

Determination of House Price Index for Escalation of Construction Costs in “Middle East Countries”

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ABSTRACT

In this research, it is shown the surveyed articles that gathers and builds up a Cost Price Indices for new housing, which is by using a strategy for "Stratification Price Median", stratification describes areas, locations and geographical regions into different groups that covers the range of all houses and credit which approves everywhere throughout the Middle Eastern nations. This research concentrate on why building up a house cost price index for Middle Eastern nations was required, sources and scope of the indices, purposes for changing the stratified median cost approach, using of stratification and weighting methods in building the index. Also, technique for building up another lodging price index explained and index consists on the supporting of 20 NUTS 2 locales areas are checked, which means the reference point for such a grouping is known as Nuts. At last, observational relations between financing costs, lodging credits and House Price Index (HPI) are inspected.

Keywords: House Price Index, Stratified Median Method, Inflation Rate, Escalation in cost, Middle East Countries

ÖZ

Bu arařtırmada incelenen makaleler derlenerek yeni konutlar/evler için "Katmanlařmış Medyan Maliyet" stratejisi kullanılarak "cost price indices" geliřtirildi. Katmanlařma Ortadoęu Uluslarındaki tüm evleri ve kredileri kapsayan geniř bir yelpazede, alanları, konumları ve coęrafi bölgeleri farklı gruplar içerisinde tanımlamaya yarar. Bu alıřma, konut maliyet fiyat endeksinin Orta Doęu Uluslarında niye geliřtirilmesi gerektięine, endeklerin kaynaęı ve kapsamına, katmanlı medyan maliyet yaklařımını deęiřtirme amalarına ve konut endeksinde katmanlı and aęırlıklandırma metotlarının kullanımına yoęunlařmıştır. Ayrıca dięer konut fiyat endeksinin geliřtirilmesi için teknik aıklanmıştır ve 20 NUTS yerel alanlarını destekleyen endeksler kontrol edilmiştir. Bu endeksler NUT ları gruplamak için bir referans noktası anlamına gelir. Son olarak, finansman masrafları, konut kredileri ve konut fiyat endeksi (HPI) arasındaki gözlemsel iliřkiler incelenmiştir.

Anahtar Kelimeler: Konut Fiyat Endeksi, Katmanlı Medyan Yöntemi, Enflasyon Oranı, Maliyet Artıřları, Orta Doęu Ülkeleri

I dedicate this thesis work to my Parents, My Grand Parents and also my siblings and Friends who prays for me and take care of me.

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LIST OF ABBREIVATIONS

CBME	Central Bank of Middle East
HPI	House Price Index
MEHPI	Middle East House Price Index
NMEHPI	New Middle East House Price Index

Chapter 1

INTRODUCTION

1.1 Background

The essential objective of the Central Bank of the Middle East Countries (CBME) is to accomplish and keep up price soundness through the structure of expansion focusing on arrangement. Appropriately, foreseeing the future course of expansion in an exact way is a critical goal to keep up this objective. As a result, looking after the advancement in housing cost is an essential element that is concealed in monetary policy settlement which is targeted at sustaining cost establishment or price stability. A genuine measure of house costs is likewise a critical sympathy toward advancing money related security. Eurostat has published, since February 2014, a microeconomic imbalance procedure scoreboard for the surveillance of microeconomic imbalance. The scoreboard consists of ten indicators that include unit price, median price, consumer price and house price indices taken from the experimental house price index for which data are publicly available in the Eurostat house price index release. Missing unit prices and experimental house price indices have also been included in the scoreboard based on other non-harmonized sources.

1.2 Problem Statement

Developing a house price index (HPI) for Middle East had for quite some time been one of the reflection of the Central Bank of Middle Eastern(CBME). Inside this system, the usage of escalation focusing on administration since 2006 has strengthened that expectation as the CBME likewise must know about any component that may affect price security. In addition, the worldwide budgetary emergency, as well as a sanctioning home loan additionally make simple therefore house cost indices were required as Middle East Countries. (Richards, Prasad,2008 and 2006) at stratified as well as reports by (Statistics of Bureau Australian, 2009) above working up about homes estimation index by the stratum utilized by Australians create heading this research. A late emergency demonstrated that expansive increments in resource costs can be a risk to cost dependability. Since the emergency, there has been an expanding acknowledgment among financial analysts and policymakers that national banks ought to screen resource costs and also material costs (Blanchard, 2010). The development in the estimation of advantages that can be used as surety in like manner redesigns the gaining possible results of individuals. The self-supporting framework made thusly may provoke ascends in the hotel market. If economic situations start switching, a shared attribute feature among 2 advertise might fortify an increasing of the financial condition (06, IMF). There are at present, internationally accepted guidelines on compiling house price index. However, a recent initiative to produce a Handbook on house price indices is near completion. Experimental results have been developed by Eurostat (2014) on the development of comparable house price indexes for owner occupied housing in

the framework of the harmonized indexes of consumer prices for countries in the euro areas and at the European Union level. A common set of accepted methods and approaches in this regard is described in a technical manual published by Euro stat (2015). Hilber *et al* (2015) demonstrated the variability in European country house price index growth rates between 1990 and 2006-2015. House price index in Spain, Belgium, Ireland, the United-Kingdom, the Netherlands, and France more than doubled; the Nordic countries, Italy and Greece increased by about 50-100 percent; and Germany, Austria, Switzerland and Portugal remained largely flat or fell over the two decades. Often global/regional house price inflation is measured using averages of selected country house price indices European Central Bank (2015). There is naturally much concern in the literature with the relationship between (real) house price booms and banking busts including Crowe *et al* (2014). Empirical work is often based on a sample of countries and includes analysis of the cross country coincidence of real house price index changes, the magnitude, duration, and characteristics of house price cycles, and cross-country relationship between house price index changes and those of other macroeconomic and household financial variables. Implicit in such analysis is the assumption that the measurement-related deference in house price index between countries are not of a nature/sufficient magnitude to adversely affect the results. Crowe, Christopher, Dell 'Ariccia, Giovanni, Igan ,Deniz and Pau Rabanal(2014) .

1.3 Objectives and Scope

An issue arising through considering the study is as follows:

- 1) Which were the necessary parameters effected a changing of cost index in construction house price indices in Middle Eastern Countries?
- 2) What are the main reasons of price change and what is rate of change?
- 3) Compare the cost variances with Middle Eastern Countries?
- 4) What is the strategy for calculating house price index in Middle East?

The objective of the research has been analyzed the effects of factors affecting the calculating on House Price Indexes HPI in Middle East Countries and to answers the above research questions.

The main reasons of price change are increasing growth of population as it had increased from the beginning. With rise in population, incomes have been increased too. Another reason is rapid growth money supply along with increased in non-development expense of the government.

This is when planned cost is differentiated with completed work cost. When earned value is subtracted from the actual cost and calculated, this gives cost variance. It allows to check financial progression in the business.

There are couple of ways to calculate House price index. One of them Hedonic Regression and another is stratification. The hedonic method rests upon the formation of regression model in which the dependent variable is the price of houses and the explanatory variables are those representing the quality of dwellings.

Stratification has been preferred for constructing house price index (HPI) for middle east is based upon the idea of diving the heterogeneous housing market to homogeneous strata.

Henceforth in the extension that was considered in the lodging/housing market, costs of properties get to be accessible when they are really sold however exchange costs are generally not reported. Hence, an intermediary cost price which is both dependable and set to reflect the real cost is required. As a beginning stage of finding a suitable intermediary for price, banks and land evaluation organizations were asked for their data resources. The Research were accomplished for Middle East as well as assessment of proclamation reports where there is set up by land evaluation organizations at the season of endorsement/approval of individual lodging credits stretched out by banks were assembled and examined. Investigation of the arranged information exhibited that assessed esteem for a home can be utilized as an intermediary for cost without dependable regulatory records at exchange costs.

1.4 Research Methodology

Building a price indices measuring is a testing assignment. The fundamental test is the heterogeneous way of the lodging/housing market. No abode/dwelling is the same of the other, contrasting as indicated by different qualities identifying with physical ascribes or to areas. In addition, the qualities of the houses executed in the business sector may change after some period. Second test is the illiquidity of the lodging market as in offers that sales in the housing market is not persistent. Moreover, it is difficult to check the cost of an abode before the deal is acknowledged and the genuine deal costs are typically not reported. Even with such difficulties, we check

accessible sources, methodologies and systems to have the capacity to develop the most illustrative indices.

1.5 Research Achievements

In this examination, we exhibit our encounters of assembling and developing a HPI accentuating the philosophy utilized. The CBME dispatched a HPI to screen house costs beginning from January 2011 to April 2016.

The point is to understand the heterogeneity issue of lodging business sector and develop the impact of design transformed might have seen across information from group time to time. Out a few methodologies for building a House Price Index current on a writing, therefore they choose for utilize stratum median cost price technique consist of information accessibility as well as measurable relevance. By executing this technique, lodging business sector is partitioned into strata that will prompt frame more homogenous gatherings than the whole community. For the usage of the technique we required an intermediary cost because of the non-attendance of solid managerial records at exchange costs. In between, we utilized evaluated prices appointed by land examination organizations during season for endorsement of separate lodging credits.

In other case to utilize median/middle estimations for unit cost. They check as opposed to the main esteem appraise cost, the median esteem mirrors a focal inclination unit cost for homes shown positively skewed distribution. That result is likewise reliable along concern literature. Additionally, it's probable the median quality channels for exceptions and has a tendency might less unstable than the mean

worth. In this way, we favored utilizing the median worth to have the capacity to deliver a strong weight for home costs.

Enhancing the stratum through acquainting newly framework with develop furthermore same type of strata are between the primary arrangements for up-coming duty. It's additionally expected to investigate a possibility for different techniques, basically a hedonic relapse strategy, at whatever point an adequately long arrangement of information gets to be accessible.

1.6 Research outline

Coming section, it is discussed about a necessary of cost price index and also monitoring house prices for central banks general in literature review. Then, it is introduced our method of research consisting that sources of data, scoping as well simulations are discussed in 3rd chapter. In 4th Chapter, an investigation of experimental relations between financing costs, housing advances and the indexes. The last chapter is regarding the conclusion.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

Numerous studies have been directed to create phenomena cost indices for various sorts of development deals; each data by utilizing varied weights relegated cost or work prices merge in that. A created cost would additionally have tried for characterize the amount that would depict some cost varieties through expenses the selected sorts for ventures. Then again, a portion of the research was conduct for choosing the best appropriate index with effective accessible with everyone indices. Here this part intends to show us the data for past research in regards to cost price indices produced for various sorts of lodging activities, with point by point clarifications about the calculation structure.

2.2 Cost Index

This principal price records were produced via (Carli,1750) for deciding an impacts for the disclosure US about effective a collect influence cash in Europe (Ostwald, 1992). Then sorting for the price indices in the escalation indices, which endeavors to alter expenses of comparative activities amid various eras. The building news record (ENR) indexes began in 1909 is the most seasoned increase index at present utilized by architects (Grogan, 1994).

