

An Integrative Sales Growth Model for Small Enterprises in Sri Lanka : Path Analysis Approach

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Key wards : sales growth model, small enterprises, path analysis, Sri Lanka

Abstract

Small enterprises are increasingly playing an important role in Sri Lanka. However, little is known about the determinants of small enterprise growth in this context. The purpose of this study is to gain an understanding of the factors in different dimensions influencing small enterprise growth in Sri Lanka. Based on an analysis of data from 97 owner-managers of small manufacturing enterprises located in Colombo district, the researcher developed an integrative sales growth model that suggests how human capital, social capital, access to external resources and internal capabilities & business structure directly and/ or indirectly influence the sales growth of small enterprises. Results of path analysis suggested that three human capital variables namely : training with work experience in same field, technical and professional education and education with experience in government sector indirectly affect small enterprises sales growth through other intermediate variables. Three social capital variables namely : organizational network with network maintenance and resources sharing with SEs and supportive network with financial institutes have significant direct positive effect on sales growth. The direct and indirect effects of access to external resources variables on sales growth are not so strong. Only one variable in internal capabilities & business structure dimension, namely innovation and imitation has positive direct effects on sales growth.

1. Introduction

Small Enterprises (SEs) play a vital role in the economy of Sri Lanka. Sri Lanka's economy is predominantly a Small and Medium Enterprise (SME) economy where over 50% of GDP is produced by the SME sector (Fairoz, Hirobumi, & Tanaka, 2010).

SEs are found in all sub-sectors of the economy, with a large concentration in manufacturing and a further concentration of the very small ones with 5—10 workers, widely spread across urban, rural and estate sectors. The Government having recognized the importance of this sector in achieving a balanced economic growth, equitable regional dis-

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tribution of income, increasing employment and productivity levels, has adopted various policies for the development of SEs in Sri Lanka. The current government is also considering for policies which will increase the supply of new firms, and will encourage established firms to grow. Yet significant growth is very much exceptions as the majority of the firms spend the whole of their economic life within the small firm sector. While some of the SEs in Sri Lanka discontinue within a few years of their startup (Wijewardena & Tibbits, 1999), those that continue, have considerable variability in the rate of growth (Task Force for Small & Medium Enterprise Sector Development program, 2002). Therefore, it is important to find out, through systematic empirical investigation, factors that would contribute to the growth of small enterprises in Sri Lanka.

2. Literature Review and hypothesis development

In this section we review the literature relevant to each of the research dimensions used in this paper.

2.1 Small Enterprise Growth

Small enterprise growth is a research area that has attracted considerable attention in recent years (Wiklund et al, 2009). Recent reviews of the literature on small enterprise growth suggest that little is still known about the phenomenon, and conceptual development has been limited (Wiklund et al, 2009). One feature of growth studies seems to be that majority of growth studies considered only a single perspective and a small portion of the variables that are pertinent to growth literature. The growth of small enterprises is a complex, multidimensional phenomenon (Scase & Goffee, 1980). A convergence of owner-manager factors, internal factors, and external factors impact upon growth of small enterprises. The abilities and motivations of owner-manager, and the actions taken by them to address issues related to these factors, determine the direction and performance of small enterprises.

The resource based perspective has established its position in one of the most essential modern firm level theories and research on firm resources has attracted increasing attention in the past years. More recently, the emphasis has turned from identifying the resources needed for obtaining a competitive advantage to empirically explaining the relationships and links between resources and enterprise growth.

Another commonly utilized approach to enterprise growth is through the deterministic approach (Dobbs & Hamilton, 2007). The objective of this approach is to identify a stable

set of explanatory variables, relating to the people, the firm, and its industry environment, that can explain a major proportion of the observed variation in business growth rates. There are many studies in this genre, with researchers typically applying multivariate techniques to large cross-sectional data sets to test the significance of associations between a wide range of determinants and the growth rates of small businesses.

Existing literature on small enterprise growth is highly fragmented (Wiklund & Shepherd, 2009). Majority of the growth studies relate to one of a number of theoretical perspectives or dimensions to derive hypotheses for empirical testing. It limits the ability to see the big picture. To overcome this limitation, it is needed to empirically combine primary perspectives or dimensions to develop a “comprehensive model” of small enterprise growth that is integrative, and both broad in scope and parsimonious in nature. As purpose in this research is to build integrative growth models of small enterprise growth, the researcher focused on four research dimensions namely ; human capital, social capital, access to external resources and internal capabilities & business structure as the basis of this model. We now introduce each research dimension, and discuss the relationship between its components and small enterprise growth.

2.2 Human Capital (HC) and Small Enterprise Growth

Castanias, and Helfat (1992) defined ‘human capital’ as a hierarchy of skills and knowledge with varying degrees of transferability. Human capital is comprised of relevant education, employment experience and other types of experiences such as family background, professional background and vocational training (Doris Gomezelj and Antoncic, 2008). Human capital provides the entrepreneur with knowledge that assists them in identifying opportunities and knowledge of ways to more effectively and efficiently pursue growth opportunities (Wiklund, 2009). Entrepreneur’s education and work experience can be regarded as surrogate measures of general human capital while variables relating to prior ownership experience can be regarded as entrepreneurship—specific human capital (Ucbasaran, Westhead, & Wright, 2008). According to the Storey (1994), prior experience has been shown to influence firm growth and entrepreneurs with some managerial experience, normally in their previous job are likely to create firms which grow faster than firms founded by individuals without such experience.

Most of the previous researchers who examined the impact of human capital on firm growth have taken consider only the direct impact of human capital on firm growth. However, it is important to understand the indirect effect of human capital variables also on firm growth through different variables in different dimensions. For an example, hu-

man capital is essential for social capital development and human capital may be affected for enterprise growth through social capital. As suggested by Jorgensen and Ulhøi (2010 : 399), “certain level of expertise and knowledge is generally considered a prerequisite for membership, networks broaden opportunities for innovation by increasing the geographical environment in which learning and social interaction can take place”.

2.3 Social capital (SC) and Small Enterprises Growth

As defined by the Inkpen & Tsang (2005), Social capital is the aggregate of resources embedded within, available through, and derived from the network of relationships possessed by individuals or organizations. Most definitions regard networks and relationships as core to the concept of social capital (Stringfellow and Shaw, 2009). Owner-manager's networks have ability to mobilize additional resources, attract customers, and identify entrepreneurial opportunities, since social relations mediate economic tractions and confer organizational legitimacy (Granovetter, 1985).

Much of the existing literature in the field of network form of social capital has focused on benefits of networks and little attention has been given to how SE owner-managers maintain and develop network relationships. In addition to that, similarly to the human capital, most of the prior researchers have examined only the direct effect of social capital for enterprise growth. Owner-managers' social capital may be enhanced small enterprise growth indirectly also through providing more opportunities to access resources and improving internal capabilities such as innovation and imitations. Wiklund and Shepherd (2009) also noted the ability of social capital to enhance an individual's access to information about new opportunities and the equipment, financial capital, advice, information, and reassurance necessary to exploit such growth opportunities.

2.4 Access to External Resources (AER) and Small Enterprise Growth

Many external factors may influence growth of the firm, such as access to finance, access to raw materials, access to markets and competition. According to Hung and Katsioloudes (2002), problems faced by entrepreneurs in developing and transition economies include a generally weak economy, limited access to financial capital, an inability to hire reliable employees, and too much competition.

In this context, access to financing has been shown to be a significant variable when analyzing enterprise growth. For various reasons ranging from a lack of collateral to bias against small enterprises, small enterprises tend to face greater financial constraints than do large firms (Nichter & Goldmark, 2009). Over the life of the firm, growth can also be hin-

dered by credit constraints that curb investments in the maintenance or improvement of technology. Besides access to finance, access to raw materials and labour are also crucial to small enterprises. As attested to by research on small businesses in Turkey, which revealed that inability to attract and retain reliable employees is one of the most serious problems (Benzing, Chu, & Kara, 2009) hindering on small enterprise growth.

