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RELATIVITY OF ROLES AND RELATIONAL RESPONSES

MASTER'S DEGREE THESIS

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ABSTRACT

The objective of this thesis to investigate two sets of relations regarding the construction sector.

The first set is the relations between

- the amount of expected profit of a given job
- the non-monetary costs and gains of a given job
- the probable frequency of a given job

and the decision to accept or reject a given job.

The second set is the relation between

- the decision to accept or reject a given job
- the cost of integration of a given job
- the availability of subcontracting options of the job in question

and the employement of three levels of integration, which are

- integration
- sub-contracting to a quasi-firm
- sub-contracting

These relations are investigated by a research conducted on 24 different organiztional entities that work for the Kemer Country real estate development project.

TÜRKÇE ÖZET

İnşaat sektörü, bazı nitelikleri ile diğer sektörlerden farklılıklar göstermektedir. Bu farklılıklar, inşaat sektöründeki örgütsel yapılanmayıda etkilemekte ve inşaat sektörü birçok sektörden daha farklı bir örgüt yapısını yaşatmaktadır.

Bu farklı çevresel niteliklerin başta gelenleri şunlardır.

- yerinde üretim: inşaat sektöründe, birçok diğer sektörden farklı olarak ürün üretimin yapıldığı yerde değil, üretim ürünün yapılacağı yerde gerçekleşir.

- talep düzensizliği: inşaat işleri genel itibarı ile daha yoğun olarak yaz aylarında yapılan işlerdir. Üretimin yapılabilmesindeki bu mevsime bağımlılık durumu, yılın farklı kesitlerinde iş miktarı ve talepte dalgalanmalara yol açmaktadır.

- çok farklı iş kalemlerini barındırabilir olması: inşaat sektöründe yapılacak olan üretimin tamamlanması gereken işler, bir projeden diğerine çok büyük farklılıklar gösterebilir. Buna ek olarak, en küçük imalatta bile çok farklı kalem iş bir arada götürülmek durumundadır.

- rutinleştirilebilmeye uygunluğu düşük işleri barındırması: projeler arasında çok büyük coğrafya farklılıkları ve içerik farklılıkları bulunduğundan, her proje kendine özel bir üretim içermekte ve farklı iş programlarını zorunlu kılmaktadır. Bu zorunluluk inşaat işlerinde rutinleşmiş üretim yapılmasını neredeyse imkansız kılmaktadır.

Bu çevresel özelliklerin ortak noktası, inşaat sektöründe iş yapan firmalar için yarattığı kaynak planlaması ve kaynak konuşlandırması sorunlarıdır. Bu sorunlar, inşaat sektöründe iş yapan firmaların örgütsel yapılanmalarını etkilemekte ve inşaat sektörü ile diğer sektörler arasında yapılanma farklılıkları oluşmaktadır.

Bu yapılanma farklılıklarının en belirgin olanı, inşaat sektörü bünyesinde alt-yüklenici kullanımına olan yoğun eğilimdir.

Firmalar örgütsel sınırlarını entegrasyon düzeyi açısından dört ana kategoriye ayırmışlardır.

Kullanılan entegrasyon düzeyleri şunlardır:

Bir işi bünye dahilinde yapmak
Bir işi sanki-firma (quasi-firm) kullanarak yapmak

Bir işi pazarda bulunan herhangi bir alt-yüklenici ile yapmak
Bir işi yapmamak

Bu dört muhtemel entegrasyon düzeylerinin, ileride açıklanacağı gibi, farklı işlem maliyeti avantaj ve dezavantajları ile farklı kaynak bağımlılığı avantaj ve dezavantajları bulunmaktadır.

Firmalar işin niteliklerini ve kendi koşullarını göz önüne alarak, kendilerine teklif edilen her işin işlem maliyetlerini ve kaynak bağımlılığı avantaj ve dezavantajları değerlendirmekte ve kendi stratejik seçimlerini de göz önüne alarak çıkan optimizasyon düzeyine uygun entegrasyon düzeyini belirlemektedirler.

Dört farklı entegrasyon düzeyinin avantaj ve dezavantajları şöyledir,

Bir işi bünye dahilinde yapmak

Dezavantajlar,

- bir işin bünye dahilinde yapılması halinde, o işin firma için sabit maliyetleri yüksektir. Bu durum talebin ve buna bağlı olarak ciromun ve karın büyük dalgalanmalara sahne olduğu inşaat sektöründe, düşük talep dönemlerinde büyük sıkıntılar yaratabilir.

- bir işin bünye dahilinde yapılması, firma yapısında bir rijitleşme anlamına gelir. Gelebilecek talebin cinsinin ne olabileceğini kestirmenin, yukarıda açıklandığı gibi, çok zor olduğu inşaat sektöründe, rijit örgüt bünyeleri, bünye dahilinde olmayan işlerden çok bünye dahilinde olan işlere eğilim gösterebileceklerdir. Bu, bazı işlerin reddi anlamına gelir.

- bazı işlerin bünye dahilinde yapılması halinde, herhangi bir projede o işlerin kullanımına gerek duyulmayabilinir. Bu durumda firma kullanmadığı işlerin finansmanını yapmaktadır.

Avantajlar

Bazı işlerin bünye dahilinde yapılması halinde, her ihtiyaç duyulduğunda alt-yüklenici aramak alt-yüklenicinin niteliklerini bilmemek gibi islem maliyetleri tamamen yokedilmis olunur.

Bir isi sanki-firma (quasi-firm) kullanarak yapmak

Sanki-firma, firma bünyesinde olmayan fakat yapılan işe dair bir talep oluştuğu zaman her defasında firma tarafından kullanılan bir alt-yüklenici türüdür.

Dezavantajlar

Sanki-firma kullanımı firma bünyesinde sanki-firmanın yaptığı işi barındırma maliyetlerini yok etmektedir fakat buna karşılık firma pazardan alt-yüklenici kullanma alışkanlığını kaybetmekte ve sanki-firma ile problem çıkması durumunda pazardan alt-yüklenici aramanın islem maliyetleri daha da artmaktadır.

Sanki-firma kullanma durumunun kaynak bağımlılığı alt-yüklenici kullanma durumundan daha yüksektir.

Avantajlar

Sanki-firma kullanımı ile hem firma bünyesinde çözmenin kaynak bağımlılığı problemleri çözülmekte, hem de alt-yüklenici kullanmanın işlem maliyetleri minimize edilmektedir.

