COMPETITIVENESS OF THE INDUSTRIES BASED ON THE PORTER'S DIAMOND MODEL: AN EMPIRICAL STUDY

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ABSTRACT

Michael Porter offered a model that allows examining why some states are more competitive and why some industries within states are more competitive than others are. In this way, Porter's diamond model of national competitiveness was detected as a model with which to assess the sources of competitive advantages of an industry in a particular country and it can help realise the competitive status of a nation in global competition. This model consists of four national determinants of competitive advantage: factor conditions, demand conditions, related and supporting industries, and firm's strategy, structure and rivalry. The Porter's theory is that these factors interact with each other to form conditions where innovation and competitiveness occurs.

As the purpose of this study is to find out the main factors which affect the competitiveness of the sectors, the well known model in the literature developed by Porter was used. By using Porters' model Sun and his colleaguse (2010) provided a new model arguing that four variables of the diamond model (the factor conditions, the demand conditions, the related and supportive industries and the government) affect the competitiveness factor. In this article, the competitiveness of basic industries in the city of Kahramanmaraş were investigated by using Porter's Diamond model with the argument of Sun and his colleaguse.

To achieve the aim of the research both primary and secondary data collection techniques were used. Parts and the items of the questionnaire were derived from related literature. The prepared questionnaire was applied in the main sectors of Kahramanmaraş. The collected data was analyzed and evaluated according to the Diamond model. So, we grabbed at an opportunity to evaluate the current situation according to the factors in the model and to detect areas that provide facilities to improve the competitiveness of the sectors.

Keywords: *Porter, Competitiveness, Competitive Strategies, Diamond Model.*

1. INTRODUCTION

The ongoing globalization process day by day makes it difficult for companies to compete even more. The world's economic, social and technological changes with the acceleration of globalization, international trade relations, the removal of borders between countries, such as communication and transportation technologies have revealed the need for continuous self-assessments of the organizations.

In order to be releavent to the changing and developing world, to obtain a larger share of growing markets, convert threats to opportunities and to survive have been the primary objectives for companies. The companies, are being managed for these purposes, will gain competitive advantage. However, to make this a sustainable and to increase competitive advantage of firms, firms must spend an intense effort. To achieve a sustainable competitive position can be realized through firms and sector specific strategies.

The competitive strategies implemented by following the changes in firms, shows the competitive position of those firms in the industry and this situation is an important topic for the consideration of all the companies operating in the sector. In this context, Porter's diamond model which was developed to measure the level of competitiveness, is an important model. In this model, "factor conditions", "demand conditions", "related and supporting industries" and "firm strategy, structure, and competition" are the decisive factors with the "government" and the "chance" factors. This model is a dynamic and versatile model. With the help of this model, Porter identified a framework that analyze why some countries and firms depending on the sector are more competitive and successful than others.

In this study, the main sectors that have an important place in the province of Kahramanmaras (textiles, food, kitchen equipment, jewelry) were determined and these sectors' competitive powers are analyzed by using the diamond model. Revealing the competitiveness position of the main and sub variables affecting firms in the industry and making recommendations for what should be done to increase the strength of the industry's international competitiveness were the basic purposes of this study.

2. LİTERATURE REVİEW

2.1. Porter's Diamond Model Theory

Porter aimed at establishing a link between the academic literatures in strategic management and international economics in his book "Competitive Advantage of Nations" in 1990 and create a base for developing national policies on competitiveness [1].

Porter contended that the greater number of trade-related theories have been only focused on cost and a new theory was essential that "should attract a comprehensive understanding of competition that contains segmented markets, differentiated products, the technological differences and economies of scale". He suggested that this new theory should be able to define why firms from certain nations implement better strategies than others competing in certain sectors [2]. For this purpose Porter made an examination in ten countries (USA, Germany, Denmark, South Korea, Britain, Italy, Sweden, Switzerland, Japan and Singapore) including different economic characteristics of 100 sectors for four years to try to find the elements that determine the competitiveness of nations and sub-sectors to determine what kind contributions provided to the development of competitive structures of countries [3]. He looked for an answer to "why some regions are more competitive than others are" and tried to make clear how firms gain superior positions in certain sectors of the country on global competitiveness [4; 5; 6]. For this reason, Porter, developed The Diamond Model to identify factors of competitive advantage of countries and sectors and to create the theoretical underpinnings of this interplay of country and industry competitiveness topics as a result of his analysis [7]. The model creates a structure that determines the rules of competition in a sector and makes it important to have a role to play based on the opinion of achieving a long-term competitiveness [8]. Porter associated the determinants of sectors that state competitive advantage of nations with the value of a diamond. Four corners of the diamond are "factor conditions ", "demand conditions", "firm strategy, structure and competition" and "the presence of related and supporting industries". Also "luck" and "the government" factors are included in the system. These factors are described as factors affecting the competitiveness as a support of the four factors [9]. All factors contain: all assets and skills vital for industry's competitive advantage; information which create the opportunities and give the answer to how convenient assets and skills should be managed; aims of all interest groups; and what is most important, particular power of the company to investing and innovating [10].