2.5 Internal Capabilities, Business Structure and Small Enterprise Growth

The resource-based view argues that, a firm's valuable, rare and inimitable resources and capabilities create greater competitive advantage (Barney, 1991 ; Saffu et al, 2008). According to Birley and Westhead (1990), the internal environment consists of the resources of the firm itself and includes the financial situation of the firm, the physical asset base in terms of age, quality of machinery and equipment.

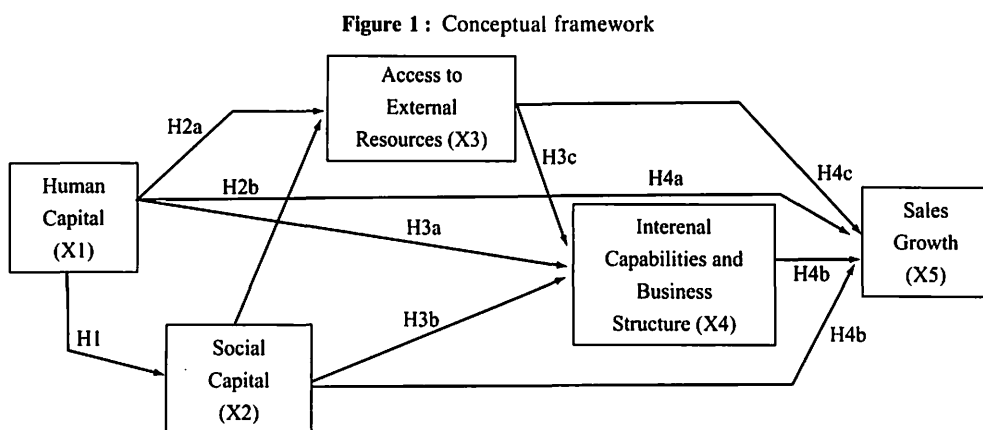
A few studies have focused their empirical investigations on internal capabilities and structure that impact small business growth. A study conducted by using Swedish data (Davidsson et al, 2002), found that business age, beginning size, ownership form, industrial sector in which the firms operates, and the legal form are the most important factors related to growth. Firm growth is inversely related to firm age. Based on the Australian data, Wijewardana and Tibbits (1999) have found that older firms grow less rapidly than younger firms. Studies in both Africa and Latin America show that young small enterprises are more likely to show high rates of growth compared with small enterprises that have been in existence longer (Nichter & Goldmark, 2009).

Legal form of the business is another important internal variable that affecting firm growth. Businesses can take on several different legal forms such as Sole Proprietorship, Partnership, and Limited Liability Company. Among these different forms, limited liability form is more formal and it frees the owners from some types of liability due to the business operations. Small enterprises that are running in informal ways tend to grow more slowly than do their formal counterparts (Nichter & Goldmark, 2009).

Product and process innovations may contribute to small enterprise growth. Further support for this idea comes from the understanding that smaller firms rarely have the same economies of scale as larger firms as a result their competition must be based primarily on innovation rather than price. For an example, Zahra and Nielsen (2002) based on technology commercialization study ; they found that product innovations open firms to market share growth and hence sales growth by increasing the customer base in current markets or attracting new customers by opening new markets to the firm.

Conceptual framework and hypotheses on the SE growth was developed on the basis

of key insights gained from the literature on firm growth and socio-economic factors in Sri Lanka. The conceptual framework is visualized in figure 1 below showing the multi-dimensional model of SE growth explained by five dimensions, namely : human capital, social capital, internal capabilities & business structure, access to external resources and firm growth.



Based on the extensive literature review and proposed hypothetical framework, the present researcher developed the following hypotheses to gain an understanding of the determinants of small enterprise growth in Sri Lanka.

Hypothesis 1 : Social Capital (SC) is positively affected by Human Capital (HC).

Hypothesis 2 a : Access to External Resources (AER) is positively affected by Human Capital (HC).

Hypothesis 2b : Access to External Resources (AER) is positively affected by Social Capital (SC).

Hypothesis 3a : Internal Capabilities & Business Structure (IC & BS) is positively affected by Human Capital (HC).

Hypothesis 3b : Internal Capabilities & Business Structure (IC & BS) is positively affected by Social Capital (SC).

Hypothesis 3c : Internal Capabilities and Business Structure (IC & BS) is positively affected by Access to External Resources (AER).

Hypothesis 4a : Sales Growth (SG) is positively affected by Human Capital (HC).

Hypothesis 4b : Sales Growth (SG) is positively affected by Social Capital (SC).

Hypothesis 4c : Sales Growth (SG) is positively affected by Access to External Resources (AER).

Hypothesis 4d : Sales Growth (SG) is positively affected by Internal Capabilities & business Structure (IC & BS).

3. Methodology

In this section we provide an exposition of sample, data collection procedures, measurement of variables and data analysis method used in the study.

3.1 Sample and Data Collection

The unit of analysis for this study is small enterprises from Colombo district, Sri Lanka. The definition of small enterprises varies from organization to organization and from country to country. For the purpose of this study, a small enterprise is defined as an enterprise with less than fifty employees. The sample size of 100 small enterprises randomly selected from an address list of 2420 SEs in the Department of Census and Statistics (DCS) list for Colombo district.

Data for this study were gathered through survey questionnaire. The questionnaire was first prepared in English and then translated in to Sinhala medium (local language). Using a primary draft questionnaire, a pilot test was conducted with 10 entrepreneurs, whose responses were excluded from the final study. The questionnaire was revised using the feedback from the pilot study. All the data were collected in late 2009. Data were collected through personal interviews by contracting each organization and seeking permission to collect data. One hundred entrepreneurs were interviewed with questionnaire for this study. Three questionnaires were rejected in the process of data editing. Finally 97 questionnaires were used for the data analysis.

3.2 Operational Measures of the Variables

In this section we will describe items used in measuring the variables in our study.

Human Capital

We used seven indicators of human capital : formal education, acquisition of technical and craft skills, years of work experience in same field or/and different field, previous ownership experience in same field or/and different field, training received, family background and skill level of employees. Based on these indicators, 19 variables were used to measure human capital dimension of SE-owner managers.

Social Capital

Each measure of social capital employed in this study was derived from surveys in which owners were prompted to describe their ego-centered social networks. There are three types of actors in the networks : personal social, organizational (inter-firm), and supporting (Premarathne, 2001). Personal social network in this study refers to family members, relatives and closest friends. Organizational networks consist of both large and small enterprises, while supporting networks include supporting agencies such as banks, government agencies, and non-government organizations.

The existence of each network was identified through dummy variables : 1 = if the entrepreneur was interacting with the above mentioned network members during the past six month period to secure the business information and resources that were important to his or her business (yes), 0 = otherwise (no). At the same time, respondents were asked to identify each net work size. SE owners share different resources with network members and achieving mutual benefits. As defined by Miller et al (2007) resources are a potential assets that are tangible or intangible and used by the business to compete in the market place. We categorized those resources into eight categories : finance, technology, labour and skill development, market and market information, raw material supply, consulting, subcontracting and other resources. We used eight dummy (1 = yes, 0 = no) variables to measure resources received by owners from their networks and another eight dummy variables to measure resources given to the networks in the last six months.

To measure commitment of respondents to maintenance of network relationship between SE owners, we took the following four indicators : average number of annual cards sent per year, average number of e-mails sent per month for network members, average number of meetings and number of associations which the entrepreneur has taken membership.