Bir isi pazarda bulunan herhangi bir alt-yüklenici ile yapmak

Avantajlar

- sabit giderler düsüktür ve bu düşük talep dönemlerinde firmaya büyük rahatlık sağlar

- firma bünyesinde getirdiği esneklik ile talep cinsinin ve türünün kestirilmesinin zor olduğu inpaat sektöründe firmaya adaptasyon avantajı sağlar

- farklı coğrafyalarda iş yapma ihtimalinin bulunduğu inşaat sektöründe firmaya, her defasında iş yaptığı coğrafyanın koşullarına göre organize olma avantajını verir.

Dezavantajlar

- alt-yüklenici bulma ve bulunan alt-yüklenici her defasında farklı olduğu için alt-yükleniciyi tanımama gibi işlem maliyetleri çok fazladır

- firma işi her defasında firma bünyesi dışında halletmek zorunda olduğu için, firmanın dışarıya olan kaynak bağımlılığı çok yüksektir.

Bu tez inşaat sektöründe firmaların

- bir işi kabul etme veya reddetme kararını verirken

ve

- kabul edilen işi hangi entegrasyon düzeyini kullanarak yapacağı kararını verirken

işin kendilerine özel koşullarını ve firmanın kendine özel koşullarını gözönünde

tuttuklarını, esas amaçlarının da bu koşullar çerçevesinde göreceli olarak değerlendirdikleri işlerle, kaynak bağımlılığı ve işlem maliyetleri arasında bir optimizasyon yapmaya çalıştıklarına dair bulguları bir araştırma çerçevesinde toplamaktadır.

Fakat bu değerlendirme dahiline işin kendine özel koşulları ve firmanın kendine özel koşulları girdiğinden, her iş ve her firma tarafından, bu kararları verirken kullanılan tüm kriterleri tespit etmek mümkün değildir.

Bu sebeple, bu tez çalışması, yoğunluğunu yalnızca Kemer Country yerleşiminin inşaatı sırasında, 3 sene boyunca, orada çalışan farklı firmalarla yapılan söyleşiler çerçevesinde, genel kullanımı bulunan ve genel kabul gören aşağıdaki ilişkilere verilmiştir.

Önerilen iliskiler þöyledir;

1- Firmalar bir işi kabul veya reddetme kararını verirken
- işin karlılık düzeyi
- isin parasal olmayan getiri ve maliyetleri
- işin muhtemel frekansını

gözönüne alırlar.

- Firmalar kabul ettikleri isi hangi entegrasyon düzeyi ile yapacaklarının kararını verirken
-
- isin bünyede çözülme maliyeti
- pazarda o işi yapan alt yüklenici bulma kolaylığı

kriterlerini gözönünde bulundururlar.

Bu iddiaları matematiksel verilere dönüştürmek ve konu üzerindeki yorumları daha sağlıklı kılmak amacıyla, Kemer Country'de iş yapan farklı büyüklükteki 24 firma ile ekler kısmında sunulan anket gerçekleþtirilmiþtir.

Sonuçlar şunlardır;
-firmalar koşullarının ve stratejilerinin sonucunda kendilerine gelen işleri 5 ana kategoride değerlendirirler. Aynı koşullar altında bile olsa, farklı kategorilerdeki işler için farklı yapıp yapmama kararları ve farklı entegrasyon düzeyinde yapma kararları çıkabilir.

Bu 3 kategori şunlardır:
-firmanın halihazırda kendi bünyesi dahilinde olan işler
-firmanın yapma eğilimi ve isteği iþler
-firmanın yapma eğilimi ve isteği göstermediği iþler

Genelde entegrasyon düzeyi kullanımı kararları dair olarak, önemi yüksek, muhtemel frekansı yüksek, bünyeye dahil etme maliyeti düşük ve pazardan alt-yüklenici bulması zor olarak algılanan işlerin firma bünyesinde çözülme eğilimi gösterdiği, önemi düşük,

muhtemel frekansı düşük, bünyeye dahil etme maliyeti yüksek ve pazardan alt-yüklenici bulması kolay olarak algılanan işlerin alt-yüklenici kullanımı ile yapılma eğilimi gösterdiği ortaya çıktı.

Bir işi yapıp yapmama kararlarına dair olarak, maliyeti kurtaran, kar düzeyi yüksek olan, parasal olmayan getirileri parasal olmayan maliyetlerinden yüksek olan ve muhtemel frekansı yüksek olan işlerin kabul edilme ihtimalinin daha yüksek olduğu, buna karşın maliyeti kurtaramayan, kar düzeyi düşük olan, parasal olmayan getirileri parasal olmayan maliyetlerinden düşük olan ve muhtemel frekansı düşük olan işlerin reddedilme ihtimalinin daha yüksek olduğu ortaya çıktı.

CHAPTER 1- INTRODUCTION

1.1 Problem Identification

Due to its environmental characteristics such as ; on site production, demand volatility, varying labour specialities and non-routine production systems, the construction sector demands organisational forms different than those used in other areas of manufacturing in which mass assembly and process technologies are typically found. (Eccles, 1981)

As a effect of this character , research and theoretical efforts of the organisational intelligentsia tended to concentrate more on the other areas of manufacturing rather than construction sector and preferred and tried to explain the phenomena regarding the construction sector by adapting , re-interpreting or combining theories which were not originally meant for the construction sector.

Of course , this does not mean that all the adapted, re-interpreted or combined theories are irrelevant to the phenomena of the construction sector. Theories such as

1 .Transaction cost
2. Resource dependency
3 . Strategic choices

has been very successful in conceiving and explaining parts of the phenomena regarding construction related organisations.

However , the lack of construction -originated research , especially focused on the effects of the above mentioned characteristics of the construction sector on organisational structuring is missing part of the organisational literature.

The main intention of this thesis is not filling this gap but making a small contribution to such efforts by investigating two sets of relations regarding the organisations of the construction sector. These two sets of relations have been mentioned in the abstract.

1.2 Scope and Objectives of the Research

The objectives of this research is to investigate these two sets of relations and to explain these two sets of relations.

These relations are investigated by a research conducted on 24 different organisational entities that work for the Kemer Country real estate development project.

By this research , necessary data that will enable us to try to learn about the above mentioned two sets of relations, will be obtained.

From the obtained data , issues such as
- the reasons for using different levels of integration for different jobs
- the reasons for accepting or rejecting a job

will try to be explained.

1. 3 Thesis Layout

The thesis starts with the definition of the problem and the determination of the scope .