In index figuring, different techniques are utilized by sort and scope of the indices. In this way, it can be a simple approach to look at the index computation strategies with the index sorts. SSI Turkey (2002) gives a characterization of the indices as follows:

1. Area and Time Indices
2. Dependable and Variable Indices
3. Simple and Compound Indices

Area index is characterized as the estimation of dependable change which is demonstrated by any accurate variable, for example, society, generation and cost among the areas like districts, territories, regions and so forth (SSI Turkey, 2002). Likewise, era recording is the estimation of objective modification whichever is shown to a factual volatile, for example, topographical, populace, generation and cost with respect to time. These indices depend on a period arrangement and utilized on execution generally. The grouping of the index is as dependable or volatile records is normally legitimate cause for duration arrangement. Steady focus on indices that description to index got by clarifying the whole arrangement of the indices for rate of the normal specific time. A consistent time, moreover information of different periods anticipating about index, does not change (SSI Turkey, 2002).

At a point when the real time frame that is volatile or let consider its unstable indexes with respect to time frame, at eventually when generalized the estimations of a present period are contrasted and particular those of the past period, it is called volatile-based record.

2.3 Index Price Generalize

SSI Turkey (2002) characterizes the cost indices is an instrument that calculate the change of rate through median of the costs of merchandise with administrations was changed after some period. Goods of products merchandise with administrations as per the business sector lying under premium (purchaser, maker, radiate, import, and so forth.) and speaking to this business sector is built up and the costs of the chose materials are observed periodically. The rates records are named by immense and administration market where the costs are checked. The purchaser price can be record, producer cost index, radiate price index, import cost price might be case for those index.

A cost records necessary for deciding a design of a country, monitoring a financial choice, building up the obtaining force of the individuals, deciding the expenses and wages, setting up the retail costs for products and administrations bought by buyer and deciding the change of these costs in time. Then again, which these all are need for an assert a financial situation and inclination, deciding a circumstances and making up-coming future choices.

An essential volatile needed as an estimation of a cost index below are:

- Goods and Services for Basket
- Weights Base year
- Cost Base year
- Cost of Current indexes

All things considered, cost index have been produced to quantify the effect of expansion more than a few divisions. In this study, it was planned to think about the sufficiency of a few accessible cost records once you included then its created or choose the index which gives with the best execution raising their expenses house ventures/projects. An examination of those indices shall might be shown by directing factual/accurate strategies, for example, regression investigation and approval.

The UK STAT (1995, 96), then again, noticed the development cost are principally utilized for investigation of price developments and for price arrangement in the development business, for price acceleration conditions in development tenders, that are for collapse of segments in the country wise document. A genuine association indicates the essential employments a like index as:

- Calculate progressions for price development objectives for a development duty.

Inside in building up a system of lodging activities, get ready for assessments, contrasting appraisals and offers, and booking ventures inside financing boundaries, its important some has methods for focusing on cost price developments. A point that's shown solid type of work required for upcoming development duties on worth terminologies.

- Concentrating on the effects of transform costs upon aggregate development price so therefore offering costs for development duties.
- Calculating use for expended in real price at consistent costs.
- Deciding the substitution cost price protection purposes.

Uses for development cost price (there essence and different implement on cost deciding attributes in advancement activities check out might be dispensed with) had been extensive effect on the off chance that they are utilized to decide exchange in cost. In the event that development duties for the first essence are not more produced by account of considerable transform in substantially systems, and so forth the exchangeable prices got from the utilization of development cost records might be extensively not exactly the sum really need might giving for change.

- Acknowledging cost price indices improvement in development tenders.
- Thinking for creation by the physics of materials and checking the productivity in pioneering measuring instruments.
- Error for specific segments in the interior records of measuring in country wise

Notwithstanding the gathering of national records in present costs are needed bearing consistent cost calculate the different that these impacts of cost and volume increments (or abatements). This need is especially solid in nations encountering high inflation.

Numerous nations, prices records distributed made by administrative associations for raising in the expenses for the previous activities towards temporary workers furthermore the order for the gatherings as for their experience. In Middle East Countries like Turkey, Pakistan Government of Human Duties and Settlement distributes each yearly an index might utilized their given reasons. Be that as it may, this record is a general indexes figured insight commitment for the numerous framework end might not appropriate, maybe nor adequate, to the housing ventures, were huge numbers which are those frame-work might not be existence of cost either

might nor cover the critical measure for the real. Essentially, Producer Price Indices distributed are second indices which are likewise normally utilized due to acceleration reasons with the lodging ventures. Be that as it may, this index is intended to reflect cost price constructions when all is said to be work in done through items and large specifically concern to a lodging price. Consequently, research intended for channel particularly a lodging ventures, growing latest price records is utilized with an end goal for raising an expenses through lodging tasks for common works and by contrasting them and the current distributed indices with the utilization of factual methods. Moreover, future estimations of these indices were likewise planned to be anticipated by developing models, which empowered to likewise foresee the future expense of such sort of undertakings. Once more, factual systems were led to evaluate the exactness of the anticipated qualities and the records giving the most precise estimations were chosen at long last.

2.3.1 Services for Goods and Baskets

Goods products as well as administrations and baskets products are particular decent or administration indices and costs is engaged occasionally so as to compute index. In indices, it is difficult to concentrate the greater part of the housing price constructions of the products of goods and services. In this way, they are limited with essential products of goods and services as per a foundation and named as wicker basket of goods and services. The products of goods and services selected are characterized as sort by type, amount and quality, and upgraded by reason for the specific indices.

2.3.2 Weight

The weight is described as the contribution which is for chosen the products of goods and services respecting for their qualities in the entire of baskets and that is needed in the estimation for index. As below 2 type of weight are:

Stable weight: It describes as the aggregates of which utilization and creation design couldn't influenced for any time is known as weight of stable:

Volatile Weight: It describes as the aggregates of which utilization and creation design influenced for any time is brought along these lines.

2.3.3 Price for Base Year

Year measure for the base year cost for normal cost for material or administrations used to compute were records on the base year of the whole year individually by monthly.

2.3.4 Latest or Current Price

Latest cost in which that current cost for merchandise and services of administrations utilize to figure there cost index.

Indices is re-established period by period on the cause that SSI Turkey (2002) said inside Turkish policies, that are civil likewise social, financially, or it states that socially contains indices or inside they might be fast convert, the items as well as administrations likewise transform in front for newly mechanical technologies.

2.4 Construction Price Indices

2.4.1 General

Development Cost index are computed these measurable directly for states to take care of a necessary demanding emerging towards needed evaluate genuine converting on yield towards their exercises (such as making stable price sequence/series) that can't determine exclusively towards allusion a standard constructing as well as development measurements/calculations (, OECD 1996, EUROSTAT, 1995, 1996). The States of Statistic's Directories and State of Euro,1996) likewise noticed for these development price records is utilized as a part of ensured worth provisions on lease, renting, as well as different contracts; conformity for the offers tenders that lodging housing upon development; as well as a premise that these indices are protected reasons. These additionally utilized flatten country wise records assessments that yield for development exercises, as well as hulking altered central of arrangement on private development. Inside on the outline, development price index is utilized to track changes/patterns in the expense (or cost) of development. They don't give data on the present business sector estimation of development work, procuring limit, or rental property.

The compilers of development cost indices face some issues particular to development. They are expressed quickly in (Turvey Demon, 2005, 9 June,) are as below:

1. Building ventures are different from each-others; every project has its own specification, aside from this their standardized inter-manufactured individual single houses for families.
2. A details about development tenders permit perplexing as well as complicated,
3. For duties upon numerous agreements took completing in years or months, it's very important for recognize tender (delicate) costs concurred to the specific point on duration as well as a costs for latest development yield upon various time. At the point when contracts incorporate an escalate for modification on salary and a costs for perceptible, yield costs as it supposes to be output prices is couldn't be establish ahead of time,
4. Primary where single major constructor, an agreement cost incorporates the noteworthy non-measured component (establish a "Prelims" inside London) in the majority for contractual constructor's benefits/profits as well as overheads is stacked/loaded (Turvey Demon, last get to 2005, 9 June).

Building cost indices might utilize specific directly two reasons,

- 1: An escalation for latest investment in development ventures/projects for giving appraisals of development consumption on uniform costs.
- 2: One part of inflation should be calculated.

Those reasons demand need more focus on generally specific two respects:

1. For flattening/downfall, division of development consumption by the indices should complete time by time over the length of every agreement to yield a measure of output in construction time by time. Focus on inquiry of inflation, then again, what numbers that period when an agreement is registered/signed, not the period(s) of installment or conveyance. Consequent the entire of the concurred tender cost ought to enter a swelling cost indices in the time when it is concurred.

2. It must be for downfall/deflation, a latest-placed indices are required keeping on mind the end goal to separate into worth to determine an altered base evaluation of use at current costs. However, to measure expansion, an altered base indexes is required, both to acclimate with the settled base indexes utilized for different sorts of consumption, and to give an important period to period indicate of changes in concurred costs (Turvey Demon, last get to June 9,2005).

In vast terms, development cost records for calculate on transforming a costs for rather the entries, and yields also, development action. Notwithstanding, phrasing utilized as a part of the setting of cost indexes for development movement shifts between nations. There is additionally impressive variety in the consideration/avoidance of things, for example, transport costs, utilization charges, fittings, and so on (, OECD 1996, EUROSTAT, 1995, 1996). The States of Statistic's Directories and State of Euro,1996) A terminology utilized as a part of this study to speak to the development price indices; subsequent to the extent/scope of the study is drawn with the information of the real tasks situated in Middle East.

The greater part of the data utilized as a part of the assemblage of development cost indexes are gotten from the supply side of the business (i.e. from development construction firms, sub-temporary workers (contractors), supply of material firms, and so on.). In any case, a remarkable component of development action that effects on the aggregation of development price indices is that as a rule the completion of houses or development is not delivered and sold by one development temporary worker (contractors) alone. Ordinarily, the customer (or designer accused by the customer of the duty of directing the development) finishes up contracts with various firms. A large portion of these are prevalently part of the development branch; notwithstanding they may likewise have a place with different types like economical (such as material of metals development (steel construction), production for the apparatuses installer, designing, and so on.). The customer client (or directing designer) welcomes development contractual workers (who thus may welcome sub-temporary workers called contractors) to embrace duty on construct or development work state. The development temporary worker's (contractors) business costs of individual work classifications from the development segment are as a rule likewise the buying costs of the customer.

In shortly sum-up, developing cost index might be explained an indexes composed taken like:

- Costs given to a contractual worker (contractor) entries for development procedure;
- A cost gotten for the finished yield/output of development action paid by the customer;

- The offering cost including the majority of the interest cost components given to the buyer and or last proprietor(landlord),

(OECD 1996, EUROSTAT, 1995, 1996). The States of Statistic's Directories and State of Euro, 1996)

2.5 Cost Price Indices (CPI)

The Government for Local Duties as well as Establishment distributes each month in the whole year an indices are utilized for raising a previous expense for development tasks around Middle East. The topic for indices are ascertained/calculate taking into account the rates are escalate in the costs of specific houses and vela's. Price Indices likewise might have characterized for the adequate normal in cost price of escalation around these specific gatherings of houses as well as vela's.