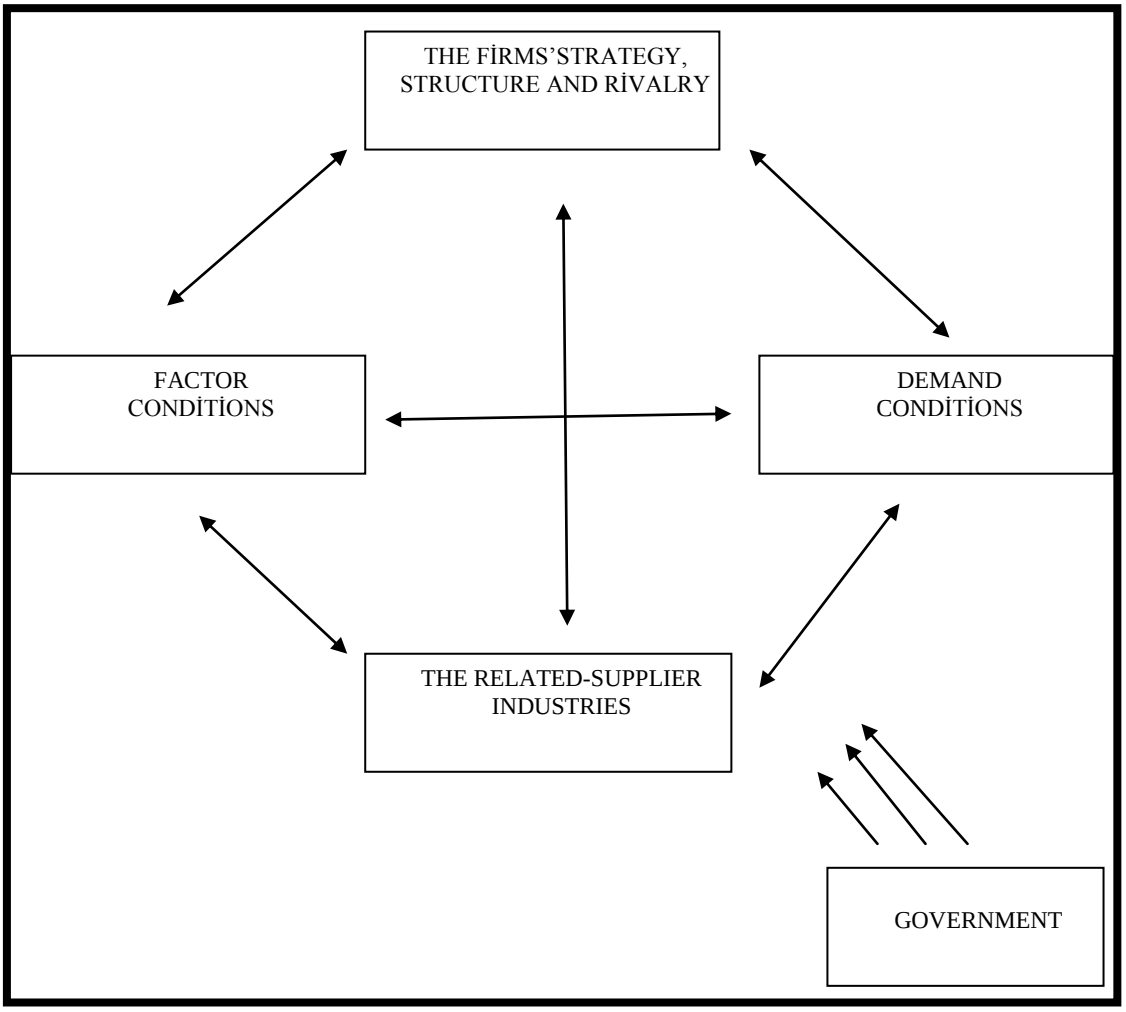

Figure 1.The determining factors of diamond model (Porter, 1990: 127).

In Porter's Diamond Model, the system is constantly in motion as a whole in the face of positive and negative effects. Provide the competitive advantage depends on the renewal of the system and what takes place very rapidly in innovation. While the quality and intensity of mutual interaction in the entire system causes to the broad and common interaction, the presence of dynamic and competitive environment which constantly engaged in a new knowledge and talented players causes to global competitive advantage [11].

2.1.1.Factor conditions

Factor conditions are values of the firm's skill to supply those factors of research production that allow a unit to compete [12]. They are the factors of production and infrastructure necessary to compete in a particular industry [7]. As believed by the standard trade theory the states are endowed with seperate stocks of factors. The theory mentions that the state will export those products, which produce incentive use of the factors with which it is comparatively well endowed. A simple definition for what the factor of production is concerns to the terms like capital, land and labour. Porter regards this definition as too general, and not suitable to give open insights to the competitive advantage, hence he argues that the factors should be divided into categories that are more particular [13]. Factors, as defined by Porter, may be divided into five broad groups. These factors can be grouped into human resources (the amount, abilities and cost of staff etc.), material (physical-çıkartılabilir) resources (the abundance, quality, approachability and cost of the state's land, water etc.), knowledge resources (the state's stock of scientific, technical and market knowledge bearing on goods (products) and services. Information resources universities, government research institutes, government statistical agencies, business and scientific literature, market research reports, databases etc.), capital resources (the quantity and costs of capital available to fund the sector and infrastructure (the type, quality and user cost infrastructure available and affecting the competition, including the

transportation system, the communication system, mail and parcel delivery etc.) [14; 5]. Also three distinctions may be done among the factors. The first distinction divides factors into basic or advanced factors. The second distinction is between generalised and specialised factors. The third distinction is whether the factors are inherited (such as location or natural resources) or provided by the nation. Advanced, specialised and created factors provide more sustainable advantages than basic, generalised or inherited and are necessary to achieve sophisticated forms of competitive advantage [15; 16]. Advanced and specialised factors, on the other hand, are regarded as being a more decisive and sustainable basis for competitive advantage [3].
Competitive advantage are dependent on how efficiently and effectively the factors are used and the "condition" of these factors (the quality, significance and even shortage) is more important than the subsidy and cost of them because it is admissible that easy access to big quantity of factors results in a kind of "inefficiency" of their usage. More over, if other three dimensions are in a favorable position for a sector, the pressure of competition would be (maximum and the firms are committed to exist in the sector, this scarcity shortage of factors could be (productive only if firms take the notify of this shortage well [17].

2.1.2.Demand conditions
Porter (1990) suggests that the demand conditions which indicate the nature of home demand formed the second broad determinant of national competitive advantage [18]. This is one of the most interesting dimensions as it relates to the nature of consumers in the home market [19]. Demand conditions are the pressures based on buyers' requirements about quality, price, and services in a particular industry [7]. Demand conditions affect the forming of certain factor conditions. They have effect on the pace and direction of innovation and product development [5]. For instance, Japanese car buyers exert strain on Japanese car makers with regard to high quality standards impelling them to develop the quality of their goods, operations, and activities, which in turn makes ready the whole industry to compete internationally [7].
Demand conditions are values of demand by the society for a unit's research and can be understood in a unit's success at publishing research and attracting funding and people to guarantee research [12].
The combination of demand conditions is showed by three main characteristics that are important to gaining national competitive advantage [13].

