This is to certify that the

thesis entitled

CHARACTERISTICS OF PILGRIM ACCOMODATIONS IN MECCA
AND RECOMMENDATIONS FOR IMPROVEMENTS

presented by

Ghazy Abdulwahed Makky

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Geography

Major professor

Date April 30, 1981

CHARACTERISTICS OF PILGRIM ACCOMMODATIONS IN MECCA AND RECOMMENDATIONS FOR IMPROVEMENTS

By

Ghazy Abdulwahed Makky

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Geography

1981

ABSTRACT

CHARACTERISTICS OF PILGRIM ACCOMMODATIONS IN MECCA
AND RECOMMENDATIONS FOR IMPROVEMENTS

By

Ghazy Abdulwahed Makky

This study was concerned with the hajj or pilgrimage to the Holy City of Mecca that is an obligation required of Muslims by the Koran. A brief historical background was given, and comparisons were offered to pilgrimages of other religions. The influx of hundreds of thousands of pilgrims into the pilgrimage area, particularly into Mecca, is of great concern not only to the Saudi Arabian authorities but to all Muslims. Of primary concern in this research were adequate and accessible accommodations in Mecca.

This study was concerned with the following: (1) whether spatial distribution of the pilgrims to different parts of the city is necessary to improve their housing; (2) whether the pilgrims are willing to stay far from the Holy Mosque; (3) what the supply of housing is; and (4) what its quality, occupant density, and rental rates are.

To determine the above, surveys as well as field work were conducted. Personal interviews were conducted in 1976 and 1977, in 1976 with pilgrims only and in 1977 with residents of Mecca as well as with pilgrims. Information was also gathered on land values and

annual rents in Mecca that affect the housing market during the hajj.

The factors on which data were gathered included the following: (1) demographic information about the pilgrims: countries of origin, modes of travel to Saudi Arabia, and especially age; (2) information about the pilgrims' recommendations for the characteristics of the housing and its location in relation to the Holy Mosque; (3) information about various kinds of accommodations, their distance from the Holy Mosque, amenities, and rent; and (4) information about preferences and opinions of owners and/or renters. Some of the key variables in the study were the distance of the accommodations from the Holy Mosque measured in linear distance and in travel time to the Holy Mosque, the quality, rent, occupant density, and size of the accommodations, and whether the pilgrims went to the Holy Mosque each day to perform the five daily prayers. The types of rental agents were also important.

Although various statistical tests were used to analyze the data gathered in the surveys, most of the analysis was based on multiple linear regression. In addition, ANOVA, binomial, and chi-square tests were used. The results of the tests showed that distance of the accommodations from the Holy Mosque had a significant effect on the cost per room, on the quality of the accommodations, and on occupant density. The results also showed that the age of the pilgrims did not have a significant effect on whether they performed their five daily prayers in the Holy Mosque or on the frequency of their visits to the Holy Mosque.

The major conclusion of the study was that encouraging pilgrims to live in different parts of the city, combined with careful planning of the system of the hajj and supervision of the housing market by the government, is necessary to improve housing conditions for pilgrims during the hajj.

بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ

" رَبَّنَآ إِنِّيٓ أَسْكَنتُ مِن ذُرِّيَّتِي بِوَادٍ غَيْرِ ذِي
زَرْعٍ عِندَ بَيْتِكَ الْمُحَرَّمِ رَبَّنَا لِيُقِيمُوا
الصَّلٰوةَ فَاجْعَلْ أَفْئِدَةً مِّنَ النَّاسِ تَهْوِيٓ
إِلَيْهِمْ وَارْزُقْهُم مِّنَ الثَّمَرٰتِ لَعَلَّهُمْ
يَشْكُرُونَ " ﴿٣٧﴾ ابراهيم

O our Lord! I have made some of my offspring to dwell in a valley without cultivation, by the Sacred House, in order, our Lord, that they may establish regular prayer. So fill the hearts of some among men with love toward them, and feed them with fruits so that they may give thanks.

Koran XIV: 37

To my late mother and father for their love and prayers.

To my wife and to my daughters, Ghadeer and the newborn Abeer, for their love.

ACKNOWLEDGMENTS

During the course of this research, much information, support, and encouragement were given to the writer by many people, both in the United States and in Saudi Arabia. Although it is not possible in this limited space to thank them all by name, the writer is deeply grateful to each of these people.

Profound gratitude is due to Dr. Joe T. Darden, the chairman of the doctoral committee, whose constant guidance and observations made this research possible. The writer is also sincerely grateful to all the members of the doctoral committee for their comments and interest in this research.