Clicking in conditional of inadequacy of price records might has material of states different from US, (Pintelon and Geeroms,1996). Further-more Research alluded for usage of this price indexes as well as advancement since non-civilian, United States nation. Input in examined, a creator's delineated improvement the price records the compound procedure contracts in UK countries, all the most particularly in Bulgaria. Led this research with the contribution of the information in regards to the cost heightening period from Pintelon (1965 to 1994) and Geeroms(1996). A price indices have dimensionless, a year denoted by base year which was doled out as per the accessible information/data. At that point they got cost indices by divide the real/actual cost on paid individually every month in yearly wise by the base year of cost indices, as well as multiply an outcome is 100. A real cost on given for individually every month in yearly wise ascertained/calculate the average of the

group of unit costs all through the given for base yearly on that this research.

Information for these indices were made out for general two indices as well as to know these indices. This brought about creating a design modeling simple that easily access these indices was directly accessible that some states. The hindrance of this model were for a since that design for modeling depended in just 2 basics framework, that create it's too much simplicity of the cost price escalate. Pintelon and Geeroms (1996) states, utilizing that design material a drawn at an end out stretch to a period may have brought about uncertain outcome.

The escalation and inflation as well as area indices was utilized as a part of request to modify costs for time and area Remer, Huynh, Agarwal, Auchard and Nelson (1998). Thus they robust on the utilization of these records, distinctive sorts of indices accessible, and a few cost appraisals. The price predictor was robust the volatile such as period as well as area then the expense for comparative undertakings was accessible, Remer et al. (1998). Now, the use of cost indices came into scene keeping in mind the end goal to make this computation. Then again, selecting the most reasonable record to utilize was really the fundamental issue in utilizing swelling indices. The creators represent the huge numbers for indices to giving support a price estimators find an improved and right one.

These would have 4 kinds for price indexes: Researchers decided, calculate price, factories as well as area. Researchers utilized price indices to accompany during indices process: generalize function, temporary worker (contractors cost) value, valuation and unique reason. Universally useful cost indices cover an expanded range

of a specific factories and different kind in price indices, (Remer et al., 1998) for example, a building newly measured indices. However, the creators specified that contractual worker (contractor) cost price indices measure the modification in offering costs of different sorts of structures and houses, for example, the Turner general building indices. They likewise characterized valuation indexes and exceptional reason indexes as its consider to a substitution costs.

Exploit an information of seventy records might be separating this information in 2 gatherings that have United States Indices as well as multinational Indices Auchard and Nelson (1998). A United States Indexes consists indices pertinent for ventures projects situated inside a United States, Moreover, multinational Indices consists indices accumulated with information takes dimension external a United States. Bearing likewise classified this seventy records as indicated by their industry classification, sort of cost classification, and illustration to discover possibly valuable indices. With a specific end goal to locate the most fitting cost indices to be utilized, they recommended reaching record compilers for point by point data on how the indexes are built. At long last, a rundown of investment appraisal's entries utilizing escalation as well as area indices are below: Auchard, Agarwal,(1998)

- Indices for inflation is statistical by measured arrange average, or along these lines ought to just be utilized for ballpark or request of-size measures.
- Inflation records are normally constrained in extension to the specific factories and modern portion. The designing latest calculated development indices might have twisted on a preceding venture/projects. An Indices of ENR were planned since utilized by purpose in structural designing involve an including huge amounts of untalented let

consider unskilled worker, so that couldn't be the situation in the procedure for hardware purposes. (Park, 1973)

- Escalated indices were calculated by comparative sorts in the expense can developed for various measurement midpoints for subsidizing's expenses. In instance, Statistics of Labor Bureau aggregates 2 servants for price Indices in the different sorts in specialists, 1 in advantages another for salary or for pay rates. Looking at a price calculated to specific inflated indices or a records are figured expansions in likelihood for price gauge estimation. (Monthly Labor Review, 1995)

- Few records don't represent radical innovative changes in configuration and development. As innovation advances, the cost weightings for a specific index can change, which could possibly be reflected by the escalated record. For instance, creation innovation improvements may move producing costs from work to plant gear. An expansion indexes following the assembling expense may not acclimate to these progressions. Taken the tolls of estimators ought to dependably check the appropriateness of cost indices handling as a part of their calculations.

- Inflation indices estimations turn out to be progressively incorrect likewise period acting among information focuses are inflated, such as, a five figuring years is likely more exact a twenty escalated years.

- Few escalated indexes depend on distributed rundown costs (instead of business sector costs) and time found the median cost of work conditions. These indexes can be obtuse to fleeting financial revolution fluctuations.

Cheng, Wilmot (2003) done research so as build up structure for assessments up-coming inter-state building price around Louisiana. These expressed where the activities are cost, there expenses having evaluated as far as the present cost of the venture/projects, and this appraisal is not balanced for the year in which the task is planned for implement. These cost increments can be huge, obviously, total crosswise over projects; additionally, they escalate at a robust rate every year into up-coming years. Assessing future roadway development was the center of their study. So as to depict the implement in general building costs later on, a prescient/projective building cost indexes was taken on research.

Cheng, Wilmot (2003) utilized an information as well as scaffold tenders, where they having gotten towards superhighway development ventures consider from Louisiana amid a duration year 84-97. Five sub models are cost framework would be framed keeping on their mind the end goal to foresee general superhighway development prices. About research, a powerful component, would observed might be loans for that objectives, activities, as well as gear utilized as a part of building the project. Moreover, attributes of separate tenders or a tenderizing global climate around there had been tenders would consider additionally influence building prices of indices industry. Specifically, tender limit, time, area, as well as a quadrant on where the agreement are consider where it shall be available significantly affect tender price. Given figured, difference in characteristics of significant indices, numerical of planning changeable, after changeable in building exercises, benchmarks, and details likewise having critical effect for the tender prices.

A dummy structure made these both scholars Cheng, Wilmot (2003) repeated previous general development prices sensibly precisely till high estrange of

confidence. Anticipated their general development expenses were not altogether not the same as checked prices at the ninety nine percent of his confidence level of significant figures. A dummy assessed the superhighway constructed price around Louisiana would be build up quickly year of (2015-16) that might have foreseen either previous methods would be hypothesis and either a price for swelling would utilized an evaluation up-coming increment around rates. A creators expressed that dummy structure can use for their superhighway authorities as a part of Louisiana to test elective contract administration techniques. Escalated contract sizes, decreasing the term of agreements, lessening offer volume and fluctuation, diminishing the quantity of arrangement implement, or diminishing an extent for agreements consider on final each quadrant manage decreasing general building a prices. There scholars additionally said interstate authorities were survey an effect of systems that they accept would be accomplish that eligible for a dummy structure. At last, they described that, a dummy structure help with assessing up-coming development prices as well as giving a way for creating better dependable development indices.

A dummy structure of the anticipate building prices index around Taiwan made by Mei, Wang (1998).A serious evaluating element for creating a price indexes are as below:

1. Observations for the variance indices
2. Required duration for proceeding building price indexes
3. A measured correlate by all of the proceeding build up price indices.
4. A median cost for developing sequence of the price index there had transform into a series.
5. A prediction for the mistakes among the estimations cost for develop price index or a checking prices in to the develop price index.

Concentrating for previously data gives in variables scholar gives a scientific dummy structure with a specific end goal to perusing the present and future development cost indexes (Wang and Mei,1998). At that point, they tried the soundness of the model by utilizing the checked information of the development cost indexes receive from the Executive Yuan of the Republic of China. Subsequent to setting up and testing the model, the outcomes demonstrated that the model is satisfactory in evaluating the pattern estimations of building cost indexes and can likewise gave the anticipated estimations of them in Taiwan.

2.6 A Checking for Prices of Houses for Middle East Banks

Checking homes costs for huge escalation on interest among national and international banks from various viewpoints. Changes in house costs assume a vital part in the transmission instrument of financial arrangement and may significantly affect total interest and escalation. The lodging or housing business sector can impact money related changing towards 2 links, a loan fees, a benefit costs as well as bank distinction link.

A loan cost relationship directly affects utilization and speculation choices and eventually financial activities and escalation in indices. Escalate on economic monitor through bringing down financing costs will escalate the interest for lodging housing which prompts higher house costs. The consecutive increment in complete wealthily will thusly raise lodging housing utilization and total interest. The way that various states encountered a domain of verifiably low financing costs and high increment in house costs among the most recent decade highlights the vital part of the policy of monitoring relationship with the housing market.

The credit cost channel identifies with the wealthy impact created by escalating house costs persuade higher utilization possible outcomes, bringing about weight on customer costs. Another point of view with respect to the effect of house costs is that, rising house costs may reinforce lodging development uses and accordingly to escalate total interest. The latest monetary crises in economically assigned that the improvements in resource costs, particularly lodging costs, could have huge negative consequences for the genuine or real financial.

Around many eras of crossing a bad situation around U.S, loan costs bearing at recorded downwards to a Banks of Federated Reserve have been divide financing costs fundamentally to quite down from going into subsidence in the mid2000s. Low financing costs diminished obtaining costs and made simple credit conditions persuasion housing units to put resources into lodging housing, bringing up house cost increments. Simple acknowledge conditions coupled for the desires that house costs would keep on rising, supported theory and a few housing units even began to purchase second buyer or second hand homes with a specific end goal to benefit from house cost increments setting off a lodging robust. Expect for better of constant rising in house costs drove the explorer to embrace customizable rate contract advances or an action for an institutes of banks for getting high level of superior income drove for the stretch out adjust in prices for mortgage loans of interest (credibility) where there are all confidential. A previously described purposes brought about the subsidies-vitality (sub-prime mortgage market) home loan advertise grow quick.

The crises were demonstrated that extensive increments in resource costs can be a high to start low in cost price. Since facing the difficulties to selling the houses,

there has been an escalating in realization among business analysts and policymakers that national banks ought to screen resource costs and additionally merchandise costs (Blanchard, 2010).

Ahead to the recently budgetary crises, the regular perspective both in the educated community and in national banks was that accomplishing cost and yield security would advance monetary should strong. Hence, all national banks in both progressed and developing nations embraced money related strategy systems with value steadiness as the essential target (IMF, Capital Market Department and Monetary, 2010). Moreover, the major thing is learnt is taken from change(crisis) are those, on a situation of costs of products or administrations or services taken after as table way, expanding resource (escalating asset) costs remains as an abusing element to budgetary security or financial market of stability. A selected center of money related approach on accomplishing cost of soundness is inapplicable in our currently situation of world where resource cost misalignment sanded monetary not balanced characteristics are progressively predominant is most important (Bean, 2003). National banks ought to view value steadiness and monetary dependability as very integral and commonly predictable goals of soundness, to be sought after inside a bound together arrangement structure (Bernanke and Gertler, 1999). Truly, the assessment that national bank shaving dangers in their money related framework ought to not thoroughly disregard the rises in resource costs is step by step getting to be far reaching in worldwide stages.