1.Home Demand Conditions: There are three characteristics of the composition of home demand: segmented structure of demand, sophisticated and demanding buyers and anticipatory buyers needs. Nations achieve competitive advantage in sectors or in sector parts where the home demand provides native firms a clearer or earlier picture of buyer demands than foreign competitors can have (Tuna, 2006: 8). This will make the industry(sector) ready to compete internationally in next levels [7].

Porter (1990) argues that the sophistication of demand is much more significant than the size of demand. When a sector operates in a sophisticated and demanding domestic market it is compelled to innovate and sell better goods because the market needs high quality [18].

2.Demand Size and Pattern of Growth: Size of home demand, number of individual buyers, growth rate of home demand, early home demand and early saturation. Porter argues that home market size is an advantage if it stimulates investment and reinvestment or dynamism [13]. The existence of a number of individual buyers in a nation produces better surroundings for innovation than is the situation where one or two customers command the home market for a goodsor a service [14]. The rate of growth of investments in a sector is to a large extent a mission of how quickly it's home market is developing [16]. Early home demand helps local firms to action sooner than foreign rivals to become established in a nation. Also early saturation, the early penetration supports native firms to become constituted [13].

3.Internationalization of Domestic Demand: Mobile and transnational local buyers and influences of foreign need. If state's buyers for goods or service are mobile or a transnational firms, an advantage occurs for the state's companies as the home buyers are also foreign buyers [14].

About the "demand condition", Porter suggets that although, at any rate, a minimum quantity of home demand is required to improve the sector to expand and develop, but the quality of this demand is more significant than the amount of that. By quality of demand, basicly, Porter means how complex are features and specifications that customers (principally home buyers) expect [17].

2.1.3.The related and supplier industries

The existence of related or supplier industries in a nation is argued as the third dimension of diamond model [16]. The presence or absence in the nation of related industries and supplier industries which interact (both horizontally and vertically) with the target sector is a basic factor [14; 17]. Until the mid-1980s for instance, the technological leadership in the U.S. semiconductor industry supplied the basis for U.S. achievement in personal computers and several various other technically advanced electronic goods. In a broad view, Porter accepts that examples of all over the world show that it is approximately unthinkable to find only a single successful industry(sector) without strong and challenging supportive and related industries [17]. The relationships among these clusters of industries are crucial to the success of a determined sector within a nation as "they operate learning, innovation and competitiveness, and are thought about put together the maximum synergies when all requisite institutions necessary to operate learning, innovation, and competiveness and economic agents are linked up [20; 2]. However, it is possibly unrealistic in a developing country setting to e look for all sectors that are related to one internationally competitive sector to be competitive as well [3].

Related industries are those in which organizations can organize or allocate activities in the value chain when competing, or those, that produce complement goods [15; 13]. They are those that are some buyers, building factors and/or technologies in general [17]. The supplier industries creates potentials for comparative advantage by producing inputs, providing new methodologies and opportunities to utilize new technology, transferring of knowledge, innovations, etc. [13]. The presence of related industries often results in new competitive industries, and offers opportunities to informational and technological exchange [15].

Competitive advantage in supplier industries gives potential competitive advantage to firms in many other sectors in several ways. First, the firms have effective, rapid and early access to the most cost efficient input [16]. These sectors offer cost-effective inputs, but they also take part in the upgrading process, thus encouraging other firms in the chain to innovate. Second, even more important are the opportunities of continued co-ordination between supplier and buyer industries, regarding innovation and upgrading processes [16]. The close proximity of related industries provides a faster reply to market trends and changes, and make quick innovation easy. This confirms available access to the raw materials and abilities required to make advantage through either low costs or differentiation [18]. Third, competitive advantage occure from close working relations among supplier and buyer industries [15; 16]. When native supporting industries are competitive, firms take advantage of more cost efficient and innovative inputs. This effect(result) becomes more reinforced when the suppliers themselves are powerful and important global rivals [5].

Related and supporting industries, directly or indirectly related to many different sectors and a sector which covers all the players and are a clustering of the industry. Clusters are inter-related firms and other enterprises that manage the competitiveness of a determined sector (e.g., private enterprises of varying sizes, associations, suppliers, customers, universities, financial institutions, training and other business service providers, and other groups). Nation successful industries(sectors) are usually linked through vertical (buyer/supplier) or horizontal (common general buyers, technology, channels, etc.) bases. Vertical clusters create high quality, while the horizontal clusters create highly competitive firms. Porter argues that the advantage of both supportive and related industries counts on the rest of the "Diamond", and its systematic character [7].

2.1.4.Firms' strategy, structure and rivalry

Three basic parameters of sector are covered in the forth dimension of this model as "firms' strategy, structure and rivalry". Porter suggestes that the strategy of firms, the structure of industry and the rivalry have effects on the competitiveness of the sector [17]. Firms' strategy, structure and rivalry get hold of the hardiness of home competition. Whether a sector is extremely competitive domestically will affect the rise in productivity required to compete internationally [7].

Firms' strategy, structure and rivalry are measures of situations that explain how a sector is originated, systemized and managed and the nature of domestic competiton that could support a nation achieve a sustained competitive advantage [18; 21; 16; 14]. Porter attemptes to list some non-economic factors (such as traditions and values that affect the motivation of companies for getting into the sector and the impact of spatial proximity in this dimension [17]. The aims, strategies, politics and methods of organizing companies in sectors vary widely among nations and there is not a unique business system that is universally suitable. National advantage emerges from a good harmony between these selections and the sources of competitive advantage in a specific sector [14]. Porter suggests that domestic competition and the look for competitive advantage within a region can help supply organizations with bases for succeding such advantage on a more global scale [5].