After the introduction chapter, chapter II on the theoretical framework includes,

- the suggested relations that are to be investigated
- the theoretical context from which the suggested relations are generated
- the relation of the suggested relations to the existing theories

Chapter III on methodology gives information on ;
- the research technique which has been employed
- why the research technique was though to be appropriate for this thesis
- the applied tools of research
- why and how these tools were applied
- the reasons why Kemer Country was chosen as the medium of the research

In the Study Chapter which is the IV th. chapter
-the qualitative and the quantitative findings that are obtained by the research tools are given
- the rationale by which these qualitative and quantitative findings are interpreted are given
- the interpretations of the findings in relation to the suggested relations are presented

In the Study Chapter (chapter 4) the suggested relations, the expected outcomes and the actual findings are discussed.

CHAPTER 2 -THE THEORETICAL FRAMEWORK

2.1 The Environmental Attributes of the Sector

The literature on construction industry agrees on the fact that the special environmental attributes of construction necessitates an organisational model different from those used in other areas of manufacturing.

Construction projects are produced and co-ordinated on site; and this requires different schedules, programs and improvised solutions for each project. The unique characteristics of the construction industry that are listed below demand organisational forms different from mass assembly and process technologies typically found in manufacturing.(Eccles, 1981)

The environmental aspects of construction are;

On site production

As Bresnan et al., (1984) observed, "the product of the construction industry is immobile and produced at the point of consumption." Site conditions in a construction project can be unpredictable and unexpected natural events can negatively affect construction

programs and schedules. Weather conditions constitute the most important and unpredictable handicap for the production process of construction.(Eccles, 1981). Changes in weather have two different side effects. First , unexpected changes in weather might stop or completely destroy production . Secondly, weather conditions confine the production process to mild seasons. Because of the difficulties of executing outdoor activities in the winter, construction activities show a trend of seasonallity.

Demand volatility

Demand is both seasonal and volatile. As expressed earlier, because winter is a problematic season, most of the production has to be completed before winter, and this puts an unbalanced load of work on other seasons. Summer is the high, and most active season for all the project in a contractor's portfolio.

Construction projects usually have large budgets, and are executed over a long period of time. Because of this, demand for a contractor's products (i.e. buildings, bridges, refineries etc.) is not regular. Because of the volatile demand, construction firms have difficulty in keeping their over head down in the case of low demand. On the other hand, the same difficulty applies to the case of high demand. During times of high demand, responding to the load of irregular demand forces the contractor to search for other organisational forms than the traditional forms used in manufacturing.

Labour specialities

Construction projects require a large number of labour specialities (Eccles, 1981), such as electrical installation, heat insulation, etc. Most of these trades demand the knowledge

and experience of experts. Because constructors' projects have different characteristics, if and when a problem arises, the solution will be different in a building project, compared to a solution in an industrial plant project. Therefore, the experience of experts is required. It is a hard and long way for a contractor to gain expertise through project experience; therefor, outside assistance, such as, consultants or subcontractors are needed. On the other hand, these special trades are linked to each other in very complex schedules. This puts a burden of controlling and co-ordinating schedules and activities of these trades, on the contractor.

Non-routine production systems

In construction production systems are " less amenable to routinization". (Bresnan , et al., 1984) . As mentioned earlier, because construction projects are executed over along period of time, and because products of a contractor have diverse characteristics, production can not be routinized. A construction firm can execute projects of a dam, a motor way, and skyscraper, all of which require different production schedules and systems, all at the same time. This introduces uncertainty to the decisions of labour and machinery investments. Co-ordination of resources among different projects becomes a major problem; moreover, new schedules and programs are required for each new project. Therefore, the literature has named construction a "casual industry" (Bresnan, et al., 1984; Clark, 1980) that requires short term project objectives and flexibility.

The construction industry traditionally uses the method of subcontracting to fulfil these short term project objectives and the need for flexibility. As Eccles, (1981) has suggested, " Given bounded rationality of the general contractor in highly uncertain conditions, market contracting for input resources is preferred over vertical integration".

2.2 The Definitions of the Concepts

The construction sector , like all others, uses a terminology of its own. In addition to the terminology of expressions and words, there is also a terminology of concepts. It is inevitable to do a research on the construction sector without using some of this conceptual terminology. Below, definitions of the key concepts that are a part of the conceptual terminology of the construction sector and that have been repeatedly used throughout the thesis, will try to be explained.

These concepts are;

- the level of expected profit
- the non monetary costs and gains
- the probable frequency of a given job
- the strategic choice variable
- the cost of integration
- the availability of subcontracting

- the level of expected profit : The average profit rate in the construction sector is 30%. Contracts with a profit rate of more then 30% is considered highly profitable and contracts with a profit rate of less than 30% is considered not profitable.

-non-monetary cost and gains: includes all kinds of costs and gains that are not monetary. Some examples of non-monetary gains may be, for example the prestige a given firm may obtain by realising a given job, the chances of using the connections created by realising a given job for future jobs, adding a special type of job to the portfolio, the free advertisement that is created by doing the job of a famous person etc. Some examples of non-monetary costs may be like working for a client that continuously changes mind about the project, working in an environment other that the usual environment, working with an employer for the first time and therefore not knowing about the trustability of the employer etc.

- **the probable frequency of the job:** The number of times demand generates for a given job, to a given contractor, in a fix time period is the frequency of a job. For example, if there are around four demands a year for an interior decoration project, to an interior decorator, this means that the frequency of interior decoration job for the given decorator is around four times a year. If there are around twenty demands a year for pool projects to the same interior decorator, then the frequency of interior decorations are lower than the frequency of pool projects. As stated above, he demand in the construction sector is volatile. For firms of construction sector who are not integrated to a never-ending project, creating new demand is a problem. Since the guaranteed continuity of demand is not probable for the majority of the firms, the repetitively of demand is tried to be secured. A demand that repeats from time to time is a tool for coping with the volatility of demand. The probable frequency is the expected number of times, a given demand may repeat, in a given period of time.

- **the strategic choice variable:** The firms perceive jobs in three different categories and show different reactions towards job offers of different categories while determining the decision to reject or accept and determining the level of integration. The strategic choice variable is introduced to the thesis to be explain the different reactions towards job offers of different categories which are core competence jobs, jobs the firms has tendency and willingness to accept and jobs the firms does not have tendency and willingness to accept.

-**cost of integration:** is the amount of capital necessary for a firm, for it to be able to do a job within its organisational boundaries. The capital necessary for doing a job within an organisation's boundaries may be for fixed assets, over-heads, etc., related to the job in question.

- **availability of subcontracting:** is an issue related to the number of firms or persons which do a given job as their core competence and may serve as a sub-contractor for others. The larger the number of sub-contractors of a given job, the higher the availability of its sub-contracting.

