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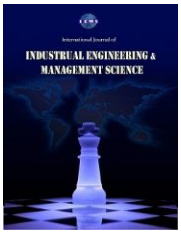

Developing an integrated distribution channel model for fast moving consumer goods manufacturing and importing companies in Iran

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2 Fast moving consumer goods
3 Grounded theory
4 Structural equation modeling

A B S T R A C T

One of the challenges facing supply chain management in Iran is the distribution system. In this regard, fast moving consumer goods are a group of commodities, which strongly require a coherent and efficient distribution mechanism. The purpose of this study was to propose a conceptual model to design a goods distribution channel for fast moving consumer goods manufacturing and importing companies in Iran based on the grounded theory. At the model design step, an open-ended interview was carried out with 19 marketing, sales and logistics experts, desired codes were extracted from the responses using open coding and finally, each of the extracted codes was assigned to a concept. After this step, the extracted concepts based on the paradigm model were assigned to different categories including causal conditions (organizational issues), pivotal issues (pivotal distribution channel issues), strategies (channel design and maintenance strategy), contextual conditions (macro environment issues), confounding conditions (micro environment issues) and consequences (functional outcomes) using axial coding, and a conceptual model was developed. At the quantitative model assessment step, structural equation modeling was used. For this purpose, a questionnaire consisting of 81 items was developed and distributed among the marketing and supply chain experts, and a total of 67 questionnaires were returned. According to the results, the relationship was significant between organizational issues and pivotal distribution channel issues; pivotal distribution channel issues and channel design and maintenance strategy; channel design and maintenance strategy and functional outcomes; macro environment issues and organizational issues and channel design and maintenance strategy; and finally, micro environment issues and channel design and maintenance strategy.

1. Introduction

In spite of the need to improve the distribution system in Iran and allocate one of the ten aspects of the overall product system transformation to goods distribution organization [1], the emphasis on this aspect is merely an overview of the relationship between manufacturing and

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distribution companies. Accordingly, distribution companies are required to operate within a regulatory framework where their performances are monitored, manufacturers and importers are obliged to supply their goods from licensed distribution companies, and also manufacturers/importers themselves are permitted to establish distribution companies. However, the process of making decisions for distribution channel design (which does not necessarily lead to the use of distribution companies or the establishment of distribution companies owned by manufacturers) has been fundamentally ignored. Consequently, one of the main areas of improvement in the country's distribution system, i.e. the implementation of a proper, comprehensive and rational approach by manufacturers for decisions and arrangements related to distribution channel design, has been neglected.

Most of the issues discussed in the form of goods distribution organization (in the economic transformation program) have been top-down and sought to improve the distribution system through institutional and organizational approaches. The fact that active manufacturing/importing companies in the country do not have a scientific and rational approach for distribution channel design is among the issues, which can challenge any success in achieving this goal. While, a bottom-up approach can be implemented by applying localized scientific data, tools and models to design distribution channels for manufacturing companies, thereby eliminating the information gap in making decisions related to distribution channel design.

Accordingly, the current study aimed to provide a model to design a goods distribution channel for fast moving consumer goods (FMCG) manufacturing/distribution companies in the country, from the time the product is ready to market to the time the product is delivered to end consumers. Since, in principle, FMCG play a more significant role in supplying everyday necessities and goods for consumers, and also have a high share of distribution indicators and activities in Iran, this study particularly emphasized distribution channel design for FMCG manufacturing companies. In fact, the intention was to attract the attention of managers in manufacturing and importing companies to take the proposed model into consideration while making decisions for good distribution channel design (from the time the product is ready to market to the time the product is delivered to end consumers) by filling the research gap in the models presented for FMCG distribution channel design and also localizing concepts and relationships affecting distribution channel design. When deciding on the design of the product distribution channel (from the time the product is ready to be marketed to the end consumer). The attempt in this research was to make the results user-friendly, applicable to real cases, comprehensible by decision makers, easy to adapt and comply with changing needs, and generalizable to a wide range of distribution issues. It should be noted that the current research on FMCG mainly focused on dairy products, cereal products, edible oils, sweets and chocolates, beverages and other similar products.

The structure of the study is as follows: In section 2, the theoretical foundations of the research are briefly discussed. In section 3, the methodology along with model design and assessment details is described. The results of the model design and assessment process are presented in section 4 and discussed in section 5. Finally, the study is concluded in the section 6.

2. A brief Review of the Theoretical Foundations

Due to the dearth of organized and comprehensive research on the subject of the present study, this section provides a brief review of the theoreticaal foundations of the research including

background on FMCG industry and some empirical studies related to distribution channel design for such goods.

2.1. Fast moving consumer goods (FMCG)

FMCG, also called consumer packaged goods, are all types of commercial goods that are manufactured in high volume at low cost and should be sold quickly. A large number of factory-manufactured goods fall into this category and are commonly found in every home. One of the main characteristics of the goods in this category is their consumable nature; such goods often have a short expiration date and consumers are sensitive to their manufacture or expiration date. These types of goods, which are fast moving and less expensive compared to other goods, are known as FMCG [2]. Examples of FMCG include a wide range of consumer goods such as hygiene products, soaps, cosmetics, oral hygiene products, shaving products and detergents, batteries, paper items and disposable plastic supplies. Pharmaceuticals, consumer electronics, packaged foods, non-alcoholic beverages, tissues and chocolate are among other FMCG examples [3]. All the above goods are bought for consumption in a short period of time and are then replaced with goods of similar kind as they are either finished or obsolete. In some categories, even electronics, such as cell phones, notebooks, digital cameras, etc., are classified as a sub-category of FMCG. In the UK, for example, even items such as TVs, refrigerators and stoves are included in the FMCG category. In many companies around the world, FMCG distribution is a serious problem affecting the sales revenue [4]. FMCG manufacturers typically use retailers to deliver their goods to end consumers and as a result of balancing power in distribution channels, powerful brands such as Wal-Mart, Sainsbury's, Mark and Spencers, and Tesco emerged. Due to their vital role in the supply chain, these organizations are among the main forces driving changes in the FMCG supply chain and often provide incentives that have a great impact on the performance and decision making process of manufacturers. For instance, Wal-Mart asked its top 100 suppliers to use the RFID system, and given the company's strength, they complied with the request. Despite having high sales volume and monetization potential, FMCG are often under intense competition pressure. For this reason, companies operating in this field are doing their utmost to achieve a balance between profit and price. This has led companies to continuously face challenges and issues surrounding product profit margins [5]. One of the key factors for FMCG manufacturing companies to achieve the best possible performance can be the establishment of a proper distribution channel. If the distribution channel of a particular FMCG manufacturing company is well designed and activated, it will be much easier for the company to enter and operate in the market, although it is necessary for companies to invest heavily in development and establishment of their own distribution channels [4]. For these reasons, today, there is a growing trend toward product diversification and shortened delivery cycle among FMCG manufacturers; therefore, manufacturers seek to better coordinate their manufacture and distribution activities to avoid overstocking in the manufacturer's or distributor's warehouse. As a result, companies use the notion of production planning and distribution scheduling as separate islands in a comprehensive planning approach involving supply, production and distribution sectors [6].