In the global competition the rivalry is very important if successful companies compete energetically at home and constrain each other to develop and innovate [22; 14]. The pattern of rivalry has effect to the process of innovation and the final plans for international achievement [13].

The way in which firms are managed and prefer to compete and innovate is influenced by national conditions. Cultural aspects play an important role. As most significant national diversities in business practices and approaches can be put into words: the training, backstage and the orientation of leaders, management manner and structures, hierarchic style, decision deciding, the relationship between work and management, working morale, relationship with the consumers or interactions between companies. These national diversities make advantage and disadvantages in competing in different categories of sectors [5; 13]. Typical corporate aims and goals in relation to models of commitment among employers are of special unique importance. They are hardly affected by systems of ownership and control. Family-based business that are controlled and managed by owner-managers will act differently than publicly quoted [5].

2.1.5.State

Apart from these four, Porter argues that there are two extra determinants that can importantly affect the national system. The first variable is the government effect and the second one is chance events (whether positive or negative effects that can not be checked by the sector). Two additional determinants, which are government and chance, are necessary to make the model complete [16]. They are very significant parts that complete the "diamond" and the theory [14]. Even though the chance and the role of the government in the "Diamond" model are introduced as additional variables [6] their role especially the government role is very important and has significant straight affect to all of the main four determinants [13]. They are exogenous to the diamond but have the capacity to influence its function and dynamic [18].

The Role of Government, all the policies and regulations made by policymakers at all levels of government (but particularly federal) can benefit or adversely influence the competency of a country and an industry [7]. Therefore the government improve or damage the national competitive advantage and effect the competitiveness [16]. Government as an considered actor can play crucial role in this diamond. "Catalyst" and "Challenger" are regarded as the centers of these roles [17]. Its role is recognised most clearly by analysing how policies effect each of the variables [14]. In fact, the government forms and affects the situations in the demand and factor conditions, as well as to the related and supported industries and the firms' strategies, structure and rivalry [13]. There are many policies that can impact each of the determinants in different ways. For example, subsidies, taxes, financial incentives, education policies, public procurement, antitrust laws, quality standards, capital market regulations etc. [17]. Antitrust policy (prevents the companies from unfairly controlling prices) affect domestic competition; regulation can change demand conditions; investments in education can alter the factor condition; Government acquisitions can encourage related and supporting industries [14]. A government that is working to decrease bureaucratic red tape and help the process of opening a new business will stimulate the entrepreneurial spirit. Similarly, government encouragement of joint ventures with foreign firms will help the transfer of technology [7]. On the other hand, some policies implemented without consideration of their outcome and impact can have opposite and undermining impacts on the national advantage. A paternalistic government that protects indigenous firms from foreign firms is not encouraging improvements in productivity or quality. Therefore, when the free market does take place, these firms are not prepared for that challenge [7]. It is evident that the impact of the underlying determinants of national competitive advantage can be either positive or negative, and the national competitive advantage will fail if the government policy remains the only source of competitiveness [14].

In this model, government has to prevent from any "direct"treatment in the market system, but should seek to develop competitive environment, and encourage companies to innovate [17].

2.1.6.Chance

Porter regards the chance events as matters that have little to do with situations in the nation [13]. Chance events are usually improvements outside the control of the companies [16]. Chance events are regarded by definition as beyond the control of firms(companies) but may make forces that remold the sector structure, allowing shifts in competitive position [3]. Namely, such events avoid the advantages of previously constituted rivals and make potential that a new nation's companies can replace them to succeed competitive advantage in response to new and different conditions [13]."Chance" is composed of factors (mainly external to the sector) that are not well foreseen and (almost influenced by sector) such as new inventions, political decisions by foreign governments, wars, rapid changes in financial markets or exchange rates, surges of world or regional demand, discontinuities in input costs, other radical technical changes (biotechnology and microelectronic) [17;13; 14]. For instance, the heightened border security, resulting from the September 11 terrorist attacks on the US undermined import traffic volumes from Mexico, which has had a large effect on Mexican exporters [7].

3. RESEARCH METHODOLOGY

he purpose of this study is to find out the main factors which affect the competitiveness of the sectors. For this purpose, the well known model in the literature developed by Porter was used. Porters' diamond model creates a structure that determines the rules of competition, and when we examined studies about the diamond model in literatur we saw that by using Porters' model Sun and his colleaguse (2010) provided a new model arguing that four variables of the diamond model (the factor conditions, the demand conditions, the related and supportive industries and the government) affect the competitiveness factor. In their model competitiveness factor was used as a variable of firm strategy, structure and competition of the dimond model. Thus, the main aim of this study is to test whether there is a significant influence of the variables (factor conditions, demand conditions, the related and supportive industries and the government) in diamond model which was developed by Porter on competitiveness. So we inspired by the work done by Sun and his colleagues (2010) on the basis of the Porter's diamond model. We developed a new model to test the impact of diamond model variables on the competitiveness and made a research in the basic industries operating in Kahramanmaras. By doing statistical analyses we tried to uncover the relationship between the variables of diamond model and competitiveness of the sellected sectors to describe the current appearance of these industries in Kahramanmaras. To reveal the competitiveness position of the main variables affecting the industry and to make recommandations about what can be done on behalf of the sector's competitiveness for increasing the power of industries are also the purposes of this study.

To test the model developed for this article and measure the competitiveness of the main sectors of Kahramanmaraş and to attain the results of the research both primary and secondary data collection methods were used. Primarily, the main sectors and branches of these main sectors have been identified by the information taken from Kahramanmaras Chamber of Commerce and Industry. Accordingly, the textile, food, metal kitchen equipment and jewelry took over the main sectors of Kahramanmaras and competitiveness of these four main sectors was analyzed separately. After the list of the companies operating in sectors have identified, the research data was obtained by using the questionnaires as the data collection method.

Questionnaire is an important tool to gather fast, reliable and a systematic data. Parts of the questionnaire was derived from related literature. Questions or items asked in the questionnaire was designed as structured questions, the semi-structured questions, and unstructured questions. Structured questions were prepared in the light of basic factors and sub variables of the Diamond Model. Employees' ideas and views related to the sectors were asked with the unstructured questions of questionnaire.