Access to External Resources

This dimension includes variables related to access to finance, availability of raw material, availability of employees, availability of market, and the level of competition. Access to finance was measured with respect to the availability of finance, use of credit, number of financial sources, percentage of external finance and sources of finance. We used dichotomous variables coded as "1" for those who have not faced difficulty to raise finance and "0" for those who have faced difficulties at raising finance. If the Owner-manager used bank loan (credit) as financial source ; coded as 1, otherwise, coded as 0. We asked re-

spondents which financial sources were used in the past 12 months. They had a number of alternative financial sources, namely : own fund, borrowing from family members, borrowing from friends, borrowing from banks and borrowing from finance companies. Based on their answers, we could identify the number of financial sources and the percentage of external finance they had used in last 12 months. We used 4 dummies to measure external sources of finance.

Access to Credit Information : We measured access to credit information by four dummy variables : (1) loan (credit) information received from friends, (2) loan information received from financial institutions, (3) loan information received from supportive organizations, and (4) loan information received from SEs. *Access to Raw Material* : We measured access to raw materials by three indices. The first one pertains to the availability of raw material (coded 1 = have not faced any difficulty to find raw materials, 0 = have faced difficulty to find raw materials). The second is the number of supplier firms from which they buy raw materials. *Access to market* : The respondents were asked to indicate how they sell their products ? We use two dummy variables : (1) large business (subcontracting), (2) for government agencies, in addition to that, the respondents were asked to identify their focused market segments at the startup year, year 2007 and 2008. The variable incorporates four market segments ; (1) village (Town), (2) district, (3) province, (4) national economy and (5) international market. Based on their responses for each year (start-up year being 2007 and 2008) and each market segments, we developed market expansion variable. Current market segments of the business were compared with the market segments in year 2007 and start-up year. It is a dummy variable that takes the value 1 if the owner-manager has had entered to the new market segments. *Market Competition* : we assessed the market competition faced by Small enterprise owners by using two indices. The first one related to the SEs. The respondents were asked to identify a number of SEs directly compete with the business. The second reflected the competition coming from large enterprises. The respondents were asked to identify a number of large businesses directly competing with the businesses. *Employee Availability* : We include a dummy variable to indicate whether or not the owner-manager had faced difficulties to find employees.

Internal Capabilities & Business Structure

We captured internal capabilities dimension by four indicators : innovations and Imitations, capacity utilization, number of products produced, introduction of new products and employee benefits. Dimension on business structure consisted of five indicators namely ; legal form, age, value of fixed assets and the number of family workers. Based on these indicators, 39 variables

were used to measure internal capabilities and business structure of sample SMEs. *Innovations and Imitations* : We followed “subjective” approach rather than an “objective” based approach where innovation counts are based on the likes of patent statistics. As Sri Lanka is a developing country, still market for patents is in its infancy. In this survey the approach which was adopted to measure innovations and imitations is similar to that survey conducted by Robson and Obeng(2008) in Ghana. SE owner-managers themselves identified whether innovation activity did or did not take place. Respondents were asked to indicate whether they had introduced a novel innovation, an incremental innovation (imitation), or no innovation with regard to each of the following categories : (i) product or services, (ii) production process, (iii) way of stocking, (iv) work practices or workforce organization, (v) supply and supplier relations, (vi) markets and marketing, (vii) administration and office systems, and (viii) product or service distribution. A novel innovation was one that was new to the entrepreneur’s business and also new to the industry, whilst an incremental innovation (imitation) was new to the entrepreneurial business but not new to the industry. *Capacity Utilization* : we measured the capacity utilization as a percentage based on two questions ; (i) on average, the number of units the enterprises was producing per day and (ii) if all resources were effectively utilized, how many units could be produced per day ? the Number of products and introduction of new products : we measured the number of products produced and introduction of new products in numbers.

Firm Growth

Firm Growth is the dependent / outcome variable which is the primary interest of the study. There is little agreement in the existing literature on how to measure growth (Wiklund, 2009). Firm Growth rate can be operationalized in many different ways. Sales growth rate is often use to indicate a firm performance, particularly in studies on entrepreneurial companies because entrepreneurial activity is considered a growth -oriented phenomenon (Cassia & Colombelli, 2010). The sales growth rate was the dependent variable for our proposed model. In this particular instance, the growth was defined as the change that had taken place in sales from 2007 to 2008.

3.3 Data analysis method

The statistical plan involved three main processes : factor analysis, step-wise multiple regression analysis and path analysis. Factor analysis was used to determine the number of factors associated with HC, SC, AER and IC & BS and it is one of the most widely used multivariate statistical procedures¹⁾ in applied research endeavors across a multitude of do-

1) Factor analysis follow the following mathematical principles : (i) the variables which are most ✓

mains (Brown, 2006).

The basic purpose of factor analysis is to ‘explore the underlying variance structure of a set of correlation coefficients. Thus, it is useful for exploring and verifying patterns in a set of correlation coefficients’. At the same time, factor analysis is a data reduction method that is used as a tool in an attempt to reduce a large set of variables to a more meaningful smaller set of variables. The purposes of factor analysis are (i) to determine how many factors underline the set of variable ; (ii) to find the extent to which each original variable depends upon each common factor ; (iii) to interpret the obtained factors ; and (iv) to find the amount of each common factor possessed by each observation (the factor scores).

There are three important decisions which affect for the outcome of factor analysis : (a) the factor extraction model used, (b) the method used to rotate factors (assuming more than one factor is retained), (c) the number of factors retained (Conway & Huffcutt, 2003).

Selection of the factor extraction model : although a variety of factor extraction models are available, most can be categorized as either a common factor model or a components model. Of component models, by far the most popular is Principle Component Analysis (PCA). The main difference between common factor and PCA models is in their purposes. The purpose of common factor models is to understand the latent (unobserved) variables that account for relationships among measured variables ; the goal of PCA is simply to reduce the number of variables by creating linear combinations that retain as much of the original measures’ variance as possible (without interpretation in terms of constructs).

PCA²⁾ assumes that the total variance of the observed variables should be used in the

\closely inter-correlated are combined within a single factor ; (ii) the variables allocated to a given factor are those which are most nearly independent of those allocated to the other factors ; (iii) the factors are derived in such a manner as to maximize the percentage of the total variance attributed to each successive factor (given the inclusion of the previous factors) ; and, (iv) the factors are normally uncorrelated with each other (Bell, 1969).

2) Principal components can be expressed as $PC_1 = a_{11}x_1 + a_{12}x_2 + \dots + a_{1k}x_k$

$$PC_2 = a_{21}x_1 + a_{22}x_2 + \dots + a_{2k}x_k$$

.....

$$PC_k = a_{k1}x_1 + a_{k2}x_2 + \dots + a_{kk}x_k$$

Subject to $a_{11}^2 + a_{12}^2 + \dots + a_{1k}^2 = \text{maximum}$, where PCs are principle components, which are uncorrelated (orthogonal) with each other. The coefficients a_{11} , a_{12} , a_{1k} etc are assigned to the original X s variables. The principle components are formed in decreasing order of importance which means the first principle component (PC_1) accounts for the maximum variance, PC_2 has the next maximum variance and so on (Dahal, 2007).

analysis while in common factor analysis only the common variance is considered (Conway & Huffcutt, 2003 ; Dahal, 2007). As our purpose is reducing number of variables by creating linear combinations without interpreting the resulting variables in terms of latent constructs, we selected the PCA method for factor extraction.

The coefficients, which define the linear combination of factors for each variable, are called factor loadings. A factor loading can be interpreted as a standardized partial correlation coefficient between the variable and the factor while controlling for the other factors. It is a measure of the importance of the variable in measuring each factor.

*Communality*³⁾—as next step, we wanted to know how much a variable has in common with all factors. Communality is a measure of the percentage of a variable's variation that is explained by the factor. It is also noted that the communality (h^2) can be defined as the sum of squared factor (component) loadings (Dahal, 2007). A relatively high communality indicates that a variable has much in common with the other variables taken as a group.