The credit channel has genuinely comparative impacts on current indices. At whatever point interest is supported by a development in credits, house costs go

upwards expanding the lodging house become wealthy which instigates utilization consumption.

The current investment related with crises has additionally brought up the issue of whether a national bank ought to be worried about lodging index expansion. By numerous national bank's targeted the loans rate measured by the consuming cost price index (CPI) and lodging or housing as rental costs is an essential segment of the utilization basket.

Under these perceptions and hypothetical contemplations, it is obvious that developing a house cost price index will be of awesome significance for some establishments, conspicuously national banks, which pays consideration on price dependability or stability.

Chapter 3

RESEARCH METHODOLOGY

3.1 Scope of Data Sources

Lodging marketing describes, costs characteristics or properties for price get to be accessible when they are really sold yet real exchange costs are generally not reported. In this manner, an intermediary cost which is both solid and capable to reflected the real/actual cost is required. As a beginning stage of finding a proper intermediary(proxy) for price, banks and land examination or real estate organizations were asked as could be expected under the circumstances information references. This Research were compiled a Middle East as well as cost prices indexes tells that set up through land examination organizations or real estate appraisal companies at the duration of permission for individual lodging credits as well as housing loans reached out by banks were analyzed and compiled. Investigation for the collective information showed that values of appraisals for the houses can be utilized as an intermediary or for proxy for cost without solid authoritative records at exchange costs. Likewise, the research assigned that indices tells might have rich information sources for having point by point characteristics or details of qualities for the homes and additionally data about the area/location of the residences. Moreover, checked for cost prices are complained for arranged for land examination organizations or estates association did not have standard configurations. Therefore, two basic choices had start a research. To begin with, had banks were resolved an essential

information inputs as its chosen a primary data sources. Another, evaluated/appraised estimations for dwelling houses is resolved that utilized for alternate cost or price for proxy.

Taken from a perspective that Central Bank of Middle East(CBME), a brief to a compiles valuated for houses are adequate for incorporated into an information sources such as data scope. Hence, a genuine or actual sells for the land/property as well as use for advance/loan doesn't need every assessed/appraised homes that are incorporated into the comprised of data scope.

An appraise estimations/values for homes that are accounted for only month to month premise by means of a standard organization/format persuade from the Central Bank of Middle East(CBME) (Check out Appendix 1). Therefore, an outlining an institutionalized report their formation, the determination was created between a framework exist around an appraisal proclamation. These are choosing by significance in developing a delegate index checking the optional techniques/alternative methods that could be utilized as a part of these may be use in the coming projects in future. The formation comprises for huge group of volatile that framework together with essence attributes or different quality properties for houses. Notwithstanding the variables gave for a central bank, few different framework needed to a calculated for an-indices that are delivered out from the gathered frameworks. Single index or unit index, that's need calculation for a partitioning an estimation for the land/property for hulking region for utilization or gross area plot, that is another framework.

Heightening wasn't just utilized for deciding current estimation for the previous ventures, projects; hence for anticipating of up-coming forecasting estimation of prices for a development ventures. For majority of the development ventures/projects are taken a lot of time whether they finish, expenses are relied upon to increment amid the development of the task, even with the diminishing expansion rates accomplished in Middle East in the course of the most recent decades.

In the vast majority of the agreements which the deposit will be made in US\$, a strategy for the escalating of development costs in tender. In a few ventures where deposit is made in US \$, there might be no cost acceleration integrated into the agreement. For these tasks, the temporary worker(contractor) ought to gauge future development costs for the agreement time frame and incorporate these expenses in the offer sum. Installments could be made in outside monetary standards for a few tasks that are contracted in Middle East. Indeed, even the installments will be made in outside monetary forms, the temporary workers offering for these tasks ought to likewise consider conceivable expansions in the development costs in Middle East.

The arrangement of valuation information/data is grouped by year of building and primarily two kinds of index are created taking into account this distribution. To develop the House Price Index for Middle East Countries (MEHPI) Turkey, Pakistan all assessment proclamation/ valuation reports that are utilized; while, for building a Newly Cost Price Indices for houses of Middle East (NMEHPI), assessment proclamation/ valuation reports for houses worked for latest and earlier eras is utilized.

3.2 Data and Compilation

An information needed that building the House Price Index are given from central banks expanding lodging credits/ housing loans. Central Banks of Middle East (CBME) exchange an information for a connected each and every month on an initial ten working days of the next for that months utilizing a foreordained proclamation configuration of Central Bank of Middle East(CBME). From primary phase of building indices, an information is presented to specific monitors. Later on underlying for the banks controlling is holding, an information is controlled a digitalized by Central Bank of Middle East (CBME). Another monitoring activity are led for CBME rather exchanging information for bases of data holding. Central Banks have been educated for an information therefore damage a holding situation as well as that is requested that create essential modifications. However, on disposal for incorrect information, remaining information is utilized as a part of the estimation calculation. The time of another phase for building a record or construction indices, an information group are presented for compelling worth investigation for utilizing a Method which is Hinges Tukey's technique. As indicated by this strategy, unit costs which qualify the accompanying equation is using as extreme values and avoided from the investigation;

$$m^2 \text{ unit price} < Q_1 - 3 \times (Q_3 - Q_1) \text{ or } m^2 \text{ unit price} > Q_3 + 3 \times (Q_3 - Q_1)$$

Where,

Q_1 = Lower Quartile and Q_3 = Upper Quartile

3.3 Method Stratified Median Cost Price

Here its checking homes costs for the noteworthy enthusiasm for national central banks, building the vigorous booming market the advancements on lodging/houses business stratum are critical. Despite, measuring house costs correctly is an extremely typical activity because of specific qualities of the lodging market or housing sector. Above all else, the lodging business sector is entirely different from the naturally desires. That is made out for ones that is absolutely different kind to themselves or different from others in nature. Furthermore, no house is the same of the other, contrasting as per different qualities identifying with physical credits/appearance or to areas with respect to location. Besides, the business sector is illiquid as in offers of homes doesn't continues or selling of houses couldn't frequent. However, it's difficult that to check a cost for the home behind a deal as an acknowledged and the genuine deal costs is normally nor proclamation. Let suppose that are difficulties, they attempted for catching the better illustrative record for attempting their as acquiring best reasonable estimations for a residences and also developing an example they have the strongly presentation to a mirroring for local or general components for locale area district that were indices is ascertained/calculated.

A "Method Stratified Median Price" that have favored the developing a House Price Index (HPI) for Middle East are controlled on partitioning a different lodging advertise on same strata or divide heterogeneous housing sector converted to homogenous strata. Strata are characterized supposing a parity for same nature of lodging qualities or making a homogeneity nature houses as well as quantity for perceptions and number of observations is needed in creating for a stable median

unit cost. The median unit cost of every plural stratum are measured to achieving general price indices, as consider like all of the stratum is weighting arrive all over cost indices.

In model of hedonic, that's a complement for a characteristics of the homes they bearing effect in price. Notwithstanding, an emphasis for the technique are framing same type of houses or strata of homogenous regarding together quality as well as cost. For same type of houses as significant idea for that strategy or its very complicated theme for this method, a paradigm as indicated by which homogeneity is resolved constitutes an extensive part of the investigation. Nations encounters and rules, for example, EU hand book Euro stat Indices Property Prices, year 2011, give diverse experiences regarding the criteria to be chosen. In EU hand book Euro stat mentioned, structure of area, region for the area, an area for land, as life for the design or structure age as well as a type for design structure is best essential cost deciding qualities or properties of characteristics.

This research contains, that a framework selected on shaping a group of strata is geological area, therefore lodging business sector are partitioned on provincial or regional parts. NUTS level is a source station that is gathered for data. NUTS Level 2 is a primary territorial sector moreover NUTS Level 3 is another, that is showing for the areas of provinces. An ending Nuts level 3 which is relates for the city of towns, having a central strata unit. Month to month information accessibility is likewise checked in deciding the strata. If there should incomplete data an occurrence of inadequate information for the towns, regions/provinces are acknowledged as strata. Likewise, if there should incomplete an occurrence of inadequate information for areas/provinces/regions, Strata will approve as the units are acknowledged by NUTS

Level 2. Second one critical part for strategy are weighted for middle cost/median price. A House Price Index (HPI) depends for the supposition where a median unit cost for assessed homes are characteristic for a median unit cost for every homes sell out. A median unit cost indicates a middle cost price measured for utilizing the quadrantile(quarterly) of unit costs of dataset also a sources of every 4 weeks, a former 4 weeks as well as a completing 4 weeks for barring an amazing qualities or exclude values in extreme range on every group or in every stratum. For a circulation for a unit costs for the groups are decidedly change, a middle/median cost value shows more worth than the mean quality/mean cost value (EURO, RPPI, 11). Besides, it's more probable then that middle costs/median value shift through-out the anomalies/deviation and reflected the focal inclination or middle tendency better worth mean costs/mean value. Therefore, a median based measure has a tendency getting lower unpredictable then the mean based measure (Smith, McDonald, 2009).

3.4 Construction of House Price Index and Analysis

A major part as well as competition side for technique for stratum median cost or stratified median price framing same strata or homogenous bearing comparative price disseminations such as having similar to home property. As per (Hansen, 2006) it is conceivable for produce great appraisals of transient/volatile price developments from median costs, rather the medians choosing from a suitably stratified information test which was intended to address the key issues of compositional change. Bunch rural areas that have comparative value levels and cost value construct to settle the extensive developments after some time and catch the immaculate value advancement of the lodging/housing stock. Australian case as, (Lane and Olczyk, 2008)

A Middle East House Price Index MEHPI are ascertained/calculated for measuring a median unit cost for every group that are characterized where is topographical part bearing adequate many other observations information for utilizing stratified median price strategy. A group of strata might have been city, the territory and also regional part as indicated for quantity the perceptions or dissemination for information or total observations and sharing the date. Since developing a general index; that the main position a measured normal for median unit costs for every city has been consider for taking median unit costs of areas. Taking another position, the median one costs in regions that measured for establish the middle costs of the regional group. At long last, a general records registered for getting a measured weighted normal for middle costs for regional measuring tools. The building a New Middle East House Price Index (NMEHPI), a median unit costs for regions that the measured to consider a one unit cost that complete nation specifically.

Taking a topographical extension, a Middle East House Price Index (MEHPI), that are built for the nation-wide premise, considers information relating for each and every evaluated homes in 37 regions as well as NUTS Level 2 locales the twenty covering all that regions. 8 areas having prohibited taken as degree because of inadequate number of perceptions/observations. While developing the MEHPI, information relating to the framework for newly homes among twenty areas therefore they have adequate perceptions/observations is utilized.