A Likert scale was applied as a measurement scale of choice. Respondents are asked to evaluate their expectations on a five-point scale ranging between degrees of strongly disadvantage and strongly advantage with a neutral point in the middle.

Questionnaire questions were applied to the upper, middle and lower level managers and owners of the company. While some questionnaires were applied face to face, some were given up to the companies for a certain period and taken again. Although 350 questionnaires sent to companies operating in the main sectors in Kahramanmaras, the number of questionnaire replies was 278.

As the secondary data collection method, written and visual resources (sectoral reports, related internet resources, scientific articles) were investigated.

4. VARIABLES AND RELIABILITY ANALYSIS

Variables related to Porter's diamond model of factor conditions, demand conditions, firm strategy, structure and rivaly and related and supportive industries were determined as sub-variables in the study. In addition, an external factor of the model affecting other factors and also affected by them, the government was determined as one of the other sub-variables. Sub-Variables in the questionnaire are presented in the Table 4.1.

Table 4.1. Sub-Variables

Number Of Employees
Employees' Capabilities
Employees' Costs
Availability Of Raw Materials
Quality Of Raw Material
Cost Of Raw Material
Geographic Location
Scientific And Technical Information About Products And Services
Total Capital Stock
Capacity Utilization
Technology
Communication Infrastructure
Logistics
Energy
Knowledge Level Of Domestic Customers About Products
Structure Of Domestic Demand
Size Of Domestic Demand
Qualification Level Of Domestic Demand
Preference Level Of Domestic Demand To Your Products In Terms Of Origin And Brand
Knowledge Level Of Foreign Customers About Products
The Changing Level Of Total Demand İnto The İnternational Demand
Neighboring Countries' Share In Foreign Demand
Impact Level Of Cultural Diversity On Products
Qualification Of Suppliers
Sophistication Of Suppliers
Competitiveness Of Suppliers
Relations With Public Authorities And Institutions
Relations With Civil Society Agencies
Creation Level Of Their Own Civil Society Agencies
Level Of Active Work Of Relevant Civil Society Organizations For The Development Of Sector
Relations With The University
Relations With Research And Development Institutions
Development Level Of Common Product With The Other Organizations In Sector
Level Of Common Marketing Studies With The Other Organizations In Sector
Development Level Of Common Employee With The Other Organizations In Sector
Level Of Common Purchasing With The Other Organizations In Sector
Proficiency Level Of The Sector Related To Organization Of Natural And International Fair Compared With The Leader Nation
Level Of Institutionalization Of Your Company
Applied Strategies
Level Of Competition Between Local Competitors In Terms Of Your Industry
Firm Image
If Companies In Your Industry Have A Certifiticate, Level Of These Certification (ISO, TSE, Etc.).
Innovation Level
Structure Of SME
Service Efficiency Level After Sales
Formal And Informal Rules Affecting Relations Between Companies (Code Of Business Ethics, Business Ethics, Mutual Trust Etc.)
Social Security Payments
Corporate Tax Rates - Taxes
Value-Added Tax
Incentives
Legislation(Bureaucracy And Control)
Informality (Informal Economy)
Exposure Level Of Companies In Your Industry For External Relations Of The Government (Political And Commercial)

Factor analysis was performed to detect the basic variables of Diamond model using these sub-variables in the questionnaire. Exploratory and confirmatory factor analyses were used.

KMO and Bartlett test results as a result of the analysis, eigenvalue statistic induced factors, ratios of variance explained, factor loadings and reliability values are shown in the tables below.

Table 4.2.KMO and Barlett Test Results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,920
Bartlett's Test of Sphericity	Approx. Chi-Square	7352,795
	df	903
	Sig.	,000

KMO test is 92% as shown in the table and this value is greater than 50%. So, it can be said that the variables are in an appropriate structure for the factor analysis. Also the result of Bartlett test was a significant. This means that there is a high correlation between variables and is suitable for factor analysis.

Table 4.3. Eigenvalue and Percent of Variance Explained

Factors	**Total**	**Percentageof Explained**	**Varia Cumulative Percent**
Factor Conditions	6,638	15,438	15,438
Demand Conditions	4,576	10,641	26,079
The Related and Supportive Industries	4,470	10,394	36,473
Competitiveness of the Industry (The Firms' Strategy, Structure and Rivalry)	4,040	9,396	45,869
Government	3,833	8,914	54,784

The sum of the variances of factors is higher than 50% and this is a desirable output. The total percentage of variance obtained from factor analysis of the study is found to be 54.784. This rate is higher than 50% so it is found valid for the analysis.

Table 4.4. Factor Loadings of Variables and Reliabilities

Factors and Sub-Variables	**Factor Loadings**	**Cronbach's Alpha**
Factor Conditions		
Technology	,728	
Communication Infrastructure	,701	
Size Of Domestic Demand	,643	
Logistics	,642	84,4
Structure Of Domestic Demand	,621	
Energy	,620	
Scientific And Technical Information About Products And Services	,516	
Availability Of Raw Materials	,469	
Capacity Utilization	,439	
Demand Conditions		
Exposure Level Of Companies In Your Industry For External Relations Of The Government	,722	
Service Efficiency Level After Sales	,697	
Structure Of SME	,655	82,9
Legislation(Bureaucracy And Control)	,616	
Knowledge Level Of Foreign Customers About Products	,522	
Preference Level Of Domestic Demand To Your Products In Terms Of Origin And Brand	,454	
The Related and Supportive Industries		
Level Of Common Marketing Studies With The Other Organizations In Sector	,891	
Development Level Of Common Product With The Other Organizations In Sector	,883	
Level Of Common Purchasing With The Other Organizations In Sector	,864	93,5
Development Level Of Common Employee With The Other Organizations In Sector	,850	
Creation Level Of Their Own Civil Society Agencies	,674	
Level Of Active Work Of Relevant Civil Society Agencies For The Development Of Sector	,666	