2.2. Distribution Channel

A distribution chain is also referred to as distribution network, distribution pipeline, marketing channel, market channel and trade channel [7]. There are many definitions for marketing channel, which are elaborated as follows:

- According to [5], a distribution channel is a system that helps supply products from manufactures to end consumers. Companies use distribution channels to ensure their end customers and consumers have access to their products at the right time and place. Distribution channels also include intermediary organizations that assist the process of supplying and delivering products to end consumers.
- Physical distribution includes those business activities that deal with delivering finished goods to the chosen location when needed and feasible.
- A definition is provided by [8]: an external organization that manages activities and operations related to achieving distribution goals. Hence, distribution channel management is a concept beyond the organization's boundaries.
- According to [9], a distribution channel is a set of interdependent organizations that are responsible for delivering goods or services to the consumer or industrial user.
- The American Marketing Association defines a distribution channel as an organized network of institutions and brokers that work together to carry out all activities needed to connect manufacturers with consumers to perform marketing tasks [10].
- A distribution channel is also defined by [7]: one or more companies or individuals involved in the flow of goods and services from manufacturers to end consumers or customers.
- [11], while referring to the dual nature of a distribution channel, in one sense, considers it a way for the simultaneous support of goods and services along with the change in value, and, in another sense, has defined it in the form of a chain of intermediaries involved in the flow of goods and services. Hence, it can be assumed that a distribution channel is a linear and consistent path, through which goods and services are delivered from manufacturers to consumers with the help of intermediaries as organizations responsible for providing services related to the purchase and sale of goods and their delivery from manufacturers to consumers.
- Distribution channels are networks of interconnected entities that are responsible for performing multiple roles, processes, and tasks in order to provide sufficient services and goods in the market [12].
- In Ostra's opinion, the way in which goods and services are delivered from manufacturers to end consumers through marketing intermediaries (such as wholesalers, distributors and retailers) is generally called a distribution channel. Distribution channels lead to downward values by delivering finished goods to end consumers. This may involve the actual physical movement of the product or merely the transfer of ownership to the customer. Distribution chains are also referred to as distribution network, distribution chain, distribution pipeline, marketing channel, market channel and trade channel [7].

In addition to the definitions provided above, other research has provided additional definitions. In one such definition, distribution channels are considered as corporate networks or, in other words, superorganizations. These channels can be defined as a way to lead the flow of goods and services from manufacturers to consumers. Distribution channels, in fact, represent a network of active stakeholders in the chain between manufacturers and consumers and include various intermediaries such as wholesalers and retailers that show the delivery path of goods from manufacturers to consumers. The purpose of using these channels is to bridge the gap between production and consumption locations by providing temporal, spatial, and ownership preferences [13].

2. 3. Experimental evidence from the fast-moving consumer goods distribution network

An investigation was run in [14] on the distribution strategies adopted by different companies in their concerned markets as well as on the distribution of their products (with an emphasis on

cosmetics products). This study aimed to identify different distribution strategies adopted by companies and to detect the factors influencing each of these strategies. The findings indicated that most companies had been obliged to resort to strategic marketing and distribution strategies in order to sell their products and yield the expected profit margins. The selection of a right distribution channel has been a key issue in ensuring that there is a proper return on capital and a smooth distribution of products among consumers. Additionally, the companies should also employ modern technologies to improve the distribution of their products. This technology could include phoning, internet, and online catalogues along with the use of carriers to transport products to consumers. In [15], it was suggested that the presence of many companies in the target market leads to increased competition, making it more difficult to effectively distribute the products of a company without relying on the distribution channel. A study carried out in another context in 2016 described the distribution channels of the fast moving products manufacturing companies and illustrates the procedure of transferring products from producers to end consumers. In addition, the framework addresses the similarities among channel members (in terms of analyzing customer needs, implementing channel objectives, identifying key channel alternatives, and evaluating the feasibility of channel objectives). Furthermore, the study covers various activities performed by channel actors, which include filling the gaps between supplier and customer, participating in scale benefits, providing and offering skills and expertise, and sharing the operational risk of the channel. It is of paramount importance to consider all these activities and similarities in order to ensure the effectiveness of the distribution network and, subsequently, the competitiveness of companies participating in fast-moving consumer goods manufacturing.

3. Research Methodology

The present study was fundamental regarding the research procedure framework in terms of orientation and applied with regard to the testing stage for the consumer goods manufacturing companies. The research used an inductive-deductive approach encompassing a combination of both quantitative and qualitative perspectives with an exploratory mixed method design. In this project, qualitative data were first collected to have an in-depth analysis of the concerned phenomenon. Then quantitative data were collected and analyzed to determine the relationship among the study variables. This method was used because of the lack of theoretical and empirical research background in Iran.