Rotation : Factor rotation is an important part of factor analysis and is needed to make the factor solution interpretable. There are various alternative methods for factor rotation of which Varimax rotation is most often used. Being an orthogonal rotation algorithm, Varimax rotation creates a factor solution consisting of factors that are uncorrelated with each other. Varimax rotation aims at finding a factor solution where a variable loads highly on one particular factor and loads as low as possible on the other factors. This rotation method helps to enhance discriminate validity by producing distinct factors while achieving convergence through inter-item correlation. In the present study, Varimax rotation method was used whenever a factor solution consisted of more than one factor.

Number of Factors or Components : A third important decision is the criterion for the number of factors (or components) to retain. In order to retain factors, different criteria can be applied. For this study, five criteria were taken in to account when extracting factors : communalities (those communality value less than 0.40 were dropped)⁴⁾, item loadings (those loadings less than 0.40 were eliminated during the factor analysis process), eigenvalues (those factors which have eigenvalue less than one were excluded), variance percentage, scree plot tests, and prior research. "In factor

3) $h^2 = (PC_1)^2 + (PC_2)^2 + \dots = (PC_k)^2$

Where, h^2 =communality, PC =principal component

4) See ; Ford, J. K., MacCallum, R. C., & Tait, M. (1986). The application of exploratory factor analysis in applied psychology : A critical review and analysis. *Personnel Psychology*, 39 (2), 291-314. According to Ford et al (1986, p. 296), "a commonly used rules specifies that only variables with loadings greater than 0.40 on factor should be considered 'significant' and used in defining factor."

analysis each of the final explanatory components, or “factors,” are not observable magnitudes but a grouping of the original variables into a cluster” (Bell, 1969, p. 289).

Regression analysis was then performed to see the impact of explanatory variable on dependent variables. It followed the path analysis. The path analysis has been used by previous researchers for decomposing effects in to direct and indirect (causal) effects, and for eliminating non- causal effects (Deshpande & Zaltman, 1982). By identifying direct and indirect effects, path analysis enables us to provide a holistic view of relationships and to test the main hypotheses.

4. Results and Discussion

The results were presented in four parts. The first section presents the characteristics of sample followed by principle component analysis. Third section was devoted for step-wise multiple regression analysis. The final section presented the path analysis results by identifying direct and indirect effects of independent and intermediate variables.

4.1 Sample Characteristics

As shown in table 1, 84.5 percent of entrepreneurs surveyed were male and 15. 5 percent of them were female. The entrepreneur’s age varies from minimum age of 22 to the maximum age of 80.

Majority of the entrepreneurs self started their businesses whereas relatively small portion of entrepreneurs inherited the businesses from their families as survey indicates that 80.4 percentage of entrepreneurs self started their businesses and 19.6 percentage of entrepreneurs were inherited. Table 1 also shows that the average age of entrepreneurs is 41 years.

With respect to education, 49. 5 percent of the respondents had passed the G. C. E. Ordinary level and 30.9 percent had passed the G. C. E. Advanced level. The number of full time employees per firm ranges from 1 to 50, with an average of 11.1 full time employees per firm.

With regards to the industry categories, we identified nine major categories within the sample : twenty six firms producing food, beverages and tobacco products (26.8 percent) ; fourteen enterprises producing textiles and clothing (20.8 percent) ; seventeen enterprises manufacturing non-metallic mineral products (17.5 percent) ; fifteen enterprise producing wood & wood products ; nine enterprises in basic metal industries (9.3 percent) ; five coir & fiber based enterprises realizing coir based products (5.2 percent) ; two enterprises

Table 1 : Sample Characteristics of Entrepreneurs and Small Enterprises in Sri Lanka (N=97)

Entrepreneurial Characteristics	Frequency	Percent
Gender		
Male	82	84.5
Female	15	15.5
Average Age of Entrepreneur (Years)	41	
Level of Education		
Primary school	9	9.3
G. C. E. Ordinary Level Pass	48	49.5
G. C. E. Advanced Level Pass	30	30.9
Graduate Degree	9	9.3
Post Graduate	1	1.0
Enterprise Characteristics	Frequency	Percent
How the Business was established		
Established by You	78	80.4
Inherited	19	19.6
Average age of the Business (years)	9.6	
Average No. of Employees	11.1	
Type of Industry		
Food, beverages and tobacco	26	26.8
Textiles & wearing apparel, leather	14	14.4
Wood & wood products, furniture	15	15.5
Chemical, petroleum, rubber	02	2.1
Non-metallic mineral products	17	17.5
Basic metal Industries	09	9.3
Machinery & equipment	01	1.0
Coir & fiber (Coconut)	05	5.2
Other products	08	8.2

manufacturing chemical, petroleum and rubber based products ; eight enterprises manufacturing other products (8.2 percent) ; an enterprises small machinery & equipments (1.0 percent).

4.2 Factor Analysis Result

The detailed results of the factor analysis for the four research dimensions are shown in annex1. All the factors or component had eigenvalues of greater than one. The results showed all of the items to have high loadings on their factors. The summary of the factor analysis results is shown in table 2. A total of 18 variables in the Human Capital dimension created seven principle factors. In the case of Social Capital dimension, we used 19 variables for final factor analysis and it produced 5 representative factors. Five factors were extracted from internal capabilities & business structure dimension and they represented 21 variables. Our last research dimension was access to external resources and we

Table 2 : Summary of factor analysis results

Factor	Number of variables	Range of factor loading
<u>Human Capital Dimension</u>		
Training with work experience in same field (TR_WESF)	4	0.909-0.536
Education with experience in government sector (ED_EGS)	3	0.866-0.565
Self learning with work experience in different field (SL_WEDF)	3	0.867-0.495
Self learning with ownership experience in different field (SL_OEDF)	3	0.920-0.426
Family tradition (FA_TR)	2	0.857-0.788
ownership experience in same field (OW_ESF)	2	0.855-0.826
Technical and professional education (TE_PRE)	3	0.738-0.424
<u>Social Capital Dimension</u>		
Organizational network and network maintenance (ORN_MA)	7	0.786-0.407
Resources sharing with SMEs(RS_SME)	5	0.772-0.476
Government supportive activities (GO_SUP)	3	0.873-0.661
Sharing consultancy with social network(SH_CO_SN)	3	0.837-0.715
Supportive network with financial institutions" (SU_NE_FI)	3	0.827-0.447
<u>Access to External Resources Dimension</u>		
Access to credit and credit information (ACC_CR_IN)	5	0.913-0.452
Access to inputs (ACC_IN)	3	0.831-0.657
Capital Sources with credit from finance companies (CA_CR_FC)	2	0.851-0.608
Supplier availability (SUP_AV)	2	0.884-0.767
Competition from large and small enterprises (CO_LA_SE)	2	0.809-0.613
Access to markets (ACC_MAK)	3	0.852-0.537
<u>Internal Capabilities and Business Structure</u>		
Innovation and imitations (INN_IMI)	9	0.964-0.582
Number of products with employee incentives (NU_PR_EMI)	4	0.770-0.570
Ownership structure with stock related innovations (OW_ST_STI)	3	0.917-(-0.895)
Market related innovations with employee benefits (MA_INN_EMBE)	5	0.651-(-0.750)
New products and new machines (NE_PR_MAC)	3	0.890-0.486

used 17 variables for factor analysis which produced five representative factors.

4.3 Test for “Goodness -of-fit and Significance of Path Coefficient

Step-wise multiple linear regression was done to examine the predictability of the independent variables on the criterion variables. Except sales growth and variables related to human capital dimension, all other variables in the study namely ; variables related to social capital, variables related to internal capabilities & business structure, variables related to access to external resources, were analyzed as both predictor and criterion variables. Variables related to human capital were examined solely as predictor variables and sales growth was examined solely as criterion variable.