Relations With Civil Society Agencies	,647	
Proficiency Level Of National And International Fair Regulation Level Of The Sector Compared With The Leader Nations	,553	
Relations With Research And Development Institutions	,521	
Relations With Public Authorities And Institutions	,495	
Relations With The University	,447	
Competitiveness of the Industry (The Firms' Strategy, Structure and Rivalry)		
Applied Strategies	,675	
Level To Come To Local Demand To International Demand	,592	
Sophistication Of Suppliers	,556	
Neighboring Countries' Share In Foreign Demand	,526	
Level Of Competition Between Local Competitors In Terms Of Your Industry	,519	85,7
Firm Image	,519	
Qualification Of Suppliers	,497	
Competitiveness Of Suppliers	,483	
Level Of Making Innovation	,442	
If Companies In Your Industry Have A Certifiticate, Level Of These Certification (ISO, TSE, Etc.).	,436	
Government		
Social Security Payments	,726	
Value-Added Tax	,671	
Corporate Tax Rates – Taxes	,669	
Incentives	,559	80,8
Employees Costs	,507	
Cost Of Raw Material	,472	
Formal And Informal Rules Affecting Relations Between Companies (Code Of Business Ethics, Business Ethics, Mutual Trust Etc.)	,472	

Reliability of the basic variables resulting from factor analysis was measured with Cronbach's alpha values widely used in the literature [23; 24]. The entire value of the variables defines as an acceptable level because Nunally (1978) stated that reliability as low as .70 is acceptable in basic research [25].

5. RESEARCH MODEL AND HYPOTHESES

The aim of this study is to identify the relationship between the competitiveness and the variables of Porter's Diamond model (namely, the factor conditions, the demand conditions, the related and supportive industries and the government) and to develop an integrative model to describe this relationship.

First, sample characteristics were analyzed along with descriptive statistics. After that, linear regression analysis method was used. A regression model was developed to find out the effect of independent variables on the dependent variable. The information obtained in accordance with the existing literature [8], hypotheses have been developed for analysis. Independent variables of the model describe diamond model (the factor conditions, the demand conditions, the related and supportive industries and the government) that affect the dependent variable (the competitiveness factors). The research model and hypotheses put forward by providing theoretical support related to the relationship between the determinants of Diamond Model and the competitiveness factors, as shown below.

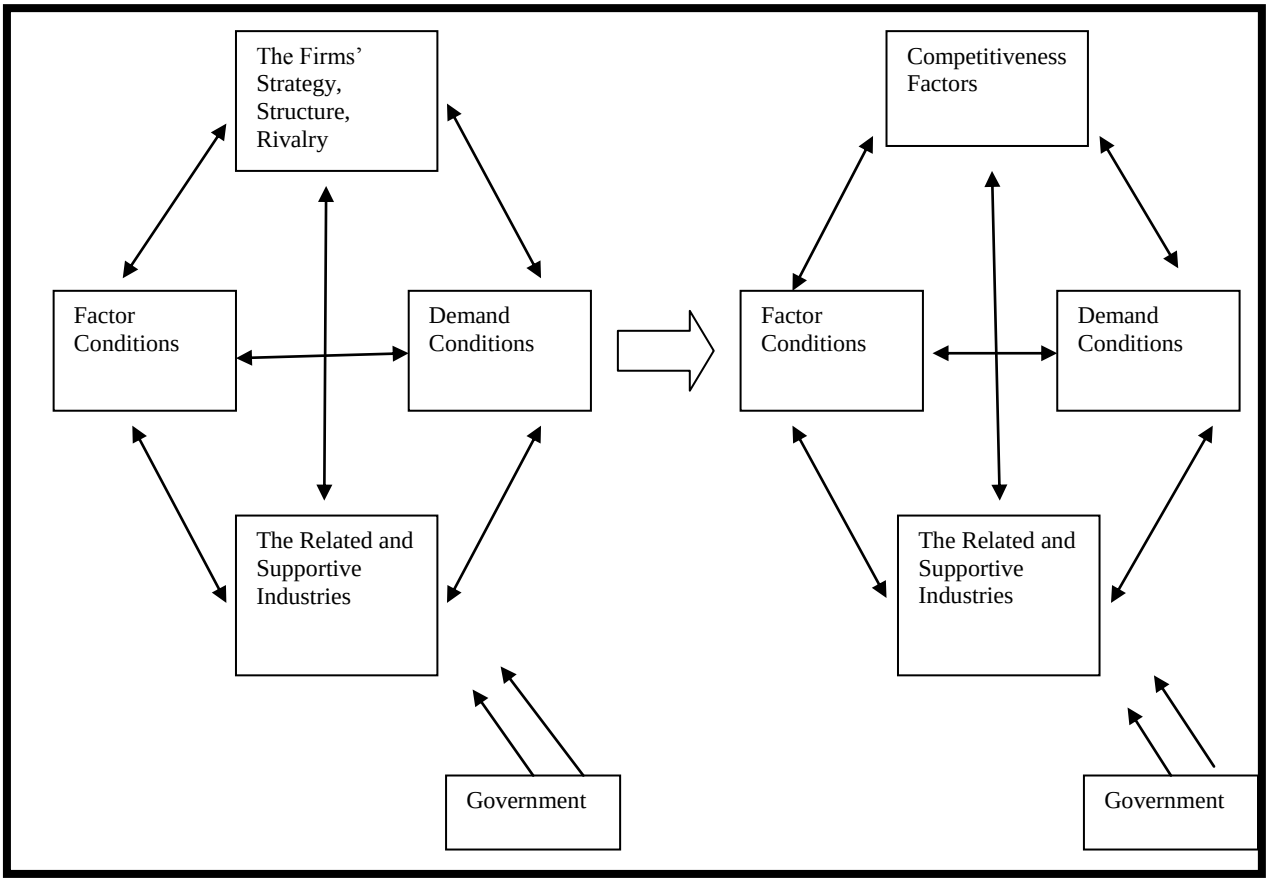

Figure 2. Research Model (Sun et al, 2010: 243).