At the first step of the present study, i.e. model development using qualitative research strategy, the factors affecting the distribution channel design in Iranian fast-moving consumer goods manufacturing companies were scrutinized thoroughly, and the overall model of distribution channel design in such companies was illustrated. Then, during the model assessment phase, while applying the survey method to test the validity of the detected factors, the relationships between the variables were also examined using a quantitative research strategy.

3.1. Research population, sample, and data collection procedure

The sampling method and the population size estimation in this study could be examined in two sections: qualitative (model development) and quantitative (model testing).

3.1.1. Model development

At this stage, according to the authentic scientific and research resources, academic professors who have had an experience in teaching marketing, sales, logistics, supply chain, industrial management, and so on, expert and successful senior executives in the field of business in

well-known food, beverage, and detergent brands or distribution industries were considered as the research statistical population. These individuals as well as the other academic experts and practitioners in the distribution channel were selected using a theoretical sampling method, i.e. purposive sampling, and the researcher was to analyze and investigate the issue thoroughly by using the opinions and knowledge of the most knowledgeable individuals in this research field. In fact, this type of sampling is not random and is considered to be deliberate and judgment-oriented.

Then the sample size was determined with regard to theoretical saturation. This means that in-depth interviews with participants continued until the categories reached theoretical saturation as the following interviews added nothing new to the existing data and brought no change in the implicit relationships among the categories.

In this study, semi-structured interviews were used to collect data at model development stage. The main interview questions were raised based on the basic research questions as follows:

1. What do you think of the importance and necessity of developing an integrated distribution channel model?

2. What factors may influence the development of the distribution channel?

3. Which of these factors are under/out of the company's control?

4. Which of these factors are more important and have a direct impact on the integrated channel distribution model of fast-moving consumer goods?

5. What is the effect of each factor on the distribution channel design?

6. What processes and phases do you pass in designing an effective distribution channel?

7. What are the implications of designing an effective distribution channel?

3.1.2. Model Assessment

According to statistics presented on the website of Bureau of Statistics and Processing for the mine and industry units of the Ministry of Industry and Mines, the total number of active food and beverage industry units in Iran is more than 5500 units. Bearing in mind that the main objective of extracting an optimal and credible model is to design the fast-moving consumer goods distribution channel in the country and that all of these food and beverage units do not necessarily have acceptable high performance in terms of distribution, the statistical population should encompass companies with relatively high level of performance effectiveness in distribution.

Accordingly, in the quantitative model assessment phase, the statistical population of the study consisted of the experts and managers of the active food and beverage manufacturing companies across the country, which participated and reached achievements in the annual Conference on Distribution, Delivery, Evaluation, and Awarding. This means that the companied reached some awards in this annual event. Given that seven consecutive meetings of this annual scientific event had been held in the country, the statistical population of the research was limited to the experts and managers of companies active in the distribution and delivery of fast moving consumer goods, who were selected at this annual event (in the seven conferences held until the end of 2013), and this covered a total of approximately 140 companies (assuming that 50% of the selected were the fast moving goods distribution and delivery companies).

Structural equation modeling and partial least squares (PLS-SEM) were used for the quantitative analysis. An important feature of the partial least squares method is its efficiency in dealing with complicated problems regardless of the small sample size and there is practically no assumption about the basic data distribution (i.e. the partial least squares model is a nonparametric model) [16]. There is no exact rule for sample size in partial least squares analysis. There are studies that have examined the statistical power of structural models using small sample sizes (below 30 observations, disregarding the complexity of the structural model) and achieved acceptable results [16]. As a rule of thumb, the minimum sample size can be determined based on the following rules [16]:

1. Minimum sample size is 10 times as many as the maximum number of constructional items used to measure a structure in the model; and

2. Minimum sample size is 10 times as many as the maximum number of structural paths in a given structure of the model.

The structural model of the present study was a second-order structural model, where the items were reflective first-order and formative second-order. The maximum number of formative second-order dimension was five (corresponding to the organizational issues dimension and pivotal issues of distribution channel). Moreover, the maximum of the hidden variables describing another hidden variable in the path model (structural model) was 3 (distribution channel design and maintenance, and pivotal issues of distribution channel). Hence the minimum sample size for model assessment could be 50.

Considering the convenient sampling method, the developed questionnaire was distributed among the active companies in the field of distribution, and the required data was collected. The questionnaire consisted of 81 items and was divided into two sections: The first section contained the main research questions and the second section included the respondents' personal information. The items were scored using a Likert scale ranging from very low to very high. The questionnaire was developed by https://porsline.ir and distributed among the respondents via social media and emails. The minimum sample size for the partial least squares analysis was 50, though, 67 questionnaires were completed and returned. Excel software was used for data analysis, and Smart PLS version 3 software was also used for PLS-SEM evaluation.

4. Data Analysis

4.1. Qualitative phase of the model

After conducting a number of interviews (n=8), there were some fundamental modifications in the content of the interviews, particularly the way the questions were asked since, as the interviews were conducted, the researcher reached a better understanding of the research topic and important questions and concerns addressed in the interviewees' statements. As the investigation progressed, some questions were revised, and some new questions were added to the interviews. Regarding the grounded theory, three open, axial, and selective coding methods were used to analyze the data collected during the interviews. In the open coding phase, the main concepts that emerge during the interviews are discussed, then they are coded based on a paradigm-based model described in the grounded theory. Finally, at the selective coding phase, general and abstract concepts are presented, and the general principles of the study are identified. The result was a theory describing the integrated distribution channel model for fast moving consumer goods manufacturing and importing companies in Iran. The factors and sub-factors extracted from the coding process are shown in Table 1.