It is checked out for dispersion around these information set utilized as a part of developing the HPI for Middle East nations is skewed to the correct mostly for every stratum. A case in which privilege change conveyance or distributions for homes

costs could found in 1st figure. In addition, a characterized group bearing better contrast conveyances/distributions as far as unit costs in contrast with the assessed values or appraise price. As a consequence of the previously mentioned dissemination examination, it is chosen to utilize the unit cost instead of the evaluated esteem/appraise values, and the middle unit costs as opposed to the mean unit costs.

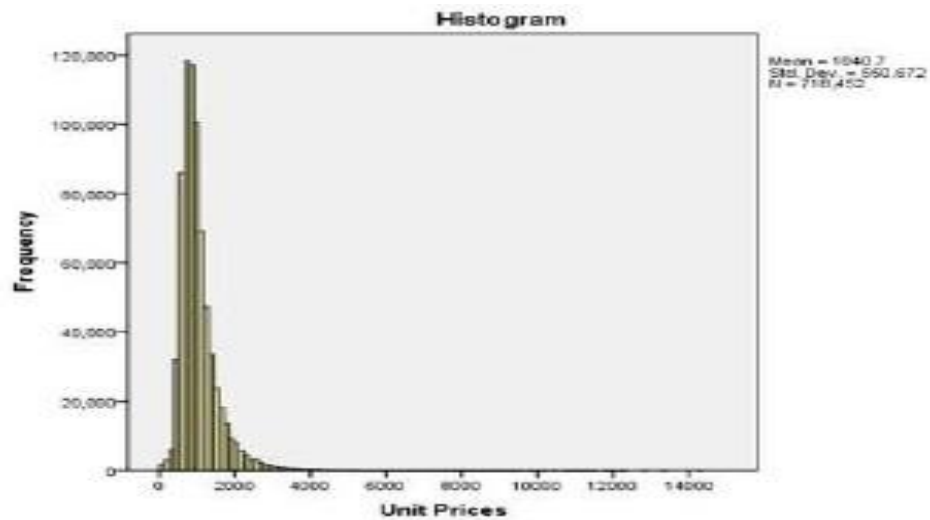


Figure 1. Whole Data Set. Source (Aslı Kaya, 2012)

Its intended to acquire the ideal stratified those together same teams as well as adequate observations perceptions to an-every stratum on every time. Therefore, investigating an information, it's on looking the dispersion anticipate for typical dissemination where would have fifty or more perceptions/observations in every 4 weeks, they utilized box plots and histograms as a part of the basic leadership procedure of building stratum. A histogram for quantity in perceptions gotten Town A, that's are resolved might have strata, this found in 2 Figure, though 3 Figure demonstrates the same sort of a figure shown in B City, therefore it's nor be resolved homogeneous. It got in 3rd figure shows, they got under 40 observation

that B City in every four weeks. Along these lines, B City didn't fulfill our adequate perceptions measure.

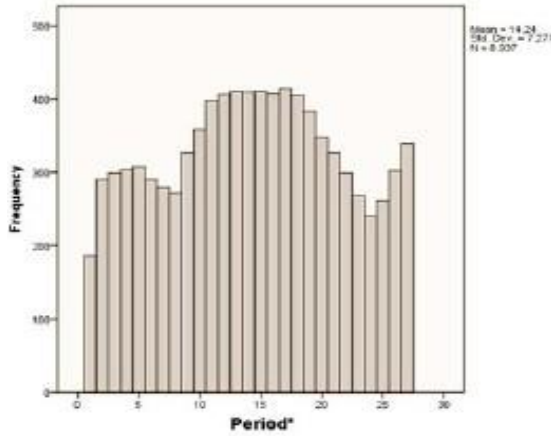


Figure 2. City A, (Aslı Kaya, 2012)
*Shown starting months Jan 2011

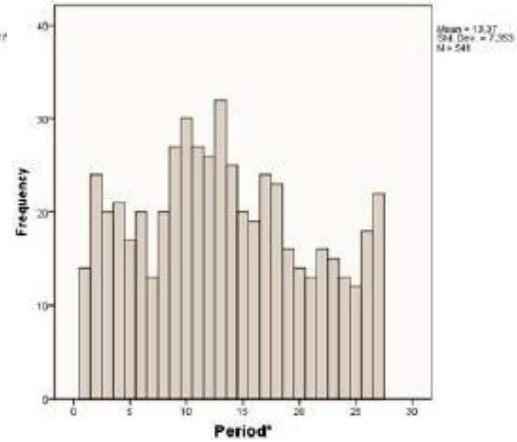


Figure 3. City B, (Aslı Kaya, 2012)

Analyzing the box plots for unit costs of every land part, it is investigated the divided properties of every one unit as well as the varieties in inter quartile/medians domain. From the case plot shown in graph 4, a consistent median unit costs then city A. It was checked out every 4 weeks, while those found on figure 5, City B demonstrates an unstable one unit cost conveyance/ distribute that's very far off the normal distribution. Thus, they chose weather a city has no less than fifty information/observations in every time and merges to typical dissemination so its understand for turns into the stratum, else it doesn't.

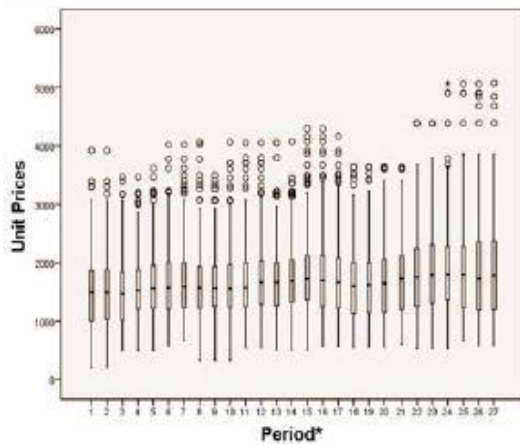


Figure 4. Cost for Unit City A
 * Shown starting months Jan 2011

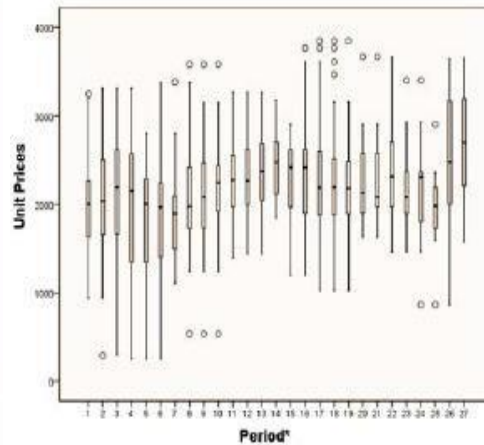


Figure 5. Cost for Unit City

In the settling on the strata on topographical premise, the researched whether every bunch has littler as well as better same houses were made itself homogeneous. Since an information incorporate the information for observation of rooms, its attempted for merging all groups in the information appropriately. Case in point, that city A homes having isolating for three bunches for every time; homes consider under four rooms structure Group 3, homes consider four rooms structure Group four as well as homes consider four rooms or above structure Group five. Shown in histograms portrayed shown in figure six-eleven, therefore quantity of information in every gathering varies among to gather significantly also greater part for the perceptions show up Figure 4. its shown on figure bolster a perspective therefore a design for very clear dispersions very relies that upon a quantity for perceptions/observations. It should have to check a case shown on figure very clear for Group 4 is on the median, a 1st as well as 3rd quadrants of homes costs display the generally strong and fix design, while those have demonstrated an unstable design for the different 2 gatherings. In this manner, since the house costs are not equally appropriated between the gatherings and costs don't produce a typical dispersion for every

gathering, it couldn't make subsidies-stratum by merging second measurement for the stratified system, for example, a quantity of rooms.