2.3 The Suggested Relations

The aspects of on sight production shows that a construction firm can hardly predict where it will be producing next. The volatile demand makes it harder for the firm to predict how big a production lies ahead , if a production lies ahead at all. The non routinness of the of the production turns the type of every new contract to a surprise, while labour specialities adds to these bundle of uncertainties by making every resource acquisition a wild guess, be it fixed assets or personnel or information.

The common denominator of all above mentioned characteristics and their consequent uncertainties is that resource acquisitions are hard to make.

Human resource and fixed asset acquisitions and allocations are very hard and risky to make without a consistent base of environmental data. Since human resource and fixed asset acquisitions and allocations are hard to make, their control and co-ordination can hardly be routinized and thus a stable organisational structure be formulated.

The construction sector creates its own organisational and relational responses in order to cope with the above mentioned attributes of its environment.

Theoretically, there are two extreme structural responses to the resource acquisition problems created by the environmental attributes of the construction sector.

First theoretical extreme is to integrate all construction related jobs within the organisation.

Second theoretical response in not to integrate any of the construction related jobs and to use subcontracting for every job when need be.

Both extremes have resource dependence and transaction cost advantages and disadvantages.

In some trades construction firms prefer subcontracting over integration and with others vice versa. There is a variation in degree of subcontracting with respect to different trades. Eccles (1981) defines the trades used in construction under five major sections: Basic trades (carpentry etc.), labour specialities (foundations etc.), labour and material specialities (insulation etc.), unskilled trades (landscaping etc.), technical specialities (heating and cooling etc.). It was found that basic trades and unskilled trades were more often integrated , whereas, the other three categories were almost always subcontracted.

Although it is a fact that basic trades and unskilled trades were more often integrated , whereas, the other three categories were almost always subcontracted the reason for this is not related to the type of the trade but related to an **integration level determination evaluation** . Integration level determination evaluation for every single job is continuously done by the firms according to;

i. the decision to accept or reject a given job
ii. the cost of integration of the job
iii. the availability of subcontracting options of the job in question
iv. strategic choice variable

After the decision to accept has been taken for a given job, the lower the cost of integrating the job, the less available the subcontracting options of the job in the market, more likely it is that for that specific job that firm will prefer integration to subcontracting.

Therefor the variations on the decision of integration level is related to the decision to accept or reject , the cost of integrating the job and the availability of subcontracting options of the job in question and this decision may differ from firm to firm, job to job, and contingency to contingency.

The problems created by "integration to the organisation" method

There are advantages and disadvantages of integration.

The disadvantages are that;

i. fixed costs are high (this may prove to be a crucial disadvantage in environments of volatile demand, it is easier for firms with lower fixed cost to survive through periods of low or no demand that firms with higher fixed costs)

ii. firms that have more integrated jobs in their structure become less flexible and less adaptable. This is because a firm that has integrated a specific job shows tendency towards contracts that require the integrated job and shows reluctance to contracts that does not.

iii. The parts integrated for the realisation of a specific job may not be utilised in every contract thereby the fixed cost they generate may not be turned into gain

The advantages are;

i. Transaction costs generated by inconveniences such as looking for a subcontractor every time the need to fulfil a repetitive job emerges or the uncertainties such as not knowing the characteristic of the subcontractor (quality, punctuality, trustability) are eliminated.

ii. Resource dependence for the given job is minimised.

The problems created by "sub-contracting" method

The advantages of the sub- contracting option are ;

i. fixed costs are low; thereby enabling the firm to survive thorough periods of low demand

ii. Flexibility of the structure is high which enables the contractor better response to volatile type and amount of work.

iii. The adaptability of the organisation is high which reduces the risks of seasonally and increases the flexibility to work in different geographical locations.

The disadvantages of sub-contracting method are;

i. Transaction costs generated by inconveniences such as looking for a subcontractor every time the need to fulfil a repetitive job emerges or the uncertainties such as not knowing the characteristic of the subcontractor (quality, punctuality, trustability) are very high.

ii. Resource dependence is high.

iii. Forces the main contractor to dedicate some of its resources on the issue of maintaining the sub-contractor relation. (Eccles, 1981; Van de Ven, 1976)

The quasi firm method

The concept of quasi firm indicates that the job is sublet to a sub-contractor and the sub-contractor stands some where in-between the hierarchy and the market. This sub-contractor firm is not an integrated part of the contractor firm but there is a close, enduring relation between the contractor and the sub-contractor firm.

According to the Transaction Costs theory the organisations exist in order to lower the cost of transactions. The society is a network of transactions-contracts in the wildest sense of that term. Transaction costs theory also suggests that it is the concerns to minimise transaction costs that determine the boundaries of organisations and that a transaction can be conducted either in a market or within an organisation.

According to the resource dependence theory, organisations tend to minimise their dependency on the environment and maximise the dependency of the environment on themselves. The determinations and redeterminations of organisational boundaries are means used to cope with the problems of dependency.

When the Transaction Costs theory and the Resource Dependence theory are collectively taken into consideration, can it be suggested that it is the ways of minimising the transaction costs and the ways to minimise the dependency on the environment and maximise the dependency of the environment on the organisation that changes from one environment to an other, and this leads to the differentiation in the styles of organising by effecting the decisions, such as

- in which types of activities the organisation will participate
-weather the transaction will be conducted either in a market or within the organisation

Is it always the same thing/s (which derives from the environment and effects the organising style) for all the organisations? If it is not it is not always the same thing for all organisations, can the differences be explained by the Strategic Choices theory?

It is suggested that the decision to accept or reject a given job is related to

- the amount of profit of a given job
- the non-monetary costs and gains of a given job
- the probable frequency of a given job
- strategic choice variable

and the level of integration that is to be employed for an accepted job is related to

- the decision to accept or reject a given job
- the cost of integration of a given job
- the availability of subcontracting options of the job in question

CHAPTER 3-METHODOLOGY

3.1 The Research Techniques -Why & How ?

After the problem definition of the research, an appropriate method of analysis was to be chosen among many alternative methods so that further research design could proceed.

Between the years 1995 and 1998 , I worked in Kemer Country as the design and field architect of an architectural firm which was working for a number of house owners (6 house owners in 1995 and gradually increasing 12 in 1998).
The firm I was working for was doing interior decoration, land scaping and some small scale rough construction(such as pools , additional rooms, underground concerete water tanks etc.). Within this three year period I have had the chance to interact and observe the environment of the Kemer Country. My interest was concentrated on the decision to accept or reject a job offer and the determination of the level of integration of a given job, for construction sector. During the three years of active work in Kemer Country, I have had the chance to have a great number of conversations with various firms on these issues. As a result of these conversations, I have noticed that the decision to accept or reject a job is a subjective concept and may chance from firm to firm and situation to situation. However, the existance of common detarminats that affeceted these decisions were shared by the firms in general were also true. The reasons for the employement of various levels of integration for different jobs also seemed relative and very much related to the strategy persuated by

the firm. However again, the conversations with firms showed clues that shared determinants for the employement of different levels of integration also existed.