Table 1. Factors and sub-factors extracted from the coding process

Factors	Sub-factors (concepts extracted using open coding)
Organizational issues	Corporate marketing strategy
	Corporate goals
	Corporate capabilities
	Corporate restrictions
Macro environment issues	Environmental factors (legal, political, socio-economic, cultural and environmental)
	Distribution channel capabilities
Micro environment issues	Distribution operation costs
	Product specific status
	Competitors' performance in distributing similar products
	Company's performance in distributing other products in the basket
Pivotal distribution channel issues	Customer- and market-related issues
	Industry-related issues
	Competition-related issues
	Product-related issues
Channel design and maintenance strategy	Channel design process
Performance results	Corporate benefits
	Channel members' interests
	Consumer interests

The coding paradigm model was used to design the model, and the relationships among the extracted concepts were organized based on this model. Figure 1 illustrates the grounded theory paradigm model [17], and Figure 2 presents the paradigm model developed for the FMCG manufacturing and importing companies in Iran.

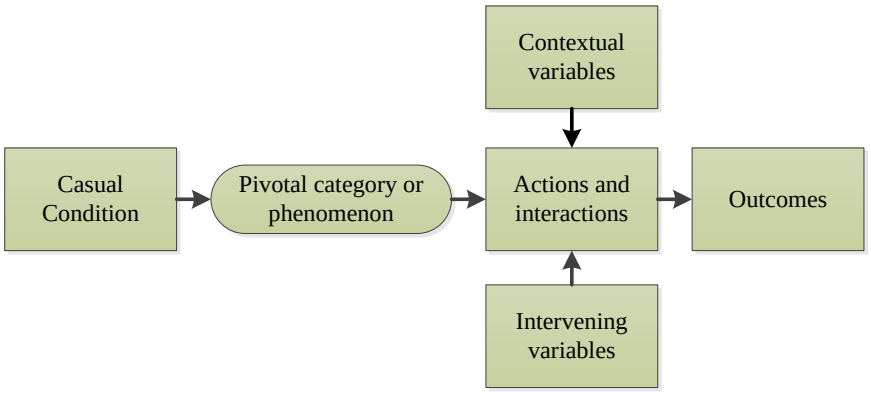

Fig. 1. The paradigm model of the grounded theory

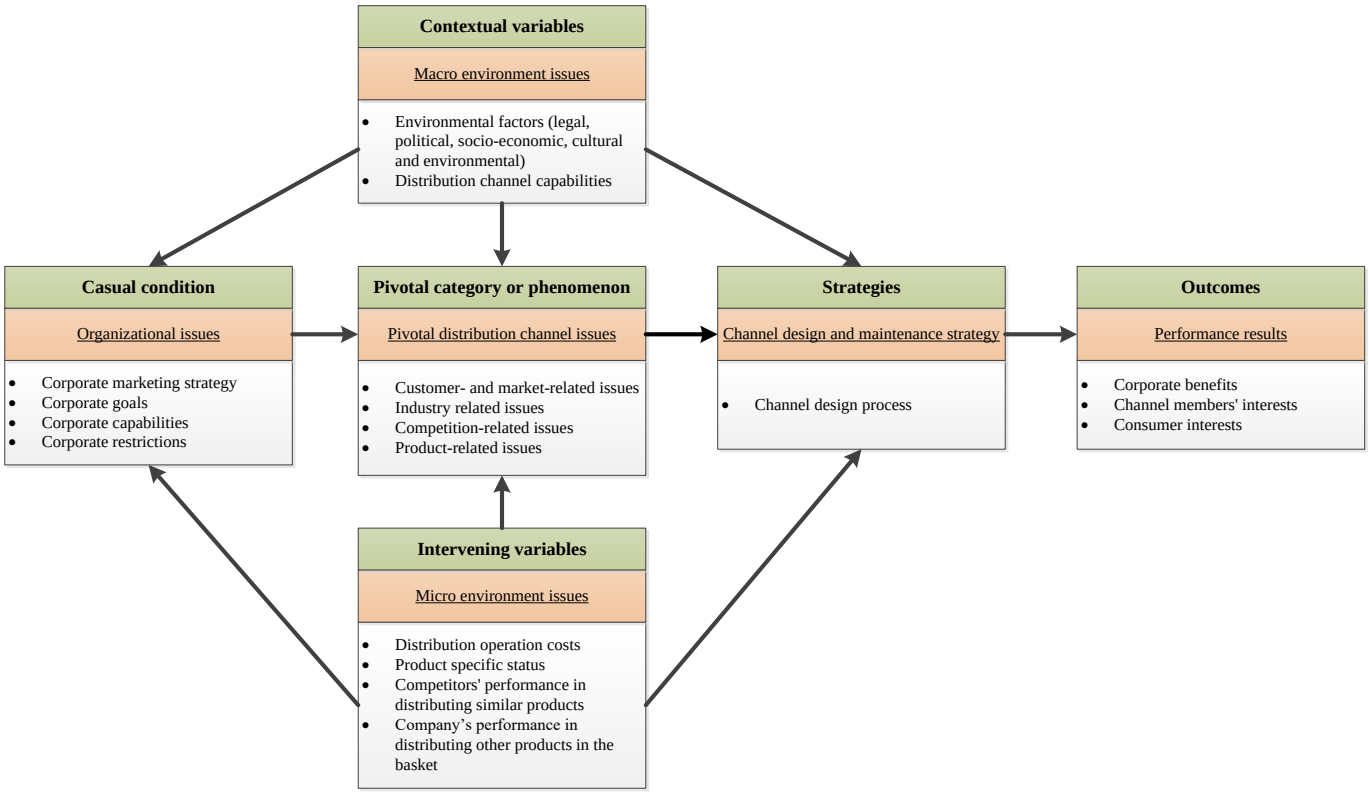

Fig. 2. The initial schematic of the integrated distribution channel model for fast moving consumer goods manufacturing and importing companies in Iran

4.2. Quantitative phase of the model

In this section, the results of the model evaluation are presented based on the data obtained from the questionnaire. The first draft of the model, as shown in Figure 2, is a two-rank structure of structural equation modeling. The factors are first-order, and the sub-factor are second-order. The model analysis process was performed in two steps: evaluation of the measurement model (relationship between questions and second-order variables) and evaluation of structural model or path analysis (relationship among first-order variables). Table 2 presents the demographic variables of the model assessment questionnaire respondents.