Coefficient determination (R^2) and F ratio would be assigned as the criteria in testing for goodness-of-fit of the model. The significance tests for the path equations of the mod-

Table 3 : Estimated Coefficients

Dependant Variables	Independent										
	HC Dimension							SC Dimension			
	X ₁₁	X ₁₂	X ₁₃	X ₁₄	X ₁₅	X ₁₆	X ₁₇	X ₂₁	X ₂₂	X ₂₃	X ₂₄
Sales Growth	—	—	—	—	—	—	—	[0.572 ^{***}] (8.651)	[0.218 ^{***}] (3.648)	—	—
INN_IMI X ₄₁	[0.507 ^{***}] (5.828)	—	—	—	—	—	—	—	—	—	—
ACC_CR_IN X ₃₁	—	—	—	—	—	—	[0.194 ^{**}] (2.058)	[0.158 [*]] (1.681)	—	—	—
ACC_IN X ₃₂	[0.259 ^{**}] (2.583)	—	—	—	—	—	—	—	—	—	—
CO_LA_SE X ₃₅	—	[0.183 [*]] (1.790)	—	—	—	—	—	—	—	—	—
ORN_MA X ₂₁	[0.476 ^{***}] (5.631)	[0.235 ^{***}] (2.774)	—	—	[0.174 [*]] (1.768)	—	[0.256 ^{***}] (3.031)				
RS_SEs X ₂₂	[0.238 ^{**}] (2.417)	—	—	[0.205 ^{**}] (2.081)	—	—	—				

Notes : N=97, Standardized coefficients are in [], two tail *t* statistics are in (), significance is ****p*<0.001, ***p*<0.01,

els were undertaken by two steps. Firstly, the overall test for goodness-of fit of the path equation on the growth. In this step, we regressed all 23 index-variables on dependent variable of the growth in the model. Secondly, the overall test for goodness-of-fit of the path equations on each of the intermediate variables. A *p-value* of 1.0 or less was used as the criterion to decide if the degree of prediction was significant.

We examined the relationship between sales growth and each one of the variables related to other four dimensions. The R² of 0.705 of integrative sales growth model convey a message that 70.5% of the total variance of the sales growth was accounted for by the seven independent variables.

Table 3 also shows the R² of each sub model, of the independent variables on the intermediate variables. The coefficients of determination for those sub-models ranged between 0.033 (X₃₅) to 0.349 (X₂₁). For example, 3.3% of the total variance of “*competition from large and small enterprises*” (X₃₅) is determined by the one variable called “*education with experience in government sector*” (X₁₂).

The last test done was the t-test for verifying the significance of every path coefficient for each of the causal relationships in the model. Table 3 clearly shows that every sub model at least has one significant path coefficient.

The graphical representation of the integrative sales growth model is displayed in

of Sales Growth Model

Variables											Model fitting indicators	
	AER Dimension					ICBS Dimension					R ²	F
X ₂₅	X ₃₁	X ₃₂	X ₃₃	X ₃₄	X ₃₅	X ₄₁	X ₄₂	X ₄₃	X ₄₄	X ₄₅		
[0.267 ^{***}] (4.001)	[-0.182 ^{***}] (-2.726)	[0.127 ^{***}] (2.077)	—	—	[0.140 ^{***}] (2.195)	[0.276 ^{***}] (4.102)	—	—	—	—	0.705	29.755 ^{***}
—	—	—	—	—	[-0.225 ^{**}] (-2.592)						0.305	20.144 ^{***}
[0.399 ^{***}] (4.377)											0.250	10.132 ^{***}
—											0.067	6.670 ^{***}
—											0.033	3.205*
											0.349	16.279 ^{***}
											0.121	4.175 ^{***}

*** < 0.05, ** < 0.10, — variables were not significant.

figure 2 and explicitly presents the direct and indirect effects (causal effect) of each of the independent variables on the corresponding dependent variables. In this study, all intermediate variables send their significant direct effects to the dependent variable of sales growth. All the independent variables however, indirectly send their significant effects to the dependent variable of the sales growth through one or more intermediate variables. In this study, however, for the practical purpose we considered to neglect the computation and interpretation of the non-causal effects in the constructed model. In other words, our main concern of the decomposition of effect of the sales growth model in figure 2 is the interpretation of its causal (direct and indirect) effects.

In table 4 we present the estimated path coefficients that would be used to interpret the causal relationship in figure 2. Figure 2 shows that all intermediate variables send their direct effects to the sales growth and six of them (competition from large and small enterprises, access to inputs, access to credit and credit information, innovation and imitations, organizational network with network maintenance, resources sharing with SEs, supportive network with financial institutes) with positive signs and the variable access to credit and credit information with negative sign.

In the next part of this section we are going to discuss the relationship between the intermediate and independent variables and the sales growth based on the constructed model

of figure 2 and table 2.

4.2.1 Human Capital and Social Capital

Hypothesis 1 states that social capital is affected by human capital. Hypothesis 1 received support from data. As two variables of social capital dimensions (*organizational network with network maintenance* - X_{21} and *resources sharing with SEs*- X_{22}) are affected by five out of seven variables (X_{11} , X_{17} , X_{12} , X_{14} and X_{15}) related with human capital dimensions. *Training with work experience in same field* (X_{11} , $\beta=0.476$, $p<0.001$), *technical and professional education* (X_{17} , $\beta=0.256$, $p<0.01$) and *education with experience in government sector* (X_{12} , $\beta=0.235$, $p<0.01$) have significant and positive impacts on *organizational network with network maintenance* (X_{21}). The variance explained (R^2) was 0.349, implying that 34.9% of the total variance in organizational network with network maintenance can be accounted for by these three variables. This may suggest that, entrepreneurs who have relevant work experience, training and education are more likely to develop and maintain network type of relations with large and small enterprises.

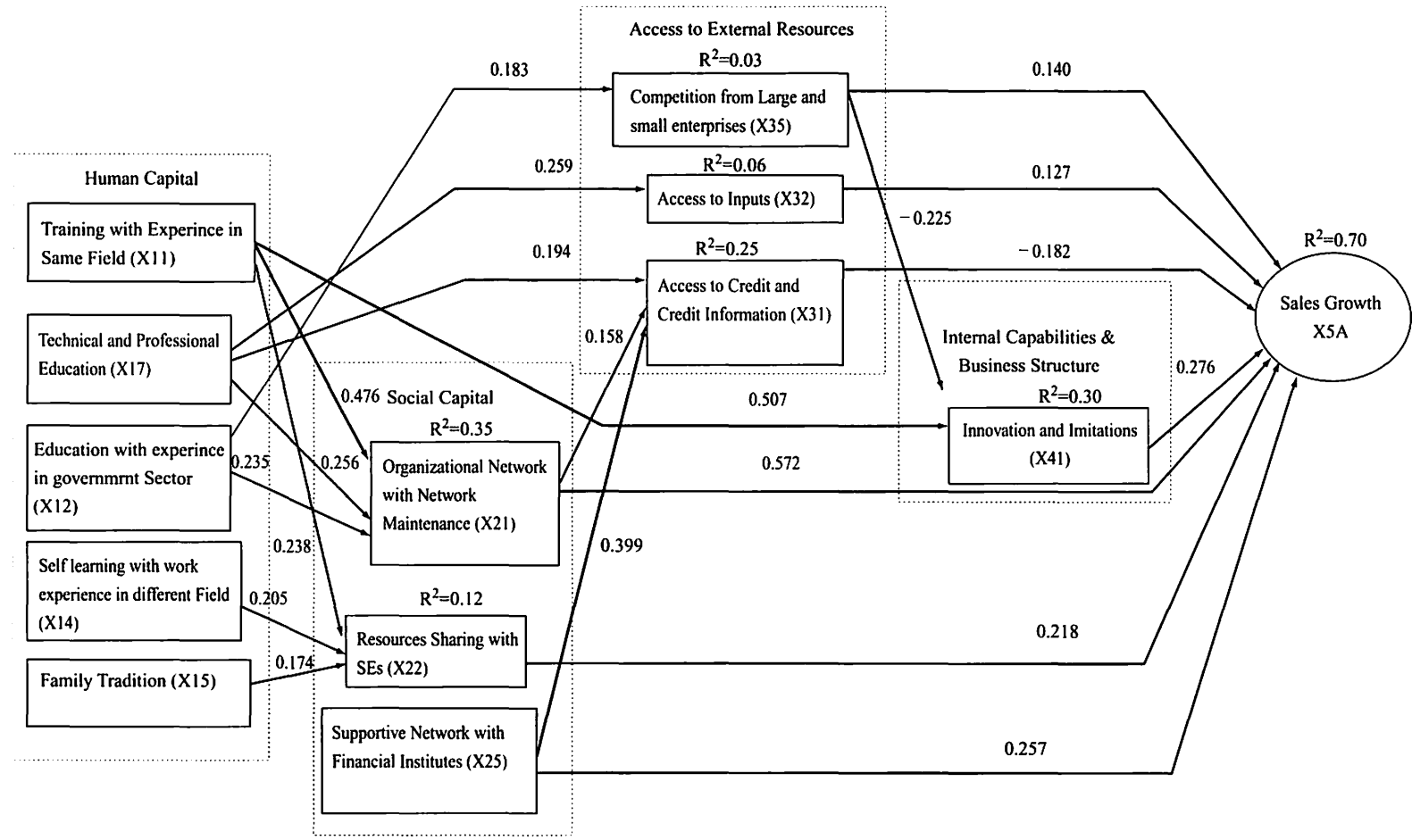
Training with work experience in the same field ($\beta=0.238$, $p<0.05$), *self learning with work experience in different field* (X_{14} , $\beta=0.205$, $p<0.05$) and *family tradition* (X_{15} , $\beta=0.174$, $p<0.10$) have significant and positive impacts on *resources sharing with SEs*. The variance explained (R^2) was 0.121, implying that 12.1% of the total variance in resources sharing with SMEs can be accounted for by these three variables.