The shared determinats of the decision to accept or reject a which came out of the conversations were

- the amount of profit of a given job
- the non-monetary costs and gains of a given job
- the probable frequency of a given job

The shared determinants of the determinetion of the level of integration which came out of the conversations were

-the decision to accept or reject a job
-the cost of integration of a given job
- the availability of subcontracting options of the job in question
- strategic choice variable

After the formalization of the suggested relations two interviews were desinged to obtain quantitative data to show the existance of the suggested relations.

To investigate the existance of the suggested relations regarding the determination of the level of integration the interview called **JOBS** was desined

The interviewees were to evaluate the construction related jobs on the first column according to the criteria of the first set given on the first row. The interviewees were then to chose for the construction related jobs on the first column, the method of allocation they though were appropriate for that job ,from the list of possible methods of allocation which is also given on the first row.

To investigate the existance of the suggested relations regarding the decision to accept or reject a job offer, the interview called JOBS 2 was designed.

In the **jobs2 interview**, the 24 interviewees were to answer for fictive job offers of 35 different jobs. For these 35 offers for different types of jobs, they were to

-state the decision to accept or reject the given fictive job offer for the 8 given levels of criteria
-state the level of integration they though were appropriate for the given fictive job offer for the 8 given levels of criteria
- state wheather they had tendency to do the job in question

For each different job offer, interviewees were to state their thoughts for 8 different combinations of the criteria they were asked to take into consideration.

These 8 different combinations of the levels of critaria are used in order to obtain data for situations to be close as they can be in actual real-life job offers. Because in real-life demands, people may be objected job offers which may have different levels of the criteria. For example, there can be job offers which
- may or may not generate profit
- in which non-monetary costs may or may not surplus the non-monetary gains
- which may have high or low probable frequency

It is a fact that in real-life situations the levels of the criteria may be more than 2. However in the interviews the possible levels of each criterion were limited to 2 levels to limit the number of mathematical combinations in a managable number, like 8.

3.2 Why Kemer Country?

The research was conducted within the integrated and un-integrated organizational boundaries of one of Kemer Yapi ve Turizm AS.'s real-estate development projects, namely Kemer Country.

Kemer Country real-estate development project has started its construction facilities in May,1991. A sub-urban town of 600 triplex and quatreplex villas were to be constructed and all related technical and urban requirenments were to be realized. The technical detailes of construction facilities and their relation to the thesis is given in the previous chapter. The aspects about Kemer Country that are to be emphesised in this chapter regarding methodolgy are related to the reasons for which Kemer Country seemed as an acceptable mediun to conduct the research.

a- 91 % of the turkish construction sector is housing projects
a- 95% of housing projects uses conventional building tecnologies.
a- in 100% of turkish construction sector housing projects using conventional building tecnologies these jobs for which the formal inteview collected data, are employed
a- this means 0.91*0.95*1=86.45 % of the turkish construction sector is constituted of housing projects uses conventional building tecnologies

a-In monetary terms 79% of Kemer Country real-estate development project is constituted of housing
a- In 35 out of 41 (90%)construction jobs in Kemer Country, conventional construction teqniques were employed.
a- Therefore 0.9*0.79=71% of Kemer Country 's construction environment is constituted of housing projects using conventional building tecnologies

The data collected in Kemer Country for the jobs given above would be representing the data that would be collected in the turkish construction sector from jobs.So the findings derived from the data of Kemer country is not irrelevent to the realities of the turkish construction sector.

Although the thesis does not allege that the finding may be used to explain the suggested relations for the whole turkish construction sector and accepts that the findings may only explain the suggested relations within the boundaries of Kemer Country only for a period of 3 years between 1995 and 1998 , the probable relevance

of the data collected from Kemer Counry to the whole turkish construction sector may be useful for future studies concerned with similar issues.

3.3 Construction Related Environment Of Kemer Country

The construction environment of Kemer Country consists of these organizational formations:

Kemer yapi ve turizm as: the real estate development firm that has departments

a, marketing department

b. sales department

c.after sales department

d.construction department(Kemer yapi ve turizm as has externalized the construction under the name of kemer yapi as)

Kemer yapi AS: A department of Kemer yapi ve turizm AS which has been externalized and now acts as a sub-contractor firm. It actually does some construction work but its main function is to sub-let the construction work and to supervise and control it.It may do any one of the jobs that are given on the list of "the construction related jobs in Kemer Country". It has three construction related departments;arrenged in a matrix format

a, rough construction department

b, finishing jobs department

c. supervision and control department

Kemer yapi AS sublets work to Guney Yapi AS and Nova AS when a job is to be subletted. When Kemer yapi is to do the job itself, it may sublet work to its quasi firm subcontractors or the free lance subcontractors .

Guney Yapi ASis one of the two main subcontractors that get its jobs from Kemer Yapi as.It may do any one of the jobs that are given on the list of "the construction related jobs in Kemer Country". It may sublet work to its integrated subcontractors or the free lance subcontractors .

Nova Yapi ASs one of the two main subcontractors that get its jobs from Kemer Yapi AS.It may do any one of the jobs that are given on the list of "the construction related jobs in Kemer Country". It may sublet work to its integrated subcontractors or the free lance subcontractors .

Integrated subcontractors of Nova, Guney and Kemer Yapi;(the secondary subcontractors for Kemer yapi)are formed of a leader craftsman, his workercraftsmen (if any) and a number of assistant workers(if any) thus forming a team which is specialized in one of the construction trades (painting-masonary-platering etc.) The leader craftsman is the only fix element of the team, his worker craftsmen is a group with a very low turnover rate(but may in time evolve to be a leadercraftsman and form his own team)and the assistant worker is a group has a relatively higher turnover rate (and may in time evolve to be a craftsman and employ his own assistant workers) The integrated subcontractors are not reaaly integrated but their relation with their contractor has been closer to integration than to quasi-firms during my period of research and therefor have seemed stable enough to be perceived as integrated.