Table 2. The demographic variables of the model assessment questionnaire respondents

Organizational position	Specialist	Head of the section	Manager	-
Number of personnel	12	11	44	-
Work experience	Less than 5 years	Between 5 and 10 years	Between 11 and 15 years	16 years and more
Number of personnel	5	16	32	14
Level of education	Diploma and AA	Master's degree	Bachelor's degree	PhD
Number of personnel	12	14	27	14

4.2.1. Evaluation of the measurement model

The evaluation of the assessment model involves evaluating the relationships between the questions and the second-order variables as well as evaluating the reliability and validity of the model. Table 3 shows the reliability and validity assessment methods used for the assessment model [16].

Table 3. Validity and reliability assessment methods in the measurement model

Type of review	Criterion	Assessment method
Reliability	Cronbach's alpha	Above 0.7 is appropriate.
	Compound reliability	Above 0.6 is appropriate.
	Item reliability	Removing factor loadings between the item and the hidden variable less than 0.4
Convergent validity (A set of items exclusively measuring one and only one structure)	Average variance extracted (AVE)	Above 0.5 is appropriate. That is, a structure explains more than half of its items.
Diagnostic or discriminative validity (One structure is distinctive from other structures and is unique in reflecting phenomena not represented by other structures)	Cross loads	Diagnostic validity is confirmed when the load of an item is higher on its structure than on other structures.
	The Fornell-Larcker criterion	According to the Fornell- Larcker criterion, the AVE of any hidden structure must be greater than the largest squared correlation with the other hidden structures.

Table 4 shows the number of items (questions) that were removed because of disturbing the reliability or validity of the measurement model.

Table 4. Items removed during the measurement model assessment process and reasons for their deletion

Dimension	Sub-dimension	Number of deleted questions	Reason for deletion
Organizational issues	Corporate goals	1	Factor loading below 0.4
	Corporate capabilities and restrictions	4	Cross load
Pivotal distribution channel issues	Customer- and market-related issues	1	Factor loading below 0.4
	Competition-related issues	1	Factor loading below 0.4
	Product-related issues	1	Cross load

After removing the mentioned items, the diagnostic validity and reliability of the items were confirmed. The other convergence validity and reliability criteria are also presented in Table 5. As it is shown, the validity and reliability are confirmed with respect to the minimum values shown in Table 3.

Table 5. Reliability and validity assessment results

Dimension	Sub-dimension	Cronbach's alpha	Compound reliability	AVE
Organizational issues	Corporate capabilities and restrictions	0.908	0.932	0.734
	Corporate distribution strategy	0.81	0.883	0.718
	Corporate marketing strategy	0.832	0.899	0.748
	Corporate production strategy	1	1	1
	Corporate goals	0.877	0.942	0.89
Pivotal distribution channel issues	Competition status	0.758	0.861	0.678
	Customer’s behavior status	0.835	0.878	0.515
	Industry status	0.787	0.86	0.606
	Market status	0.776	0.851	0.551
	Product status	0.808	0.876	0.64
Macro environment issues	Distribution channel capabilities and restrictions	0.713	0.833	0.625
	Environmental factors and their changes	0.886	0.916	0.649
Micro environment issues	Competitors' performance in distributing similar products	1	1	1
	Demand changes	1	1	1
	Company’s performance in distributing other products in the basket	1	1	1
	Channel members’ behavior	0.859	0.934	0.876
	Product specific status	1	1	1
Channel design and maintenance strategy	Channel design and maintenance	0.867	0.906	0.661
	The purpose of distribution channel design	1	1	1
	Distribution operation costs	0.903	0.954	0.912
Performance results	Consumer interests	0.852	0.902	0.699
	Corporate benefits	0.869	0.92	0.793
	Channel members' interests	0.822	0.894	0.74

Following the second-order evaluation, the significance of the relationship between the second-order and first-order variables (dimensions and sub-dimensions) was examined. Table 6 shows the strength and significance of the relationship for the first- and second-order variables. According to this table, all the relationships are significant and meaningful.

Table 6. Results of the relationships between the first and second order variables

Relationship			Factor loading	SD	t-statistic	P values
Corporate capabilities and restrictions	<	Organizational issues	0.435	0.037	11.609	0.000
Corporate distribution strategy	<	Organizational issues	0.229	0.031	7.42	0.000
Corporate marketing strategy	<	Organizational issues	0.248	0.022	11.462	0.000
Corporate production strategy	<	Organizational issues	0.108	0.018	5.946	0.000
Corporate goals	<	Organizational issues	0.14	0.039	3.616	0.000
Competition status	<	Pivotal distribution channel issues	0.187	0.024	7.897	0.000
Customer’s behavior status	<	Pivotal distribution channel issues	0.35	0.035	9.953	0.000
Industry status	<	Pivotal distribution channel issues	0.189	0.035	5.364	0.000
Market status	<	Pivotal distribution channel issues	0.273	0.03	8.993	0.000
Product status	<	Pivotal distribution channel issues	0.244	0.038	6.495	0.000
Distribution channel capabilities and restrictions	<	Macro environment issues	0.345	0.06	5.792	0.000
Environmental factors and their changes	<	Macro environment issues	0.779	0.056	13.961	0.000
Competitors' performance in distributing similar products	<	Micro environment issues	0.214	0.026	8.112	0.000
Demand changes	<	Micro environment issues	0.23	0.02	11.329	0.000
Company’s performance in distributing other products in the basket	<	Micro environment issues	0.159	0.043	3.701	0.000
Channel members’ behavior	<	Micro environment issues	0.424	0.038	11.032	0.000
Product specific status	<	Micro environment issues	0.247	0.02	12.08	0.000
Channel design and maintenance	<	Channel design and maintenance strategy	0.651	0.031	21.226	0.000
The purpose of distribution channel design	<	Channel design and maintenance strategy	0.189	0.028	6.863	0.000
Distribution operation costs	<	Channel design and maintenance strategy	0.339	0.028	11.973	0.000
Consumer interests	<	Performance results	0.445	0.026	17.101	0.000
Corporate benefits	<	Performance results	0.343	0.019	18.347	0.000
Channel members' interests	<	Performance results	0.323	0.019	16.95	0.000