4.2.2 Human Capital, Social Capital and Access to External Resources

Hypothesis 2a postulated that access to external resources is affected by human capital. The results of the path analysis show that two variables related to Human Capital have significant and positive effect on three variables of access to external resources. *Education with experience in government sector* (X_{12}) has significant and positive effect ($\beta=0.183$, $p<0.10$) on competition from large and small enterprises (X_{35}). *Technical and professional education* (X_{17}) has a significant and positive effect ($\beta=0.259$, $p<0.05$) on access to inputs (X_{32}). *Access to inputs* variable represented by three initial variables namely, employee availability, availability of raw material and finance availability. This may indicate that the owner-managers who had received technical and professional education were efficiently negotiating than others with external resources suppliers to acquire necessary inputs from the external environment.

Technical and professional education had a direct positive effect on access to credit and credit information ($\beta = 0.194$, $p < 0.05$), thus further supporting hypothesis 2a. Hypothesis 2b proposed that access to external resources was affected by social capital.

Figure 2 : an Integrative Model of Small Enterprise Sales Growth



Note : all coefficients are significant at $p < .10$.

Results confirmed that hypothesis. *Organizational network with network maintenance* ($\beta = 0.158$, $p < 0.10$) and *supportive network with financial institutes* (X_{25} , $\beta = 0.399$, $p < 0.001$) had positive and significant effect on *access to credit and credit information*, hence, supporting hypothesis 2b.

The variance explained (R^2) was 0.250, implying that 25% of the total variance in access to credit and credit information can be accounted for by these three variables. It is worthy noting that, access to external resources such as credit is driven by both human and social capital.

4.2.3 Internal capabilities & business Structure

Hypothesis 3a, expressed that internal capabilities & business structure is affected by human capital. As shown in figure 2, *training with experience in same field* has significant and positive direct impact on *innovation and imitations*- X_{41} ($\beta = 0.504$, $p < 0.001$), thus fully supporting hypothesis 3a.

Hypothesis 3b assumed that internal capabilities & business structure affected by social capital. This hypothesis has not received support from the regression analysis. We didn't find any variables related with social capital having significant effect on internal capabilities & business structure.

Hypothesis 3c states that internal capabilities & business structure is affected by access to external resources. *Competition from large and small enterprises* (X_{35}) is significantly ($\beta = -0.225$, $p < 0.01$) and negatively related to *innovation and imitations*. It indicates that when the small enterprises are facing high competitions from the large and small enterprises they are reluctant to innovations and imitations.

4.3 Direct and indirect effects on Sales growth Model

Hypothesis 4a predicted that sales growth is affected by human capital. However, there is not direct significant causal relationship between human capital and sales growth, thus, hypothesis 4a is not supported. However, figure 2 clearly depicts that five variables related with human capital have significant indirect effect on sales growth. As shown in table 4 the boldfaced figures highlight the finding that *training with experience in the same field*, *technical and professional education* and *education with experience in government sector* have the greatest indirect impact on sales growth.

Especially, Training with work experience in the same field variable sends its significant indirect effect through four paths (table 4) and its total effect is 0.449. Among the different paths the greatest indirect effect comes through ($X_{11} \rightarrow X_{21} \rightarrow X_{5A}$) organizational

Table 4 : The Decomposition of Effects of the Sales Growth model in to Direct and Indirect Effects

Independent Variables	Description of Paths (from→to)	Direct Effect	Indirect Effect	Total Effect
<i>Human Capital Dimension</i>				
Training with work experience in same field (X ₁₁)	X ₁₁ →X ₄₁ →X _{5A}	—	0.139	0.449
	X ₁₁ →X ₂₁ →X _{5A}	—	0.272	
	X ₁₁ →X ₂₁ →X ₃₁ →X _{5A}	—	-0.013	
	X ₁₁ →X ₂₂ →X _{5A}	—	0.051	
Technical and professional education (X ₁₇)	X ₁₇ →X ₃₂ →X _{5A}	—	0.032	0.136
	X ₁₇ →X ₃₁ →X _{5A}	—	-0.035	
	X ₁₇ →X ₂₁ →X _{5A}	—	0.146	
	X ₁₇ →X ₂₁ →X ₃₁ →X _{5A}	—	-0.007	
Education with experience in government sector (X ₁₂)	X ₁₂ →X ₃₅ →X _{5A}	—	0.025	0.142
	X ₁₂ →X ₃₅ →X ₄₁ →X _{5A}	—	-0.011	
	X ₁₂ →X ₂₁ →X ₃₁ →X _{5A}	—	-0.006	
	X ₁₂ →X ₂₁ →X _{5A}	—	0.134	
Self learning with work experience in different field (X ₁₄)	X ₁₄ →X ₂₂ →X _{5A}	—	0.045	0.045
Family tradition (X ₁₅)	X ₁₅ →X ₂₂ →X _{5A}	—	0.038	0.038
<i>Social Capital Dimension</i>				
Organizational network with network maintenance (X ₂₁)	X ₂₁ →X ₃₁ →X _{5A}	—	-0.028	0.544
	X ₂₁ →X _{5A}	0.572	—	
Resources sharing with SEs (X ₂₂)	X ₂₂ →X _{5A}	0.218	—	0.218
Supportive network with Financial institutes (X ₂₅)	X ₂₅ →X _{5A}	0.267	—	0.195
	X ₂₅ →X ₃₁ →X _{5A}	—	-0.072	
<i>Access to External Resources</i>				
Competition from large and small enterprises (X ₃₅)	X ₃₅ →X _{5A}	0.140	—	0.078
	X ₃₅ →X ₄₁ →X _{5A}	—	-0.062	
Access to inputs (X ₃₂)	X ₃₂ →X _{5A}	0.127	—	0.127
Access to credit and credit infor. (X ₃₁)	X ₃₁ →X _{5A}	-0.182	—	-0.182
<i>Internal Capabilities & B. Structure</i>				
Innovation and imitations (X ₄₁)	X ₄₁ →X _{5A}	0.276	—	0.276

Notes : All estimates are common metric and completely standardized.