Integrated craftsman (the secondary subcontractor for Nova and Guney but the tertiary subcontractor for Kemer yapi) is one of one or more craftsman working for a leader craftsman .It is the lowest rank in the order of subletting therefor can not sublet work to anybody. Specialized in one of the construction trades (painting-masonary-platering etc.) and experienced enough not no be an ordinary worker)

Free lance subcontractors have the same organizatioanal structure as the integrated subcontractors of Nova or Guney . The only diiference is that they may work for Nova or Guney but also work for others as well.(for interior decoration firms or house owners)

Free lance craftsman have the same organizatioanal structure as the integrated craftman . The only diiference is that they may work for a secondary subcontractor but also work for others as well.(for interior decoration firms or house owners)

Interior decoration firms Kemer yapi hands over the houses to the house owners with finished rough construction but no interior decoration or land scaping . The need to decorate the houses and landscape the gardens neccesiates the help of other professions such as the interior decorators, the landscapers and pool firms.These firms form the un-integrated contex of the Kemer country environment. These firms may subcontract job to any of the above mentioned organizations or organizational forms such as Kemer yapi, Nova yapi, Guney yapi, free lance subcontractors, free lance craftsmen etc.

The house owners some of the house owner prefer not get the profesionnal help of interior designer and do the decoration by themselves in that case these house owners structurally act like interior decoration firms.These house owners may subcontract job to any of the above mentioned organizations or organizational forms such as Kemer yapi, Nova yapi, Guney yapi, free lance subcontractors, free lance craftsmen etc.

CHAPTER 4- THE STUDY

4.1 The Suggested Relations

This thesis suggests that the determination of the level of integration of a given job is a two-step process.

The first step is suggested to be the determination of the decision to accept or reject a given job.

The second step is suggested to be the determination of the level of integration of a given job.

The determination of the decision to accept or reject a given job is suggested to be affected by

- the level of expected profit
- the level of probable frequency
- the level of non-monetary costs and gains
- the arbitrary choice variable

The determination of the level of integration of a given job is suggested to be affected by

- the decision to accept or reject a given job
- the level of the cost of integration of a given job

- the level of availability of subcontracting of a given job.

The suggested model of this two step process is below.

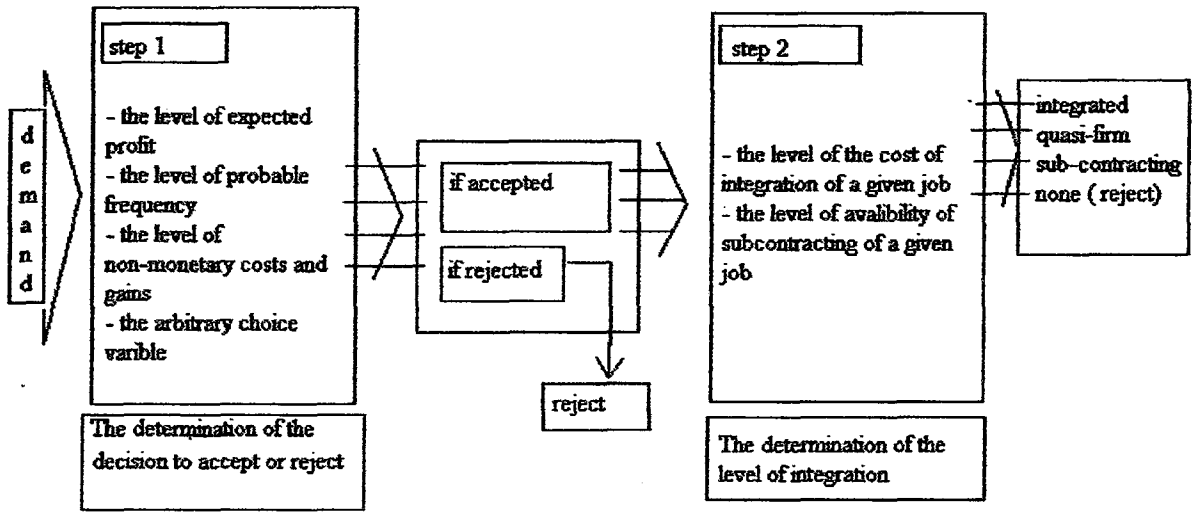

Figure 4.1 The Suggested Model

The variables that are suggested to be affecting the **decision to accept** and the **level of integration** are driven from my three years of work experience in Kemer Country and are tested by a formal interview. This interview was conducted on 24 different organisational entities in Kemer Country. Details of methodology are presented in the methodology chapter.

4.2 The Findings of the First Step

To test the validity of the suggested the relations between

- the level of expected profit

- the level of probable frequency
- the level of non-monetary costs and gains
- the arbitrary choice variable

and **the decision to accept** a given job, 24 different organisational entities in Kemer Country were asked to state

- **the decision to accept or reject** (always/ frequently/ sometimes/ never) they thought were appropriate for 8 different mathematical possible conditions of the variables.

- **the level of expected profit** (profit expected (shown as +) / profit not expected(shown as -))

- **the level of probable frequency** (frequency high(shown as +) / frequency low(shown as -))

- **the level of non-monetary costs and gains** (non-monetary gains surpluses non-monetary costs(shown as +) / non-monetary costs surpluses non-monetary gains(shown as -))
- **the arbitrary choice variable** (does or does not have tendency to do the job in question)

These 8 different mathematical conditions are;

1) when profit is expected, probable frequency is high, non-monetary gains surpluses non-monetary costs (+/+/+ case)
2) when profit is expected, probable frequency is high, non-monetary costs surpluses non-monetary gains(+/+/- case)
3) when profit is expected, probable frequency is low, non-monetary gains surpluses non-monetary costs (+/-/+ case)
4) when profit is not expected, probable frequency is high, non-monetary gains surpluses non-monetary costs (-/+/+ case)

5) when profit is expected, probable frequency is low, non-monetary costs surpluses non-monetary gains(+/-/- case)

6) when profit is not expected, probable frequency is high, non-monetary costs surpluses non-monetary gains(-/+/- case)

7) when profit is not expected, probable frequency is low, non-monetary gains surpluses non-monetary costs (-/-/+ case)

8) when profit is not expected, probable frequency is low, non-monetary costs surpluses non-monetary gains(-/-/- case)

These 8 different mathematically probable conditions of the variables are used in order to create an interview that is close to real life situations because in real-life situations profit may or may not be expected, frequency may be high or low and non-monetary costs may or may not surplus non-monetary gains and different levels of these criteria may come together.