4.2.2. Evaluation of structural model

After evaluating and validating the measurement models, the structural model was concerned. In order to evaluate the structural model, the strength and significance of the relationships among the model variables were examined. After eliminating non-significant relationships, the final research model was then examined. Subsequently, the indirect relationships in the model were described and finally the explanatory powers of the independent variables in the model were estimated. Figure 3 shows the relationships among the main variables of the model in SmartPLS software.

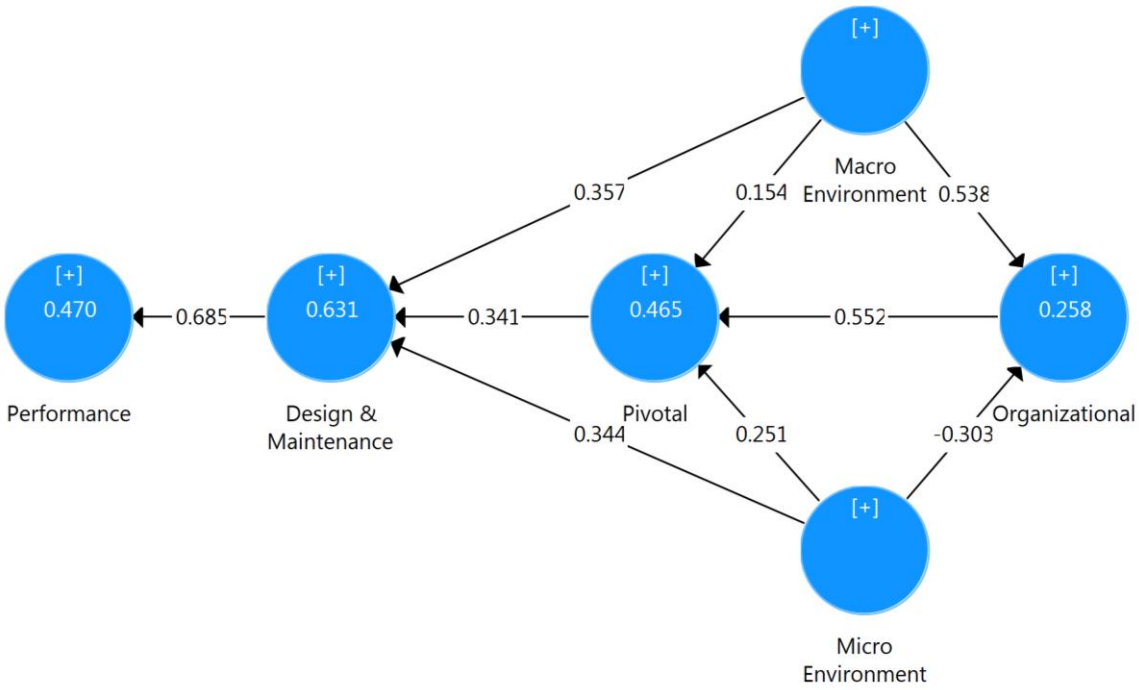

Fig. 3. Path coefficient values for the structural model (smartPLS environment)

Table 7 represents the values of path coefficients, standard deviation, and t-statistic as well as the p-value of the coefficients. As it can be noticed, there is no significant relationship between macro environment issues and pivotal distribution channel issues, between micro environment issues and organizational issues, and between micro environment issues and pivotal distribution channel issues as the p-value of these coefficients is < 0.05. These three relationships were thus removed from the model, and the path coefficients were recalculated.

Table 7. Path coefficients and parameters associated with significant coefficients

Relationship			Factor loading	SD	t-statistic	P Values
Channel design and maintenance strategy	<	Performance results	0.685	0.126	5.426	0
Macro environment issues	<	Channel design and maintenance strategy	0.357	0.164	2.168	0.03
Macro environment issues	<	Organizational issues	0.423	0.156	3.443	0.001
Macro environment issues	<	Pivotal distribution channel issues	0.344	0.175	0.883	0.377
Micro environment issues	<	Channel design and maintenance strategy	0.592	0.131	2.629	0.009
Micro environment issues	<	Organizational issues	0.341	0.178	1.699	0.090
Micro environment issues	<	Pivotal distribution channel issues	0.685	0.169	1.482	0.139
Organizational issues	<	Pivotal distribution channel issues	0.357	0.193	2.866	0.004
Pivotal distribution channel issues	<	Channel design and maintenance strategy	0.423	0.16	2.128	0.034

Figure 4 shows the path coefficient values for the structural model after removing nonsignificant relationships in SmartPLS software.