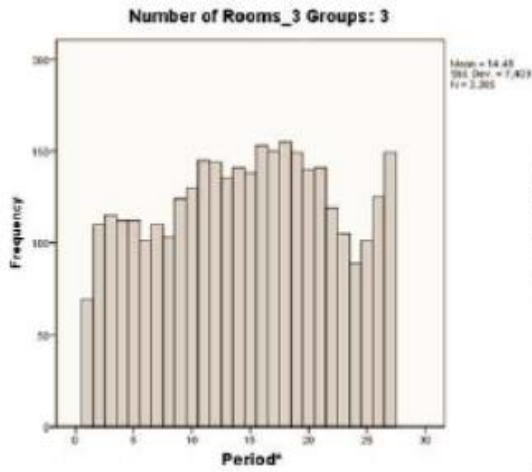


Figure 6. For Data Group 3

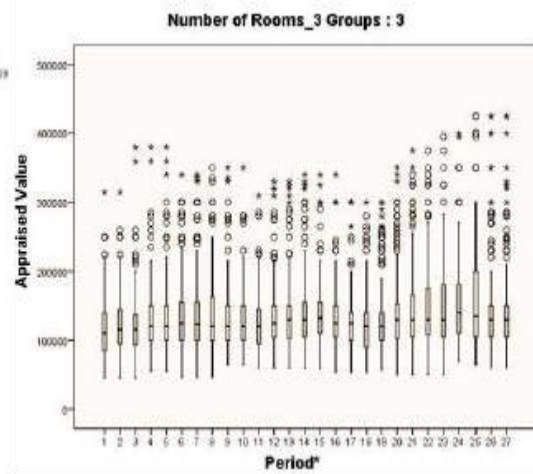


Figure 7. Value of Appraise for Group 3

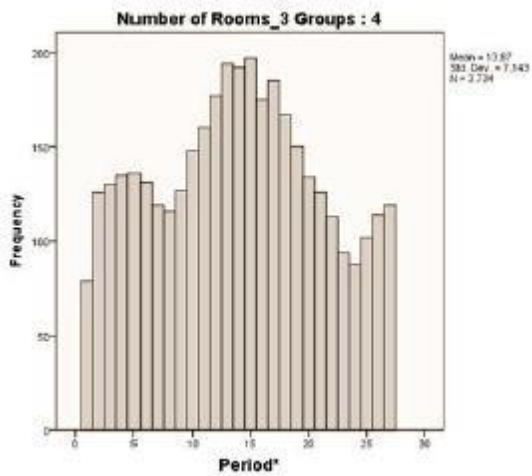


Figure 8. For Data Group 4

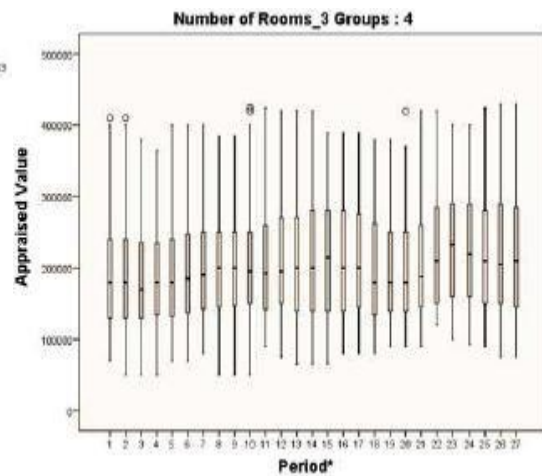


Figure 9. Value of Appraise for Group 4

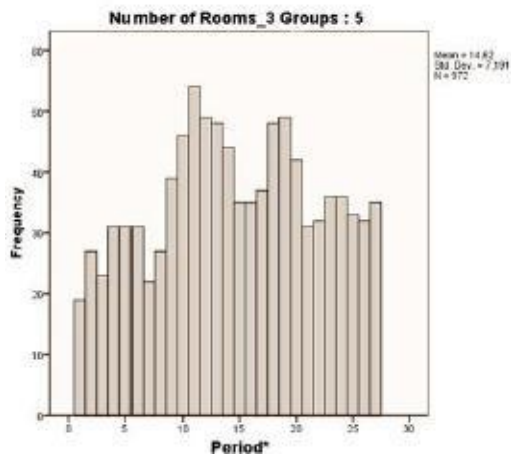


Figure 10. For Data Group 5
* Shown starting months Jan 2011

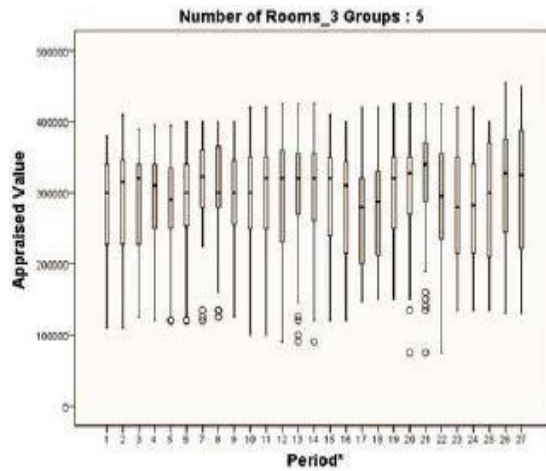


Figure 11. Value of Appraise for Group 5

Taking after the choice of utilizing median costs and characterizing the strata on geological premise, other problems faced and check in to inquiry that either it is utilized a unit cost and assessed esteem self or appraise values. Unit cost are figured from partitioning or divide an assessed estimation to home from ground range for utilization. That along these lines that consider an impact for the ground territory for utilization in a cost. In addition, where it's have positive and higher relationship among them in ground zone for utilization as well as quantity for rooms that having shown in figure 12 underneath. Therefore, here below in the figure, there is an important inconsistency around gross region for various gatherings in light of the quantity of rooms. At the end of the day, that quantity allows for rooms took upper, the regions become large.

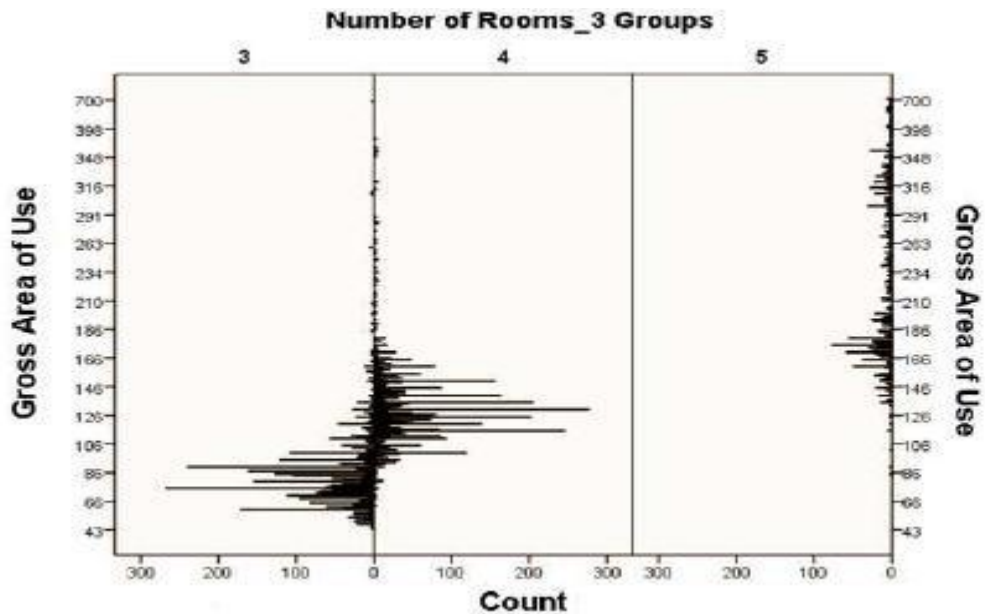


Figure 12. Land used in Gross/ Observations_3 Groups, Source (Aslı Kaya, 2012)

Because of the high relationship among a ground territory for utilization as well as list for rooms, one unit cost likewise considers an impact of list of rooms. That could be found around here shown covering through figures beneath by 13/14 figures, a distinction around a mean for a unit costs to groups merge in to each other as per the quantity of rooms gets to be inconsequential on account of unit price contrasted with the evaluated esteem appraised values price. Figure 15 beneath additionally shows that unit value appropriation for every sub-group framed taking into account index for rooms take after over all.

Thus, its chosen to utilize unit cost as opposed to evaluated estimation of abodes in developing the index.

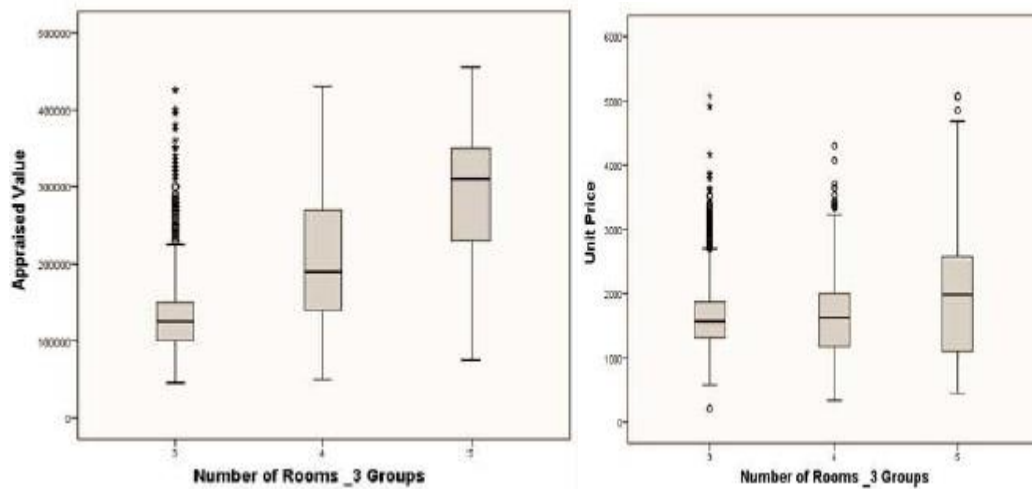


Figure 13. Appraised Value and # of Rooms Figure 14. Unit Price and # of Rooms

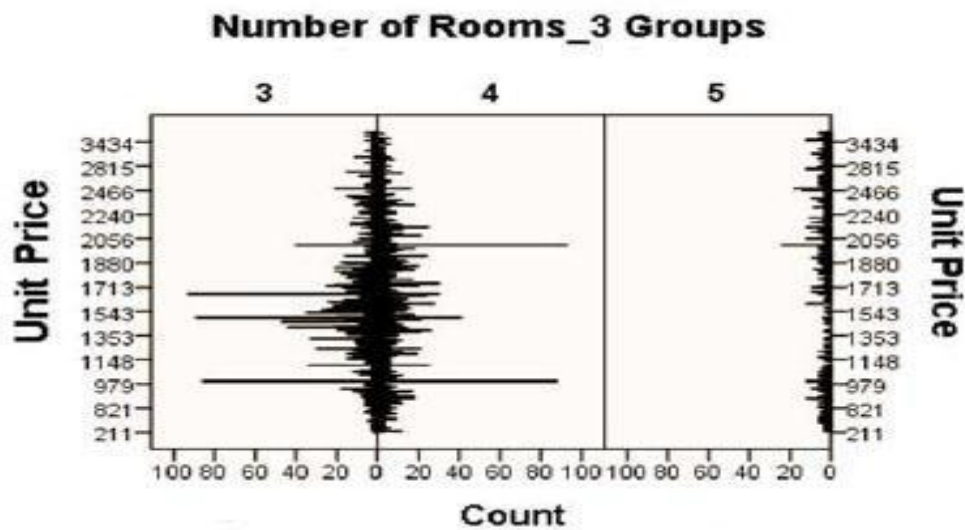


Figure 15. Unit Price and Number of Rooms, (Aslı Kaya, 2012)

3.5 Calculation and Weighting

3.5.1 Weighting

Other vital problem for developing a price index are deciding a weights for utilized. Information about lodging deals enrolled from Officially Directorate General for Registry Land and (LRC) Cadastre are utilized that measured for collecting a group of stratum in developing a MEHPI, though fabricating inhabitation license insights issued by MIDDLE EAST STATES are utilized for weighting as a part of

processing the MEHPI.

Volume of weighted utilized for creating a MEHPI is redesigned weights for upcoming years in future, figured utilizing a quantity homes sell out from connecting strata on a year before. On a computing an-indices for the arrangement in preliminary years, 11-16, homes which deals information about 2016 is utilized a special case.

Furthermore, developing settlements permission issued in the two back to back years going before the years of sources are utilized for figure a measures for developing a New Middle East House Price Index (NMEHPI).

3.5.2 Calculation

Taking as (2010=100) for HPI, where weights transform about homes costs contrasted and a year to choose for base year, the ascertained/calculated utilizing the Chain Laspeyres Index strategy. An explanation behind a usage for indexes chain strategy that's a measures are upgraded every year.

Base Year Index Calculation:

$$I_{(t,0)} = ((\sum w_{(i,0)} P_{(i,t,0)} / (\sum \sum w_{(i,0)} P_{(i,k,0)})) / 12 * 100$$

Where,

$I_{t,0}$: base year for concern month in this index, $w_{(i,0)}$: base year i for stratum by weight,

$P_{i,t,0}$: base year for concern month i stratum for price,

$P_{i,k,0}$: k is the base year stratum for price i for the month,

$w_{i,0}$: stratum for weight w , i for base year.

Index Chained Calculation:

$$I_{(t,y)} = ((\sum w_{(i,y)} P_{(i,t,y)} / (\sum w_{(i,y)} P_{(i,12(y-1))}) * I_{12(y-1)}) * 100$$

$I_{t,y}$:index by source for 12 month ,

$\sum w_{i,y}$: strata weight w , 12 month latest denoted by i ,

$P_{i,t,y}$: stratum price p , reference month denoted by i ,

$P_{(i,12(y-1))}$: stratum price, previous year December denoted by i ,

$I_{12(y-1)}$: December previous year index

Chapter 4

ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

The indices created for the Middle East House Price index (MEHPI), the New Middle East House Price Index (NMEHPI) as well as indexes created assumption of NUTS Level 2. Moreover, index that composite each type of homes as well as newly homes that is computed of 2 massive nations, to be specific Turkey, Pakistan. A year for base for an indexes is 2010. Over all arrangement beginning in Jan 2011 is reported in month to month premise.