The results of the firsts step for 8 different mathematical combinations of the variables that are obtained by the formal interview are as fallows:

results									
levels of variables	# of n's for	**% of n's for**	# of n's for	**% of n's for**	# of n's for	**% of n's for**	# of n's for	**% of n's for**	total n
	never	**never**	sometimes	**sometimes**	frequently	**frequently**	always	**always**	
.+.+.+	270	**32%**	174	**21%**	156	**19%**	240	**29%**	840
.+.+.-	360	**43%**	288	**34%**	114	**14%**	78	**9%**	840
.+.-.+	366	**44%**	138	**16%**	288	**34%**	48	**6%**	840
.-.+.+	600	**71%**	204	**24%**	36	**4%**	0	**0%**	840
.+.-.-	684	**81%**	126	**15%**	30	**4%**	0	**0%**	840
.-.+.-	720	**86%**	120	**14%**	0	**0%**	0	**0%**	840
.-.-.+	690	**82%**	150	**18%**	0	**0%**	0	**0%**	840
.-.-.-	840	**100%**	0	**0%**	0	**0%**	0	**0%**	840

In this chart it may be observed that as the levels of variables moves from +/+/+ (when profit is expected, probable frequency is high, non-monetary gains surpluses non-monetary costs) to -/-/- (when profit is not expected, probable frequency is low, non-monetary costs surpluses non-monetary gains) , the decision to accept moves from 'always accept' to 'never accept'. This shows that the difference in the levels of variables affect the decision to accept.

However, this chart can not show this relation in a refined way because, in the first five rows the number of 'always accept' and 'never accept' are very high. If, for a given case, one of the probable levels of decision to accept is dominate the others should not be dominant. Having more than one dominant choices (always 240 out of 840 and never 270 out of 840) for the same level of variables, shows that the findings are not refined.

At this point to have more refined interpretations of the findings, an other outcome of my personal experience had to be employed. The fourth of the variables that are suggested to be affecting the decision to accept is the arbitrary choice variable. The arbitrary choice variable is used to overcome the problem in interpreting the above given data. It has been noted by me that firms perceive jobs in three different main categories and show different tendencies in evaluating jobs of different categories.

These suggested three different categories in which the firms perceive the jobs are as follows;

category 1- core and subsidiary competencies of the firm
category 2- jobs that the organisation has a willingness and tendency to accept
category 3- jobs that the organisation does not have a willingness and tendency to accept

When the above given data is classified according to the above given categorisation, more refined interpretations of the data could be made.

The results for category 1 jobs (core and subsidiary competencies of the firm) are as follows;

core competencies									
levels of variables	# of n's for never	% of n's for never	# of n's for someti mes	% of n's for someti mes	# of n's for frequen tly	% of n's for freque ntly	# of n's for always	% of n's for always	total n
.+.+.+	0	0%	0	0%	18	23%	60	77%	78
.+.+.-	0	0%	0	0%	30	38%	48	62%	78
.+.-.+	0	0%	12	15%	18	23%	48	62%	78
.-.+.+	60	77%	18	23%	0	0%	0	0%	78
.+.-.-	0	0%	48	62%	30	38%	0	0%	78
.-.+.-	78	100%	0	0%	0	0%	0	0%	78
.-.-.+	60	77%	18	23%	0	0%	0	0%	78
.-.-.-	78	100%	0	0%	0	0%	0	0%	78

The results for category 2 jobs (jobs that the organisation has a willingness and tendency to accept) are as fallows;

jobs with tendency									
levels of variables	# of n's for never	% of n's for never	# of n's for someti mes	% of n's for someti mes	# of n's for frequen tly	% of n's for freque ntly	# of n's for always	% of n's for always	total n
.+.+.+	0	0%	60	18%	108	33%	162	49%	330
.+.+.-	60	18%	186	56%	60	18%	24	7%	330
.+.-.+	0	0%	60	18%	270	82%	0	0%	330
.-.+.+	180	55%	114	35%	36	11%	0	0%	330
.+.-.-	312	95%	18	5%	0	0%	0	0%	330
.-.+.-	258	78%	72	22%	0	0%	0	0%	330
.-.-.+	270	82%	60	18%	0	0%	0	0%	330
.-.-.-	330	100%	0	0%	0	0%	0	0%	330

The results for category 3 jobs (jobs that the organisation does not have a willingness and tendency to accept) are as fallows;

jobs with no tendency									
levels of variables	# of n's for never	% of n's for never	# of n's for sometimes	% of n's for sometimes	# of n's for frequently	% of n's for frequently	# of n's for always	% of n's for always	total n
.+.+.+	270	63%	114	26%	30	7%	18	4%	432
.+.+.-	300	69%	102	24%	24	6%	6	1%	432
.+.-.+	366	85%	66	15%	0	0%	0	0%	432
.-.+.+	360	83%	72	17%	0	0%	0	0%	432
.+.-.-	372	86%	60	14%	0	0%	0	0%	432
.-.+.-	384	89%	48	11%	0	0%	0	0%	432
.-.-.+	360	83%	72	17%	0	0%	0	0%	432
.-.-.-	432	100%	0	0%	0	0%	0	0%	432

4.3 The Interpretations Of The Findings For Step 1

The charts above show that as the number of variables that are + for a given job decreases, the decision to accept moves from always to never.

This movement from always to never shows different tendencies for different categories of jobs.

For category 1 jobs (core and subsidiary competencies of the firm)

1) When profit is expected, probable frequency is high, non-monetary gains surpluses non-monetary costs (+/+/+ case),

when profit is expected, probable frequency is high, non-monetary costs surpluses non-monetary gains(+/+/- case)

and

when profit is expected, probable frequency is low, non-monetary gains surpluses non-monetary costs (+/-/+ case)
the majority of the answers are always to accept.

2) When profit is expected, probable frequency is low, non-monetary costs surpluses non-monetary gains(+/-/- case)
the majority of the answers are sometimes and frequently to accept.

3) when profit is not expected, probable frequency is high, non-monetary gains surpluses non-monetary costs (-/+/+ case)
when profit is not expected, probable frequency is high, non-monetary costs surpluses non-monetary gains(-/+/- case)
when profit is not expected, probable frequency is low, non-monetary gains surpluses non-monetary costs (-/-/+ case)
when profit is not expected, probable frequency is low, non-monetary costs surpluses non-monetary gains(-/-/- case)
the majority of the answers are never to accept.

For category 2 jobs (jobs that the organisation has a willingness and tendency to accept)

1) When profit is expected, probable frequency is high, non-monetary gains surpluses non-monetary costs (+/+/+ case) the majority of the answers are always to accept.

2) When profit is expected, probable frequency is high, non-monetary costs surpluses non-monetary gains(+/+/- case) the majority of the answers are sometimes to accept.