X_{5A}=Sales growth

network with network maintenance. The effect of this variable is 0.272, implying that the increase of owner-managers' work experience in the same field of business and having training lead to enhance meant of their networking behaviors and finally, they could achieve the sales growth. Second highest significant indirect effect coming via innovation and imitations(X₁₁→X₄₁→X_{5A}). It's effect is 0.139. Hence organizational network with network maintenance and innovation and imitations seem to constitute significant intervening variables in the human capital-sales growth relationship.

Hypothesis 4b predicted the direct causal relationship between social capital and sales growth. As shown in figure 2, three variables in social capital dimension have significant positive impacts on sales growth therefore supporting hypothesis 4b. These variables include organizational network with network maintenance ($\beta = 0.572, p < 0.001$), resources sharing with SMEs ($\beta = 0.218, p < 0.001$) and supportive network with financial institutes ($\beta = 0.267, p < 0.001$).

Most of the small enterprises do have different kinds of linkage with large enterprises and small and medium sized enterprises. as it was observed that large enterprises are giving subcontracts to the small enterprises. In our sample, 11 percent of the respondents had received subcontracts from large businesses. In addition to subcontracting, most of the small enterprises are raw material suppliers to large enterprises. Developing networks with different sizes of other enterprises is gives a competitive advantage for small enterprises. A situation which enhances the competitive advantage of small enterprises and subsequently contributes to firm growth. Not only to develop organizational networks, the entrepreneurs also have to put forth their best efforts to develop and maintain such networks.

Resources sharing with SEs are also playing a pivotal role for sales growth. As entrepreneurs share resources with their organizational networks. Small enterprises own limited resources but they have to face big competition at the market from large enterprises. Small entrepreneurs can share their excess resources with limited resources. By forming and maintaining networks with similar types of businesses they can overcome resources limitation problem and capitalize the market opportunities. Based on the survey conducted among small businesses in small US communities, Miller et al (2007) found that resource sharing among network members significantly benefited members' business, and that these benefits were associated with generalized perception of the advantages of network membership.

Financial institutions are providing different kinds of loans for small enterprises. In addition to that, they are providing consultancy services for small enterprises and by developing network relations with financial institutions entrepreneurs will have a better opportunity to receive information about financing schemes available in the money market. In a country like Sri Lanka, most of the small enterprises are stagnated or close down due to constraints such as lack of finance, lack of technology and lack of markets (Aberathne & Ranasinghe ; 2004). Supportive network with financial institutions will help entrepreneurs to overcome resources limitations. Financial capital is the most general type of resource, and can relatively easily be converted to other types of resources, and access to more financial capital can helps firms expand more and perform better (Wiklund et al 2009).

When entrepreneurs enjoy closer relationship with financial institutions, financial institutions can easily evaluate the credit worthiness of small enterprises.

Hypothesis 4c postulated the causal relationship between access to external resources and sales growth. As illustrated in figure 2, two out of three variables comprised with access to external resources were significantly and positively related to sales growth, supporting hypothesis 4c. The two variables include competition from large and small enterprises ($\beta=0.140$, $p<0.05$) and access to inputs ($\beta=0.127$, $p<0.05$). However, after calculating the total effect of each variable, it was found that the effect of access to credit and credit information had a significant negative effect on sales growth ($\beta=-0.182$, $p<0.01$). One potential reason for this result is that owner-managers of our sample consist of enterprises with very small size and the money they borrowed from financial institutions was invested in idle assets such as purchasing machines with excess capacity or purchasing lands which in a way do not contribute efficiently enhancing enterprises sales growth. In addition to that, the credit market for small enterprises has not developed in Sri Lanka and entrepreneurs have to pay higher interest for their loans.

Hypothesis 4d states that internal capabilities & business structure is positively related to sales growth. Among the five index variables comprising of internal capabilities & business structure, only innovation and imitation has significant positive effect on sales growth ($\beta=0.276$, $p<0.001$) by supporting hypothesis 4d. As illustrated in figure 2, training with work experience in same field has a significant positive effect ($\beta=0.507$, $p<0.001$) on innovation and imitations, while competition from large and small enterprises has significant negative effect ($\beta=-0.225$, $p<0.05$) on innovation and imitations. The variance explained (R^2) was 0.305, implying that 30.5% of the total variance in innovation and imitation can be accounted for by these two variables (table 3). It is interesting to note however that competition from large and small enterprises has significant negative effect on innovation and imitations. It implies that when competition is increasing the small enterprises in Sri Lanka are not focusing on long term defensive mechanisms such as innovations and imitations. They are relying on other short term strategies.

5. Conclusion

In this study we have examined the relationship between human capital, social capital, access to external resources, internal capabilities & business structure and small enterprise growth. To our knowledge, this study is the first attempt to integrate those different dimensions to explain small enterprise growth implying the findings of this study have im-

portant implications for academic researchers, owner-managers of small enterprises and small enterprises support agencies. Three human capital variables including training with work experience in same field, technical and professional education and education with experience in government sector were identified as contributing to sales growth indirectly through social capital and internal capabilities & Business structure variables. Social capital variables seem to be more powerful predictors of sales growth. In particular, organizational network with network maintenance has relatively greater positive effect on sales growth. In addition to that, resources sharing with SEs and supportive network with financial institutions also could contribute to sales growth. In the case of access to external resources dimension, competition from large and small enterprises and access to inputs (raw material, labour and finance) contribute to sales growth. Innovation and imitations, as internal capability substantially contribute for sales growth.

6. Limitations of the Study and Directions for Future Research

This study has several limitations. Firstly, by focusing on manufacturing enterprises, the study scope is limited. Secondly, the focus on small enterprises renders the study size-specific. Thirdly, by studying only one district in Sri Lanka the study suffers from being district-specific. Another limitation is the focus on four dimensions as the determinants of firm growth. There may be more factors that may impact on firm growth.

Another limitation is related to the cross-sectional nature of the study. Even though this study combines both survey data and secondary data collected at different times, the nature of the study is essentially cross sectional. This design limits the opportunities for claiming causalities in the identified relationships purely on the basis of empirical findings. However, the hypotheses were developed on the basis of received theories and empirical research, thus improving the validity of results.

These limitations suggest areas for future research. Research is needed to compare the growth factors of small manufacturing enterprises with service oriented enterprises of the economy. Future research is needed to focus on small enterprises in the other districts in Sri Lanka. Additionally, research on medium and large enterprises throughout the country is warranted to ascertain if the findings about firm growth are size-specific and/or district -specific. The findings of the study are based on cross-sectional data ; a next logical step in this line of research would be to investigate the relationship between human capital, social capital, access to external resources, internal capabilities & business structure and firm growth over a period of time, treating contextual variables as potential modera-

tors. Future research using qualitative and longitudinal methods, case studies as well as field experiments would be useful in examining the validity of our findings.