In Figure 2 there is a model organized by Sun and his colleaguse (2010). They were inspired by the diamond model developed by Porter. In this study, a new model was developed by taking into consideration both two models. Accordingly, a new model developed and tested in this study is presented in figure 3.

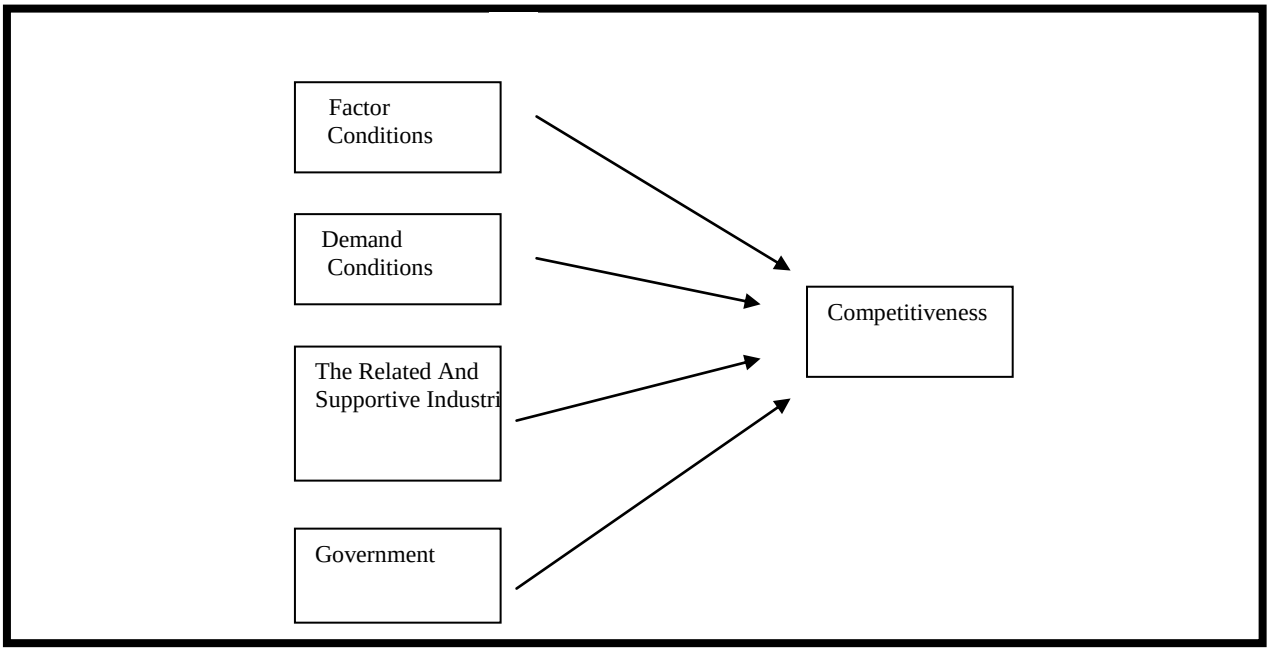

Figure 3. Research Model

According to the model in Figure 5.2, factor conditions, demand conditions, the related and supportive industries, and government have effects on the competitiveness of an industry. Therefore, the following research hypotheses were defined;

- H1:The factor condititons have a positive effect on the competitiveness of the industry.
- H2:The demand conditions have a positive effect on the competitiveness of the industry.
- H3:The related and supportive industries have a positive effect on the competitiveness of the industry.
- H4: The government has a positive effect on the competitiveness of the industry.

6. FINDINGS OF RESEARCH

The study begins with giving sample characteristics then leads to statistical analysis for testing the research model developed for this study. The main statistical analyses used for this study include correlations and regression analyses.

6.1. The Sample Characteristics

The first part of the questionnaire gathers information about the respondents' background. The characteristics of the respondents are described in terms of gender, age, education, time in the organization and positions at firms. The research sample consists of 239 males (86.3%) and 38 females (13.7%). Respondents' ages ranged from 19 to over 51 but the majority of the respondents (45.3%) are in the age range from 30 to 40. The respondents are distributed by education level as follows: 14% had less than secondary school, 25,9% had secondary school, 32,4% achieved a bachelor's degree and only 4% earned a master's degree. The distribution of work experience was as follows: fewer than 7 years 18.1%, 8 – 11 years 26.7%, 12 – 15 years 27.4%, 16 – 19 years 9.7%, and 20 years or more 18%. Position levels ranged as follows: lower level 6.1%, middle level 55.6%, and higher level 38.3 %.

6.2. Correlations Results

To test hypotheses, a correlation analysis was used to examine the strength of the relationships between independent variables - the factor condititons (F), the demand conditions (D), the related and supportive industries (RS), the government (G) - and the dependent variable - the competitiveness of the industry (CI). Table 6.1 contains the mean values, standard deviations, and correlations for all of the variables.

Table 6.1. Means, Standard Deviations and Correlations

Variables	Mean	SD	F	D	RS	G	CI
F	4.35	0.526	1.00				
D	4.21	0.618	0.739**	1.00			
RS	4.03	0.704	0.645**	0.783**	1.00		
G	4.11	0.795	0.585**	0.635**	0.640**	1.00	
CI	4.31	0.589	0.625**	0.767**	0.700**	0.734**	1.00

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

The results of correlation analysis show that the relationships between independent variables and dependent variable are significant at $p < .01$ level. All of the measures appeared to be relatively distinct; the largest correlation between the related and supportive industries (RS) and the demand conditions (D) is 0.783 and the lowest correlation between the government (G) and the factor conditions (F) is 0.585. Mean scores for variables are relatively high. Thus, further analyses become possible to examine the dependent variable that can be explained by independent variables.

6.3.Regression Results

Regarding the test of the hypotheses, the independent variables were entered into the regression equations. A regression analysis is used to test the developed hypotheses and investigates the relationship between independent variables and the dependent variable in the model.