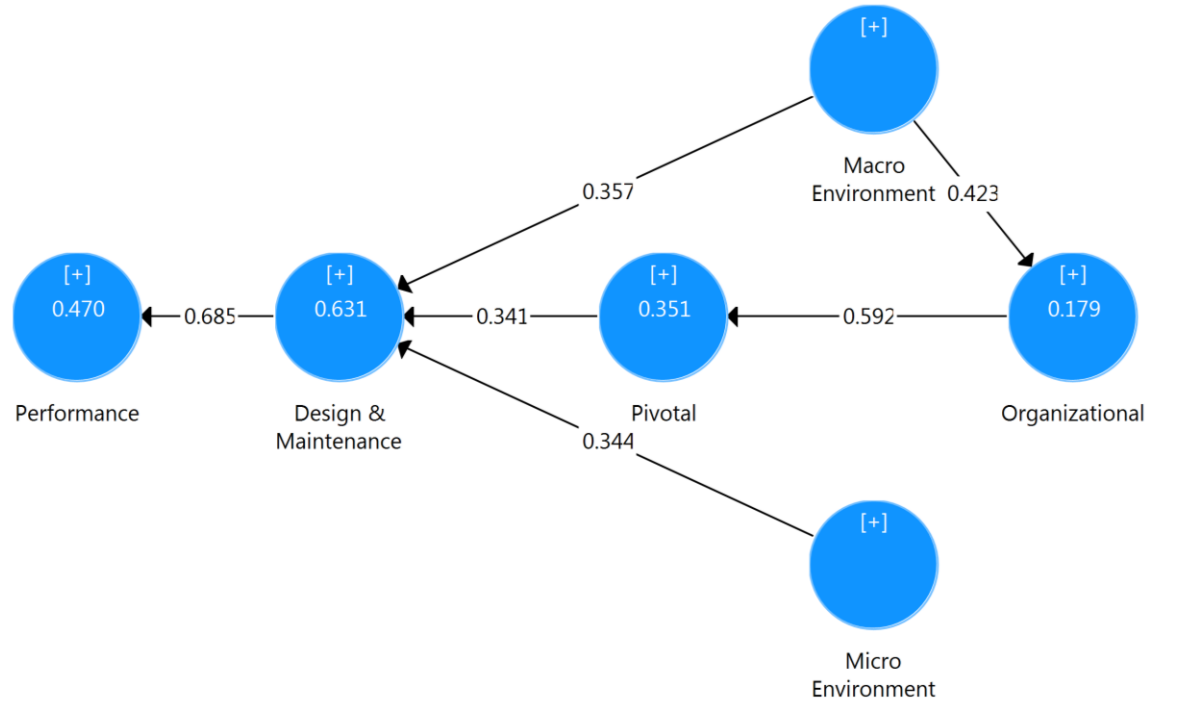

Fig. 4. Path coefficient values for the structural model after removing nonsignificant relationships (smartPLS environment)

Table 8 shows the path coefficient values and the parameters associated with their significance after removing nonsignificant relationships. As it is shown, all the relationships are meaningful.

Table 8. Path coefficient values and parameters with significant coefficients after elimination of non-significant relationships

Relationship			Load amount	SD	t-statistic	P Values
Channel design and maintenance strategy	<	Performance results	0.685	0.13	5.264	0.000
Macro environment issues	<	Channel design and maintenance strategy	0.357	0.16	2.232	0.026
Macro environment issues	<	Organizational issues	0.423	0.136	3.105	0.002
Micro environment issues	<	Channel design and maintenance strategy	0.344	0.124	2.763	0.006
Organizational issues	<	Pivotal distribution channel issues	0.592	0.16	3.714	0.000
Pivotal distribution channel issues	<	Channel design and maintenance strategy	0.341	0.165	2.073	0.038

According to quantitative evaluations, the proposed integrated distribution channel model for the FMCG manufacturing and importing companies in Iran is shown in Figure 5.

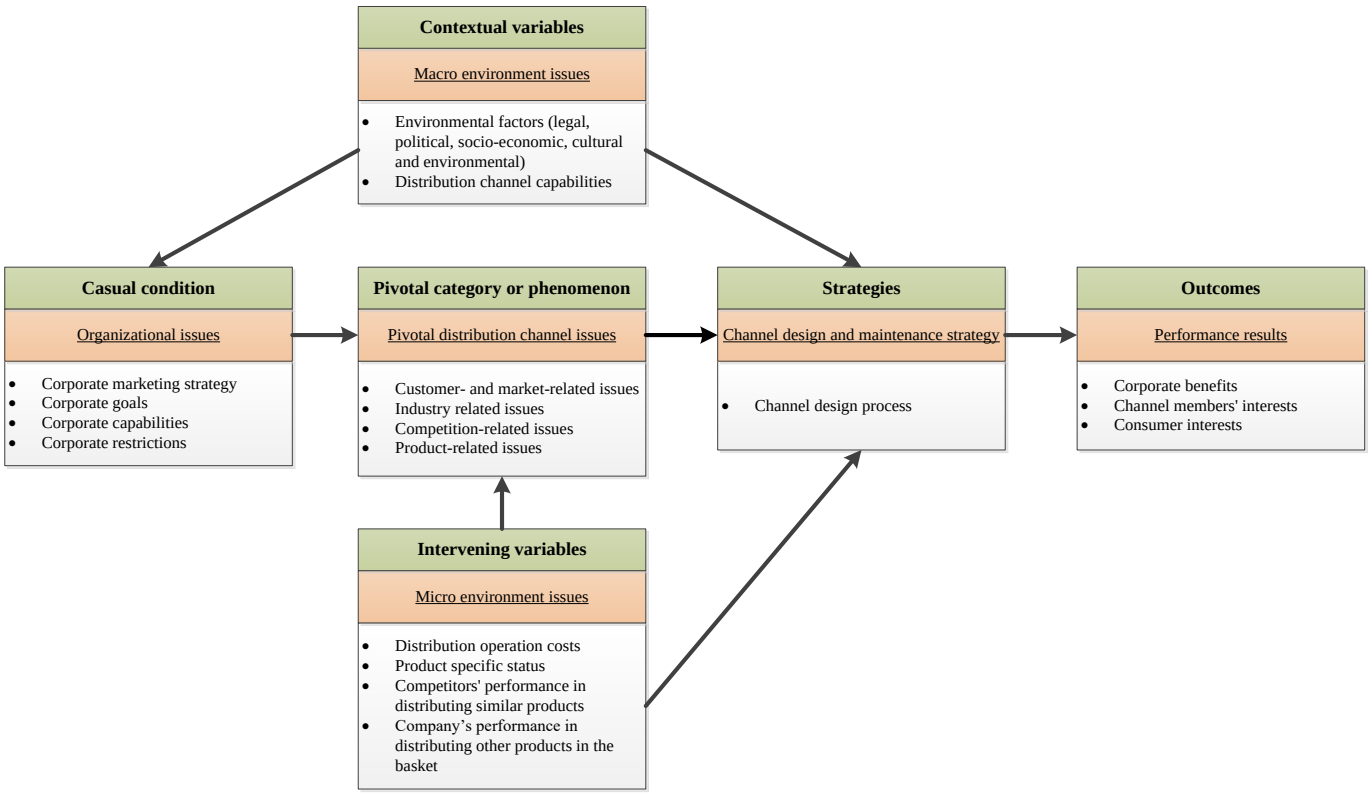

Fig. 5. The final schematic of the integrated distribution channel model for fast moving consumer goods manufacturing and importing companies in Iran