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Annex Table 1 : Principle Components Analysis for Human Capital Dimension (Varimax Rotation)

Variable	Communi- nality	Factor Loadings						
		Factor 1 TR_WESF	Factor 2 ED_EGS	Factor 3 SL_WEDF	Factor 4 SL_OEDF	Factor 5 FA_TR	Factor 6 OW_ESF	Factor 7 TE_PRE
1. Number of years worker experience in same field	0.86	.909	.025	-.065	-.003	-.081	-.063	.136
2. Work experience in same field	0.88	.887	-.113	-.107	-.041	-.226	-.109	.06
3. Received training	0.656	.554	.325	.23	-.066	-.067	.047	.424
4. Previous job	0.574	.536	.135	-.279	-.166	-.242	-.075	-.315
5. Experience as government employee	0.781	-.018	.866	-.069	.028	-.098	-.113	.043
6. Number of years experience as government employee	0.774	-.083	.854	-.14	.048	-.077	-.102	-.012
7. Formal education	0.495	.322	.565	.061	-.048	.015	.25	.065
8. Work experience in different field	0.786	-.046	-.113	.867	-.096	.065	-.058	-.047
9. Number of years worker experience in different field	0.784	-.155	-.001	.849	-.111	.028	-.076	.005
10. Technical knowledge from self learning	0.571	.11	-.095	.495	.426	-.287	-.2	-.029
11. Ownership experience in different field	0.863	-.025	.011	-.083	.92	.016	.079	-.048
12. Number of years ownership experience in different field	0.802	-.118	.05	-.08	.875	.009	-.104	-.049
13. Father is an entrepreneur	0.772	-.106	-.101	-.106	.056	.857	-.039	-.006
14. Family tradition	0.755	-.297	-.065	.161	-.101	.788	.036	-.072
15. Ownership experience in same field	0.754	-.063	-.015	.048	-.09	-.057	.855	.067
16. Number of years ownership experience in same field	0.734	-.084	-.051	-.127	.109	.041	.826	-.107
17. Professional education	0.717	-.045	.101	-.059	-.155	-.355	.079	.738
18. Technical college education	0.582	.167	-.02	-.042	.011	-.141	-.101	.722
Eigen value		3.361	2.161	1.833	1.791	1.611	1.239	1.123
Proportion of Variance Explained		18.67%	12.01%	10.18%	9.95%	8.95%	6.88%	6.24%
Cumulative Variance Explained		18.67%	30.68%	40.86%	50.81%	59.76%	66.64%	72.885

Notes : Number of Variables 18 ; Number of observations 97

Source : Author's computation

Annex Table 2 : Principle Components Analysis for Social Capital Construct (Varimax Rotation).

Variable	Communi- nality	Factor Loadings				
		Factor 1 ORN_MA	Factor 2 NE_SME	Factor 3 GO_SUP	Factor 4 SH_CO_SN	Factor 5 SU_NE_FI
1. Size of organizational network	0.756	.786	.320	.054	-.046	-.177
2. Number of annual card send per year	0.587	.741	.093	-.064	.154	.046
3. Subcontracts received from large businesses	0.647	.736	-.159	-.155	-.150	.185
4. Average number of telephone calls given per week	0.644	.730	.132	.164	-.044	.254
5. Total network size	0.811	.720	.237	.113	.347	.322
6. Number of associations you maintaining membership	0.573	.542	.258	.367	.041	.277
7. Raw materials received from SEs	0.726	.246	.772	.071	-.249	-.051
8. Market information received from SEs	0.731	.308	.736	.230	.169	.112
9. Market information given to SEs	0.572	.119	.687	.075	.273	-.078
10. Raw materials given to SEs	0.528	-.173	.590	.065	-.340	.172
11. Number of e-mails send per week	0.612	.407	.476	-.140	.032	.447
12. Consultancy received from government	0.785	.074	.075	.873	.093	-.054
13. Technology received from government	0.734	.053	.109	.845	-.066	.010
14. Market information received from government	0.451	-.052	.040	.661	.014	.100
15. Size of social network	0.776	.121	.010	.007	.837	.248
16. Consultancy given to friends	0.61	-.162	.193	.058	.721	-.151
17. Consultancy received from friends	0.557	.089	-.188	-.011	.715	-.046
18. Finance received from financial institutions	0.695	.082	-.018	-.050	.026	.827
19. Size of supportive network	0.68	.259	.061	.211	-.041	.751
Eigen value		5.020	2.301	2.169	1.667	1.319
Proportion of Variance Explained		26.420	12.108	11.415	8.771	6.943
Cumulative Variance Explained		26.420	38.528	49.943	58.715	65.657

Notes : Number of Variables 19 ; Number of observations 97

Annex Table 3 : Principle Components Analysis for Internal Capabilities & Business Structure Dimension (Varimax Rotation)

Variable	Communi- nality	Factor Loadings				
		Factor 1 INN_IMI	Factor 2 NU_PR_EMI	Factor 3 OW_ST_STI	Factor 4 MA_INN_EMBE	Factor 5 NE_PR_MAC
1. Number of imitations	0.94	.964	-.083	.010	-.011	-.055
2. Market and marketing imitation	0.509	.689	-.06	.159	-.023	.075
3. Way of stocking imitation	0.485	.671	.071	.019	-.054	-.164
4. Product distribution imitation	0.542	.657	.029	.246	-.201	-.091
5. Work practices imitation	0.469	.656	-.086	-.115	.133	-.010
6. Number of innovations	0.813	.656	.246	.184	.525	.113
7. Process innovation	0.54	.649	.318	.017	.127	-.026
8. Product imitation	0.494	.594	-.241	-.246	.017	.150
9. Supply relation imitation	0.483	.582	-.143	-.157	-.008	.316
10. Bonus	0.635	-.125	.770	.053	.124	-.095
11. Money advance	0.56	.129	.692	-.146	-.154	-.142
12. Providing benefits other than salary	0.695	.155	.619	.055	-.522	-.108
13. Number of products	0.438	-.252	.570	.005	.217	.040
14. Partnership	0.86	-.096	-.070	.917	-.023	-.058
15. Sole proprietorship	0.802	.012	-.013	-.895	.002	.007
16. Way of stocking innovation	0.428	.303	.007	.471	.310	-.132
17. Lunch/breakfast	0.702	.260	.181	.163	-.750	.110
18. Market and marketing innovations	0.505	.180	.154	.158	.651	-.013
19. Number of new machines introduced	0.803	-.038	-.076	-.065	-.003	.890
20. Introduction of new machines	0.763	.048	-.191	-.079	-.077	.843
21. Number of new products introduced	0.63	.178	.363	.107	.468	.486
Eigen value		4.701	2.675	2.147	2.000	1.570
Proportion of Variance Explained		22.387	12.738	10.223	9.523	7.478
Cumulative Variance Explained		22.387	35.126	35.126	54.871	62.350

Notes : Number of Variables 19 ; Number of observations 97

Annex Table 4 : Principle Components Analysis for Access to External Resources (Varimax Rotation)

Variable	Communi- nality	Factor Loadings					
		Factor 1 ACC_CR_IN	Factor 2 ACC_IN	Factor 3 CA_CR_FC	Factor 4 SUP_AV	Factor 5 CO_LA_SE	Factor 6 ACC_MAK
1. From banks	0.861	.913	.025	-.093	.019	-.044	-.128
2. Use of credit	0.792	.847	.034	.269	.019	.000	.007
3. Loan information from financial institutions	0.569	.635	-.301	-.115	.096	.184	.139
4. Percentage of external finance	0.449	.515	-.081	.344	.003	.105	.218
5. Loan information from supportive organizations	0.44	.452	.047	-.316	-.236	-.277	-.025
6. Employees availability	0.718	.075	.831	-.123	.073	-.030	.041
7. Availability of raw materials	0.621	-.069	.716	.264	.044	.115	.134
8. Finance availability	0.617	-.296	.657	-.251	.122	.023	.141
9. From finance company	0.728	-.016	.011	.851	-.018	.033	.043
10. Number of financial sources	0.695	.518	-.142	.608	.143	-.122	-.02
11. Number of new suppliers	0.814	.011	.084	.099	.884	-.115	.042
12. Number of suppliers	0.803	.074	.121	-.090	.767	.429	.047
13. Number of small firms directly compete with firm	0.688	-.046	-.056	-.123	.107	.809	-.046
14. Number of large firms directly compete with firm	0.557	.151	.246	.262	-.015	.613	.174
15. Selling to large firms (Subcontracting)	0.795	.052	.049	-.071	-.194	.144	.852
16. Market expansion	0.622	.133	.265	-.020	.277	-.386	.555
17. Selling to government agencies	0.432	-.075	.128	.211	.275	.027	.537
Eigen value			3.119	2.553	1.470	1.302	1.092
Proportion of Variance Explained			18.344	15.016	8.650	7.661	6.422
Cumulative Variance Explained			18.344	33.360	51.806	59.467	65.889

Notes : Number of Variables 17 ; Number of observations 97

Source : Author's computation