in current assets which can reduce the cost of financing working capital which will ultimately enhance profits and profitability of the firm.

Although the results of present study are in contradiction to some earlier studies on the issue, yet, this phenomenon may be attributed to the inconsistent and volatile economic conditions of India. The reasons for this contradiction may further be explored in upcoming researches and this topic is left for future.

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