4.2.1 House Price Index for Middle East (MEHPI)

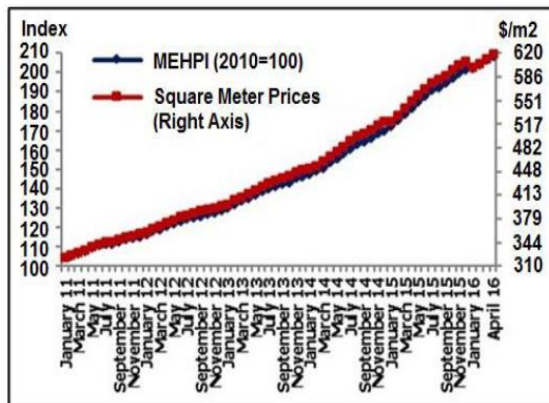


Figure 16. MEHPI Price in mt2

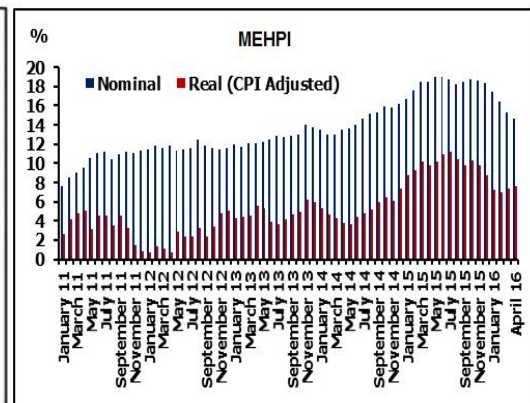


Figure 17. MEHPI Changes in Annual%

The figure 16 and 17 shown, the Middle East House Price Index (MEHPI) has drawn in boost inclination towards Origin. Taken the 2011 January up to 2016 April, an indices house prices skyrocketed 28.8 %. Furthermore, the expanded communicated in genuine terms in the same time frame is 11.2 percent. The genuine transform in

figured through utilizing a Cost Price Index (100=2010). The unit cost computed to the accumulated Middle East was \$310.0 at the beginning of 2011 and its escalate to \$620.0 April 2016.

4.2.2 New Housing Price Index for Middle East (NMEHPI)

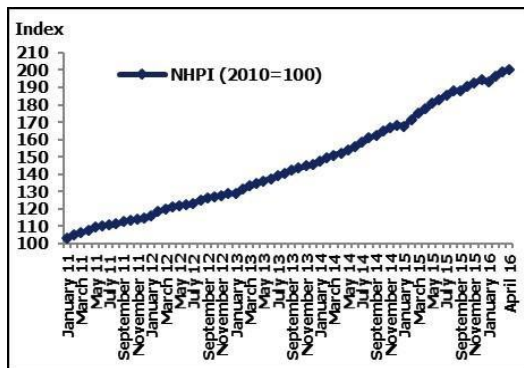


Figure 18. MEHPI and NMEHPI

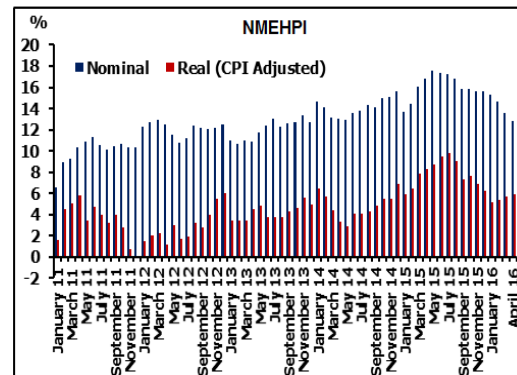


Figure 19. NMEHPI Annual % Changes

The New Middle East House Price Index(NMEHPI) has drawn a slope inclining like the Middle East House Price Index(MEHPI) yet it would seem that a gradually more variable example figure 18, noteworthy reason for outline of the newly lodging market. From January 2011 up to April 2016, the new Middle East Housing Price index hike by 30.5 %. The genuine and real (CPI) slanted in the same time frame is 12.4 percent.

4.2.3 HPI for 2 Big Cities

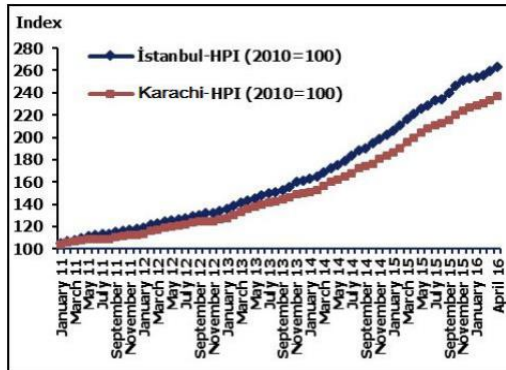


Figure 20. HPI2 Big Cities

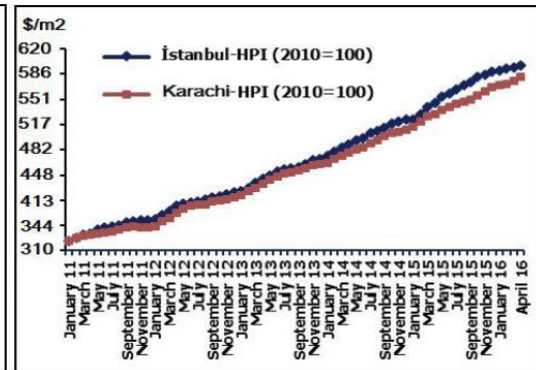


Figure 21. Price Square Meter2 Big Cities

Istanbul and Karachi have biggest geographical area around Turkey and Pakistan. As it appeared in 20th Figure, a cost price record for Istanbul seen pretty much higher example with the nations experience around the Middle East nations. This is the cause Istanbul have greatest hit in the aggregate number of perceptions/observations and has the higher weighted in computing the price indexes for Istanbul. In the era from Jan 2011 to April 2016, the greater raise has been seen in the house cost indices of Istanbul. Shown likewise clarify from 21th Figure that the square meter costs bearing much bigger compare with Karachi.

4.2.4 Nuts Level 2 HPI

In spite of the figures and facts that the way that median prices are ascertained/calculated by utilizing a quadrant base year data set of unit costs considering an-every month for reference, a priority four weeks or an up-coming complete four weeks, the whole information taken as a few areas aren't satisfied to make booming median. Sometimes, the NUTs level 2 units get to be group of homogenous strata and the median expenses figured through utilizing a combined information of all areas secured in this unit. Indexes created in depended of Level

2 for NUTs terminology is measured around twenty locales regions created territories as well as 5 are districts of the homogeneous strata itself.

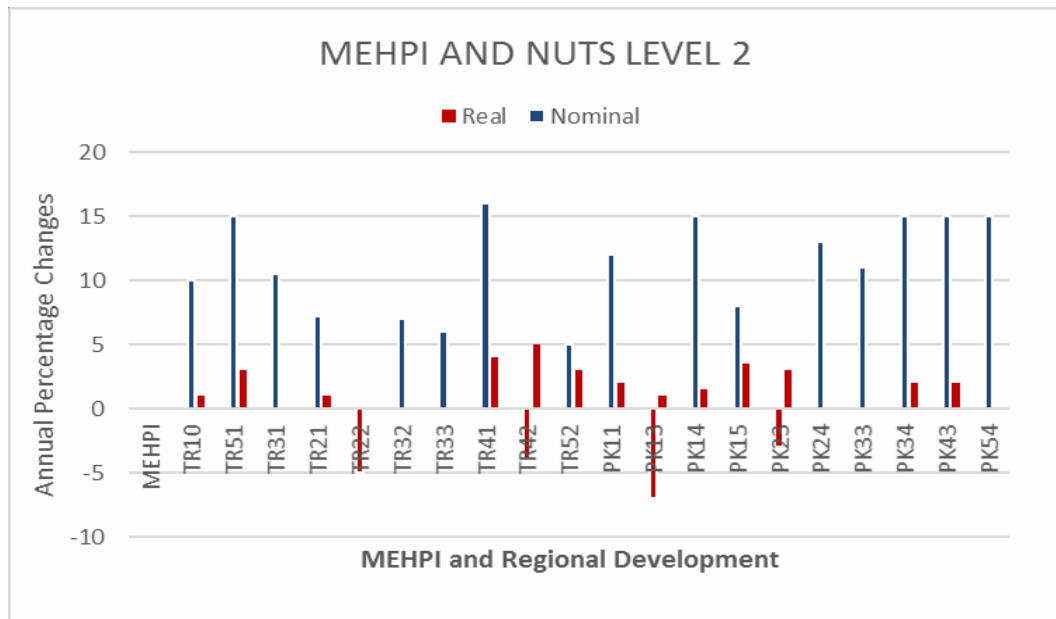


Figure 22. Final% Transforms of Price Indices at NUTS Level 2 (2016 Apr)
 * Appendix Check for Level 2 definition.

As it is appeared in figure 22, there is a yearly cost increment in legitimate basison14for NUTS Level 2 units, rather than a yearly legitimate figure falling off in the April 2016.

4.2.5 Housing Loans, HPI and Interest Rates

Decreasing escalation beginning from 2006 has prompted the acknowledgment of delayed consuming and financing appraisal, reason an increment in house-hold unit demand in interest for lodging credits (housing loans). Therefore, lodging credits (housing loans) have escalated significantly until the year 2016. An increase in increment of housing loans pursue since 2006 might have investigated observations from figure 23th. The dividing of lodging-housing credits (loans) in GDP has booming from 0.1 % in 2006 to 2.1 in 2010. It's drawn a declined pattern and falling

off to 1.7 % around 2012. After that the examined in financial action, an expanding pattern took after and the offer of lodging credits came to 2.9 % around 2013 year. Bases on the necessity proportions (ratios) began to be utilized as a dynamic strategy instrument by the Central Banks of Middle East Countries (CBME) and have been escalated beginning from the end of 2013, decision to a declined in supply for credit (loans). The strategy of escalating the assets necessity proportions (ratios), combined among a choice for Supervision Agency/Regulation of Banking on restricting a credit (loan) seventy % from the estimation for homes on the starting 2015 brought about a declined on an offer for lodging (housing) loans in 2015 GDP become 1.6 percent.