3) When profit is expected, probable frequency is low, non-monetary gains surpluses non-monetary costs (+/-/+ case) the majority of the answers are frequently to accept.
4) When profit is not expected, probable frequency is high, non-monetary gains surpluses non-monetary costs (-/+/+ case),

when profit is expected, probable frequency is low, non-monetary costs surpluses non-monetary gains(+/-/- case),
when profit is not expected, probable frequency is high, non-monetary costs surpluses non-monetary gains(-/+/- case),
when profit is not expected, probable frequency is low, non-monetary gains surpluses non-monetary costs (-/-/+ case),
when profit is not expected, probable frequency is low, non-monetary costs surpluses non-monetary gains(-/-/- case) ,
the majority of the answers are never to accept.

For category 3 jobs (jobs that the organisation does not have a willingness and tendency to accept) are as fallows;
For all levels of the variables the majority of the answers are never to accept.

4.3 The Findings of the Second Step

The thesis' second aim is to understand the relations between

- the decision to accept a given job
- the level of the cost of integration of a given job
- the level of availability of subcontracting of a given job

and **the level of integration** which the firm employees for that given job.

To test the validity of the suggested the relations between
- the decision to accept a given job (accepted / rejected)
- the level of the cost of integration of a given job (high/ low)

- the level of availability of subcontracting of a given job (high / low)

and **the level of integration** which the firm employees for that given job, 24 different organisational entities in Kemer Country were asked to state the level of integration (integrated/ using a quasi-firm/ using a subcontractor from the market/ none-reject) they thought were appropriate for 4 different mathematical possible conditions of the variables.

These 4 different mathematical conditions are;

1) When the job is **accepted**, cost of integration is **high**, the availability of sub-contracting is **high**
2) When the job is **accepted**, cost of integration is **high**, the availability of sub-contracting is **low**
3) When the job is **accepted**, cost of integration is **low**, the availability of sub-contracting is **high**
4) When the job is **accepted**, cost of integration is **low**, the availability of sub-contracting is **low**

These 4 different mathematically probable conditions of the variables are used in order to create an interview that is close to real life situations because in real-life situations profit may or may not be expected, frequency may be high or low and non-monetary costs may or may not surplus non-monetary gains and different levels of these criteria may come together.

The results of the firsts step for 4 different mathematical combinations of the variables that are obtained by the formal interview are as fallows for jobs of different 3 categories:

The results for category 1 jobs (core and subsidiary competencies of the firm) are as follows;

core competencies									
level of integration	# of n's	% of n's	# of n's	% of n's	# of n's for	% of n's	# of n's	% of n's	
levels of variables	for rejec-	for rejec-	for sub- con-	for sub- con-	quasi-firm	for quasi-firm	for integ- ration	for integ- ration	total n
	tion	tion	tractin g	tractin g					
.(+) - high - high	0	0%	0	0%	0	0%	18	100%	18
.(+) - high - low	0	0%	0	0%	0	0%	98	100%	98
.(+) - low - high	0	0%	0	0%	0	0%	113	100%	113
.(+) - low - low	0	0%	0	0%	0	0%	41	100%	41

The results for category 2 jobs (jobs that the organisation has a willingness and tendency to accept) are as fallows;

jobs with tendency									
level of integration	# of n's	% of n's	# of n's	% of n's	# of n's for	% of n's	# of n's	% of n's	total
levels of variables	for rejec-	for rejec-	for sub- con-	for sub- con-	quasi-firm	for quasi-firm	for integ- ration	for integ- ration	n
	tion	tion	tractin g	tracting					
.(+) - high - high	0	0%	311	80%	79	20%	0	0%	390
.(+) - high - low	241	68%	87	25%	26	7%	0	0%	354
.(+) - low - high	0	0%	137	64%	58	27%	18	8%	213
.(+) - low - low	154	56%	49	18%	19	7%	51	19%	273

The results for category 3 jobs (jobs that the organisation does not have a willingness and tendency to accept) are as fallows;

jobs with no tendency									
level of integration	# of n's	% of n's	# of n's	% of n's	# of n's for	% of n's	# of n's	% of n's	
levels of variables	for	for	for sub-	for sub-	quasi-firm	for	for integ-	for integ-	total
	rejec-	rejec-	con-	con-		quasi-firm	ration	ration	n
	tion	tion	tractin g	tractin g					
.(+) - high - high	0	0%	116	77%	34	23%	0	0%	150
.(+) - high - low	123	58%	69	33%	20	9%	0	0%	212
.(+) - low - high	7	6%	112	88%	8	6%	0	0%	127
.(+) - low - low	97	79%	23	19%	3	2%	0	0%	123

4.4 The Interpretations Of The Findings For Step 2

1) Tendencies for the determination of the level of integration changes from one category of job to an other.

Regardless of the different levels of the variables, the levels of integration for category 1 always stay fixed in integration level.

The level of integration for category 2 and 3 jobs show differences depending on the different levels of the variables.

When the job is **accepted**, cost of integration is **high**, the availability of sub-contracting is **high** , for category 2 and 3 jobs the majority of the answers are for sub-contracting.

When the job is **accepted**, cost of integration is **high**, the availability of sub-contracting is **low**, for category 2 and 3 jobs the majority of the answers are for rejection.

When the job is **accepted**, cost of integration is **low**, the availability of sub-contracting is **high**, for category 2 and 3 jobs the majority of the answers are for sub-contracting.

When the job is **accepted**, cost of integration is **low**, the availability of sub-contracting is **low** for category 2 and 3 jobs the majority of the answers are for rejection.

The answers for category 2 and 3 jobs are similar but show differences in percentages.

CONCLUSIONS

This thesis suggested that the determination of the level of integration of a given job is a two-step process.

The first step is suggested to be the determination of the decision to accept or reject a given job.

The second step is suggested to be the determination of the level of integration of a given job.

The determination of the decision to accept or reject a given job is suggested to be affected by

- the level of expected profit
- the level of probable frequency
- the level of non-monetary costs and gains
- the arbitrary choice variable

The determination of the level of integration of a given job is suggested to be affected by

- the decision to accept or reject a given job
- the level of the cost of integration of a given job
- the level of availability of subcontracting of a given job.

These relations are investigated by a research conducted on 24 different organiztional entities that work for the Kemer Country real estate development project.

This research showed that the determination of the decision to accept or reject a given job and The determination of the level of integration of a given job differe for 3 main categories of jobs. These categories are

category 1- core and subsidiary competencies of the firm

category 2- jobs that the organisation has a willingness and tendency to accept

category 3- jobs that the organisation does not have a willingness and tendency to accept

The tendenceies of 24 organizational entities in Kemer Country for the determination of the decision to accept or reject a given job and The determination of the level of integration of a given job that are observed by the research are given in the study chapter.

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