5. Management insights

Distribution channel design has been frequently addressed in the literature on marketing and has always been considered as one of the main pillars of the marketing mix. Due to the scope of the issue as well as the wide range of factors and variables affecting this area, there has always been, however, the risk of not adopting proper relevant decisions and thus disregarding the maximum capacity to examine the issue. In addition, with regard to the probability of not paying enough attention to this marketing mix component in many companies, careful and thorough attention to this issue can be considered as an advantage for the companies and as a tool to overcome competitors and achieve greater success in marketing and sales.

From this perspective, the main management insights of the research are summarized below:

1. Since the decisions on designing a distribution channel for fast moving consumer goods manufacturing and importing companies have wide financial and resource implications, the results of this study provide an opportunity for decision makers to spend the organization's limited resources on designing, deploying, and managing the product distribution channel more accurately, thereby bringing greater effectiveness for the concerned distribution channel.

2. Making decisions about the distribution channel design for fast moving consumer goods is not to be made at a night and cannot be made immediately. In other words, even though there is a clear and implicit knowledge of distribution channel design decisions in the organization, the large numbers of factors influencing this area make it impossible for the organization to make quick decisions, or such decisions increases the risk of inefficiency and exposure to potential risks during a medium term. The model presented in this study, focusing on the main factors affecting decision making in this field, attracts the attention of decision makers toward this field.

3. The diversity and multiplicity of factors affecting the distribution channel design highlights the interactions among multiple dimensions and components that not only influence the decisions but also are of paramount importance. Unlike the normal condition in which these factors may seem unnecessary and exaggerated, the consideration of each component is of the utmost importance and a justification for not ignoring the components.

4. In most specialized texts on distribution channel design, only a part of the model (channel design strategies) is addressed, and the other aspects are not covered. The model allows the managers and decision makers to consider other grounds, conditions, and factors that are prerequisites for making a decision on distribution channel designing before directly deciding on the distribution channel design for their fast-moving goods, thus offering them a broader view and accuracy.

5. Although this study was conducted to design the distribution channel for fast moving consumer goods manufacturing and importing companies in Iran, it might contribute to designing other types of distribution channels for other goods even in other countries (despite the potential differences in the structures of their distribution channel design) by decision makers due to offering valuable insights into the whole issue or providing clues to implicitly design a similar model in their respective industries. Its contribution would be doubled, especially when we know that there is no similar model in Iran or other countries.

6. Conclusions and Suggestions for Future Research

Due to the existing problems in the FMCG channel in Iran and the unknown relationships among factors influencing the design process, this study focused on designing an integrated distribution channel model for FMCG manufacturing/importing companies in Iran. The model was conceptually designed based on the grounded theory and coding paradigm and finally correlations between the factors were evaluated using structural equation modeling.

Based on the obtained results, factors such as macro environment issues, organizational issues, pivotal distribution channel issues, micro issues, channel design and maintenance strategy, and performance results constitute the components of the model. Moreover, based on the research findings, macro environment issues influenced organizational issues and channel design and maintenance strategy; organizational issues influenced central channel design issues; micro environment issues influenced channel design and maintenance strategy; central distribution channel issues influenced channel design and maintenance strategy; and channel design and maintenance strategy influenced performance results. The results also clearly demonstrated that the decision to design a sustainable distribution channel cannot be taken solely and without considering all aspects.

It should be noted that the investigations carried out in this study, as shown in the title, focused on the design of a distribution channel model for FMCG manufacturing/importing companies in Iran. Moreover, a large variety of consumer and capital goods as well as the full service sector was not included in this research. We can offer suggestions for future research on distribution channel design based on the following limitations:

1. The geographical scope of the proposed model was limited to Iran and the distribution channel model of FMCG, whether imported or manufactured, was only examined in this area. Given that a large portion of the country's manufactured goods are exportable to neighboring and other countries and issues related to the distribution channel of such goods differ fundamentally with the nature of the internal distribution channel, similar research can be conducted to design a model of goods distribution to international markets.

2. This study emphasized FMCG and thus the proposed model is only applicable for making decisions with regard to FMCG distribution channel design. Accordingly, independent research can be carried out to design a similar model to other types of consumer and capital goods. In addition, it may be necessary to carry out similar research on the basis of each product category.

3. Since distribution is a key component of the service marketing mix, designing a services distribution channel model can significantly contribute to proper organization and design of distribution channels for companies operating in the field. Furthermore, given the possibility of dividing services into different categories, each of the aforementioned sectors in the service industry can be the basis for conducting independent research in the relevant field.

4. Distribution channel design is only one component of the marketing mix of products and services. Since results of such studies play a major role in adopting channel design approaches and can be very useful for users in the field, extending this view for designing similar models with the focus on other aspects of the marketing mix (pricing, product, promotions, for both products and services) may not be without value.

5. In addition to all mentioned above, due to another limitation of the research in the form of lack of knowledge and empirical experience of a large number of people involved in the distribution channel design and maintenance, it may be possible to develop a model in future studies for assessing capabilities of those involved in the distribution system of goods and services manufacturing and importing companies in order to enhance knowledge level and employability of experts in the field.

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