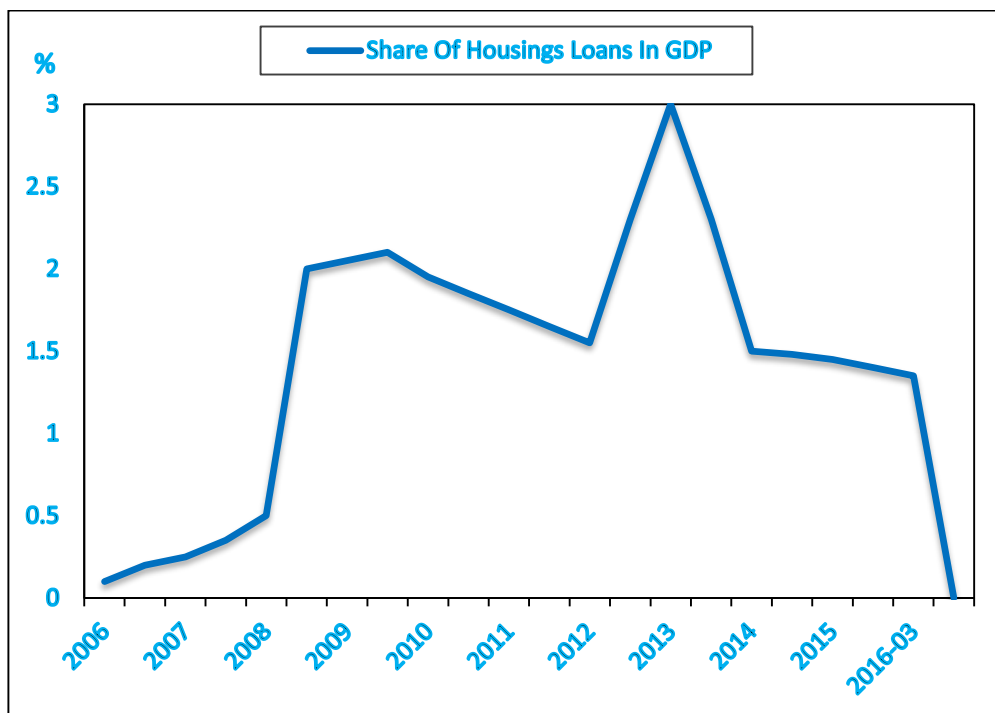


Figure 23. Housing Loans Shares GDP

A reverse relation between the lodging credit (housing loans) financing costs (interest rates) and the measure of lodging advances (housing loans) expanded can be seen from figure 24. An escalation in financing costs (interest rates) prompts (Leads) to a raising an inflation rates major reason house-holds delaying their consuming and financial appraisal or decisions. In actuality, a decline in financing costs (interest rates)

prompts(leads) a reduction in obtaining costs or borrowing price setting off the acknowledgment such that realization of delayed consuming and financing appraisal resulting about an escalation in demand for credits (loans). In such periods the households units are less disposed to get housing loans.



Figure 24. Housing Loans v/s Interest Rates

*Quadrant augmented housing loans, The Associated Banks of Middle East

**Quadrant average financing costs on housing loans, CBME

Figure 25th is likewise strong of the reverse bonding between the lodging credit financing costs and the interest rates for lodgings advances (housing loans).The quantity such that number of perceptions/observations means the quantity of assessment proclamation or number of valuation reports arranged at the season of endorsement/approval of individual lodgings advances (housing loans). Considering

the quantity number of perceptions/observations is a direction of interest rates demand for housing loans, it can be seen from the diagram that, as the financing costs escalate the interest rates for lodging advances (housing loans) falling off.

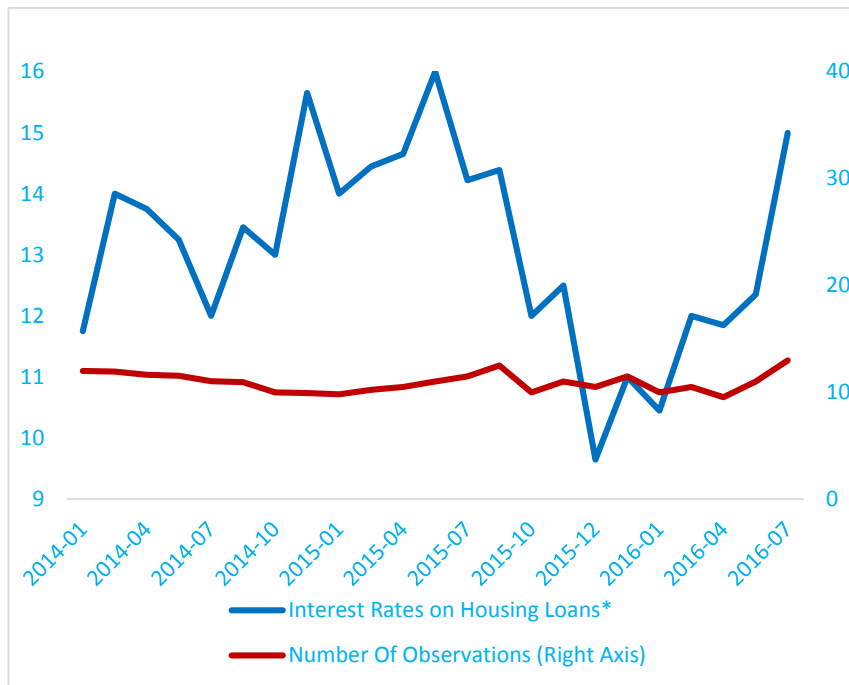


Figure 25. Number of Observations vs Interest Rates

* Month to month average financing/interest rates on housing loans, CBME

An impact for loan (interest rates) on lodging costs (housing prices) can be seen from Figure 26th. Month to month development cost price on a home cost price index as conversely concern through a loan through interest rates on a time start Jan 2014- Apr 2016. In the times of lower financing costs (interest rates), the decrease in obtaining costs motivates house-holds to get lodging advances (housing loans) and put resources into lodging (housing), prompting higher house costs. On the opposite, when the lodging loans (housing loans) financing costs (interest rates) go up the interest such that demand for lodging loans (housing loans) falling off prompting most reduced house cost interest such that demand for lodging loans (housing loans) falling off prompting most reduced house cost.

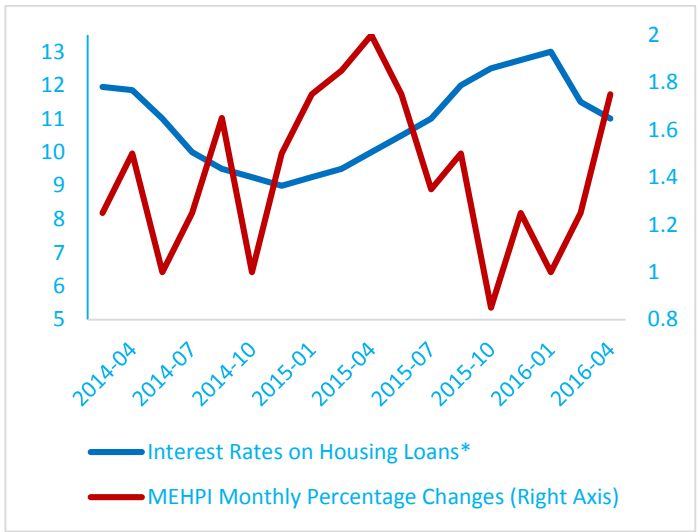


Figure 26. HPI vs Interest Rate

* Month to month average interest cost rates on lodging credits, CBME

Chapter 5

CONCLUSION

In this research its shown encounters of accumulating and building a HPI underlining the technique utilized. The Central Banks of Middle East(CBME) propelled a HPI to screen house costs beginning from January 2011 to April 2016.

In addition, the late worldwide money related emergencies demonstrated that benefit cost air pockets can debilitate budgetary strength and consequently may affect price security. It is broadly recognized that checking changes in house costs constitutes a noteworthy part in the basic leadership procedure of money related strategy. In this manner, without a nationwide index, development a house price record for Middle East has been of extraordinary significance for the Central Banks of Middle East(CBME).

The point is to beat the heterogeneity issue of lodging business sector and dispense with the impact of design can be transform might have seen on information group time per time. Out from few methodologies for developing a House Price Index current on the writing, here choosing to utilize stratified median value strategy considering the information accessibility as well as measurable pertinence. By executing this strategy, lodging business sector is partitioned into strata that will prompt frame more homogenous gatherings than the whole populace.

For the usage of the strategy its required an intermediary cost because of the nonappearance of dependable managerial records at exchange costs. As an intermediary, its utilized evaluated prices allotted by land examination organizations at the season of endorsement of individual lodging credits.

Indices built comprise of the MEHPI, the NMEHPI and indexes created for premise of NUTS Level 2. Also, indices that each and every homes as well as new homes are figured for 3 extensive areas. Together MEHPI also NMEHPI demonstrate an expanding pattern clicking the earliest starting point for arrangement. Be that as it may this is for the most part because of the current high swelling rate in Middle East. In genuine terms, house costs increment gradually, and there appears to be no proof of a house price bubble in this way.

Upgrading the stratification by familiarizing new frameworks with grow extra similarity in strata is among the essential plans for the up-coming duties. It is also anticipated that would explore the likelihood of various methods, essentially the hedonic backslide procedure, at whatever point a satisfactorily long plan of data gets the opportunity to be available.

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APPENDICES

Appendix: A Format for Data Standard Reporting

1 Bank Code
2 In-Bank Tracking Number
3 Party Preparing the Valuation Report
4 Tax Id Number of the Valuation Company
5 Date of Valuation Report
6 Province
7 District
8 Quarter/Village
9 Sheet Number
10 Plot Number
11 Parcel Number
12 Block Number
13 Floor Number
14 Single Space Number
15 Type of Title
16 Type of Dwelling (Detached or Apartment Block)
17 Quarter
18 Avenue
19 Street
20 Site Name
21 Construction Level of the Dwelling
22 Security
23 Parking Lot
24 Swimming Pool
25 Elevator
26 Heating System
27 Number of Total Floors
28 Quality of the Construction
29 Year of Construction
30 Structure of the Construction
31 Saloon
32 Room
33 Kitchen
34 Bathroom
35 Balcony
36 Gross Area of Use
37 Appraised Value
38 Amount of Loan
39 Date of Loan Extension
40 Notes

Appendix B: (NUTS) Level 2 for Units of territorial for Statistics

Nomenclature Middle East Countries

Level 2	Provinces
TR 10	İstanbul
TR 21	Edirne, Kırklareli, Tekirdağ
TR 22	Balıkesir, Çanakkale
TR 31	İzmir
TR 32	Aydın, Denizli, Muğla
TR 33	Afyonkarahisar, Kütahya, Manisa, Uşak
TR 41	Bursa, Eskişehir, Bilecik
TR 42	Bolu, Kocaeli, Sakarya, Yalova, Düzce
TR 51	Ankara
TR 52	Konya, Karaman
PK 11	Karachi
PK 13	Lahore
PK 14	Rawalpindi, Abbottabad
PK 15	Faisalabad, Rahim Yar Khan
PK 23	Islamabad
PK 24	Peshawar
PK 33	Hyderabad
PK 34	Mirpur
PK 43	Rawalakot
PK 54	Multan