6.3.1. The effect of the factor condititons on the competitiveness of the industry

The first hypothesis involves the relationship between the factor conditions and the competitiveness of the industry. This hypothesis was tested by using a regression with the competitiveness of the industry as the dependent variable and the factor conditions as the independent variable.

Table 6.2. The Relationship Between the Factor Conditions and the Competitiveness of the Industry

Variables	Standardized Coefficient	t-value	p-value
The Competitiveness Of The Industry (CI)			
*The Factor Conditions (F)	Beta= 0,625	13,246	0,000
*Model	(Adjusted R-square= 0,389)	(F=175,457)	0,000

The result shows a significant and positive relationship between the factor conditions and the competitiveness of the industry with an F statistic of 175.457 (p <.000) and an adjusted R-square of 0.389. Therefore, Hypothesis 1 (*The factor condititons have a positive effect on the competitiveness of the industry*) is supported.

6.3.2. The effect of the demand condititons on the competitiveness of the industry

Hypothesis 2 demonstrates a relationship between the demand conditions and the competitiveness of the industry.

Table 6.3. The Relationship Between the Demand Conditions and the Competitiveness of the Industry

Variables	Standardized Coefficient	t-value	p-value
The Competitiveness Of The Industry (CI)			
*The Demand Conditions (D)	Beta= 0,767	19,843	0,000
*Model	(Adjusted R-square= 0,587)	(F=1393,733)	0,000

As shown in Table 6.3, the coefficient of the demand conditions is positive and has a significant effect on the competitiveness of the industry (beta = 0.767, p < .000). Hypothesis 2 (*The demand conditions have a positive effect on the competitiveness of the industry*), therefore, is supported.

6.3.3. The effect of the related and supportive ındustries on the competitiveness of the industry

For hypothesis 3, regression analysis is carried out to test the relationship between the related and supportive industries and the competitiveness of the industry.

*Table 6.4. The Relationship Between the Related and Supportive Industries **a**nd the Competitiveness of the Industry*

Variables	Standardized Coefficient	t-value	p-value
The Competitiveness Of The Industry (CI)			
*The Related And Supportive Industries (RS)	Beta= 0,700	16,267	0,000
*Model	(Adjusted R-square= 0,489)	(F=264,631)	0,000

The results in Table 6.4 show that the related and supportive industries are related to (R^2 =0.489, p< .000) the competitiveness of the industry. This indicates that there is a significant positive relationship between these variables. Thus, we reject the null hypothesis that assumed there is no significant relationship between the related and supportive industries and the competitiveness of the industry and we accept the alternative hypothesis, H3 (*The related and supportive industries have a positive effect on the competitiveness of the industry*).

6.3.4. The effect of the government on the competitiveness of the industry

Hypothesis 4 tests the relationship between the government and the competitiveness of the industry. R-square, F value, significance of F value, standardized beta coefficients, t- values and the significance value are measured and presented in the table below.

Table 6.5. The Relationship Between the Government and the Competitiveness of the Industry

Variables	Standardized Coefficient	t-value	p-value
The Competitiveness Of The Industry (CI)			
*The Government (G)	Beta= 0,734	17,946	0,000
*Model	(Adjusted R-square= 0,538)	(F=322,063)	0,000

As can be seen from the Table 6.4, the government has statistically significant association with the competitiveness of the industry. The government has the beta coefficient 0.734 in the regression model with a relatively t value of 17.946. This result is supported by the findings of the correlation analysis. Hence, Hypotheses 4 (*The government has a positive effect on the competitiveness of the industry*) is supported.

The results of this study evince that the factor conditions (F), the demand conditions (D), the related and supportive industries (RS), and the government (G) are all significant variables affecting the competitiveness of the industry (CI).

7. CONCLUSİON

This study is done by using the diamond model which considers the competitive priorities of some sectors in a country and establishes the nations' competitiveness infrastructure. Diamond is an important model, developed by Porter, used for measuring the competitiveness of firms, sectors and countries. There is a rich literature on this model (Bulu et. al., 2006; Bulu et. al. , 2007; Eraslan et. al., 2008; Neven and Dröge, 2001; Barragan, 2005; Mehrizi and Pakneiat, 2008; Sun et. al., 2010; Watchravesringkan et. al., 2010). With a glance on the diamond model based studies, it is observed that there are a number of studies on different sectors. This review revealed a fact that the underpinning factors of diamond model have not been measured by a generally accepted scale. So, a literature review is performed in order to define the underpinning factors of the model and as a result the researchers have came up to some factors and a scale is obtained. In order to test the reliability and the validity of the new scale, a questionnaire is asked to fill in by the representatives of four leading sectors in Kahramanmaraş. The results showed that the new scale has both reliability and validity. So, this study is thought to be original and valuable as it is the first to be a preliminary measure development study on Porter's model. It is hoped to be a beneficial literary source for the latter studies. Also, this study gains more importance as it is the first to cover this topic in Kahramanmaraş context. With this study, done in the four leading competitive sectors in Kahramanmaraş, it is also aimed to find out what factors affect competitiveness of these sectors and as a result the researchers have reached some valuable information. The results have implications for the managers of the firms, both operating in the mentioned sectors and also the ones who plan to enter, in the means of competitiveness of sectors. It is also discussed that on which factors should the firms put emphasis to the factors of competitiveness in diamond model. Considering these factors some strategic implications are also derived.

By reviewing the results of this study, which is done in order to fill in the gap of literature on measuring the underpinning factors of diamond model, it is observed that the conditions of demand affect the sectors' competitiveness more than any other factors in diamond model. The secondary affective condition is the governmental one. Related industries follow these two. The last affective condition is factor condition and it is not a surprise because the competitive advantage is gained with the inimitable qualities of the firms. Hence the factor conditions of the firms are easily imitable by observing and imitating the rival firms. So, this study is valuable as it depicts strategic ways in reaching the competitive advantage and also the factors of competitiveness in Kahramanmaraş firms in the sect

8. REFERENCES

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