Special thanks are due to Riyadh University, which provided generous funds for graduate study and for preparation of this dissertation.

Sincere thanks are due to Dr. Abdullah Nassief, President of King Abdul Aziz University, for his encouragement and support, and to Mr. Sami Mohsin Angawi, Director of the Hajj Research Center at King Abdul Aziz University, for his perceptive comments and for the financial support of the surveys with the pilgrims that the Center provided.

Thanks are also due to the employees of the Saudi Arabian educational mission in Houston, Texas, for their cooperative understanding.

Finally, my profound gratitude is due to my wife for her patient encouragement, sacrifice, and understanding.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

CHAPTER I

INTRODUCTION

The Pilgrimage

As a Muslim, the researcher feels that it is necessary to discuss the religious requirements placed on each Muslim. One of the requirements is that all Muslims, at least once in their lifetimes, if they are able to and can afford to, must perform the hajj or pilgrimage to Mecca. This pilgrimage is the fifth of the Five Pillars of Islam.[1] It is the only one of these basic requirements of the law that depends upon ability. The Koran (III:97) says,

> In it are signs manifest; for example, the Station of Abraham; whoever enters it attains security; pilgrimage thereto is a duty men owe to God--those who can afford the journey, but if any deny faith, God stands not in need of any of His creatures.

It is the custom of people from many religions, including Jews, Christians, and Hindus, to visit ancient religious sites each year. Except for the Muslims, such visits are not obligatory. In other words, failure to make such visits to holy sites is not considered as failure to meet the requirements of the religion.

Other religions have sacred locations to which the faithful make visits. Both Christians and Jews visit the Holy Land, whereas

---

[1]The Five Pillars of Islam are to profess that there is no God but Allah and that Mohammed is his prophet; to pray five times daily; to give alms; to fast during the month of Ramadan; and to make the pilgrimage known as the hajj.

multitudes of Hindus perform pilgrimages to sacred places throughout India,[1] and thousands of Buddhists perform pilgrimages to the holy sites in Shikoku in Japan.[2] Pilgrimage is widespread even though its importance in the industrialized Western nations has decreased. Although the concept of pilgrimage exists in each of these religions, its meaning within each context varies.

Mecca, as the location of the House of Allah (Ka'ba), has been important since the prophet Abraham. According to general Islamic belief, the Prophet Abraham (Ibrahīm) was commanded to leave his wife Hagar and their son Ishmael (Ismail) in a desert valley later known as Abraham's Valley. He left them with a small quantity of dates and water and prayed to God and said:

> O our Lord! I have made some of my offspring to dwell in a valley without cultivation, by the Sacred House, in order, our Lord, that they may establish regular prayer. So fill the hearts of some among men with love toward them, and feed them with fruits so that they may give thanks (Koran XIV: 37).

God answered Abraham's prayers, first with the appearance of the holy water. Hagar, running to and fro with uplifted hands, sought water for her crying child, first toward the south from the top of al-Safā hill, then toward the north from the top of al-Marawah. After running back and forth several times, she returned to her child only to discover water coming from where he lay. This holy water is

---

[1] Surinder Mohan Bhardwaj, Hindu Places of Pilgrimage in India (Berkeley: University of California Press, 1973), p. 1.

[2] H. Tanka, "Geographic Expression of Buddhist Pilgrim Places on Shikoku Island, Japan," The Canadian Geographer 21 (Summer 1977): 111.

the zam zam. Therefore, the Sa'y (running seven times between al-Safā and al-Marawah) has come to commemorate Hagar's running back and forth in search of water. Second, God answered Abraham's prayers by instructing him and his son Ishmael to build the Ka'ba, a site Muslims turn to in their daily prayers and a destination each year for pilgrims. As translated from the Koran: "The first house [of worship] appointed for men was that at Bakka: full of blessing and of guidance for all kinds of beings" (III: 96). In addition, "And proclaim unto mankind the pilgrimage. They will come unto thee on foot and every lean camel; they will come from every deep ravine" (XXII: 27).

The sacrifice (Īd al-Adhā) originated with Abraham and Ishmael at Minā. Abraham was ordered by God in a dream to sacrifice his son Ishmael. On the following day, he told his son about his dream and asked his opinion. Ishmael told him to obey God's command. As Abraham prepared the sacrificial rites, God in His mercy transformed Ishmael into a ram. This event is now commemorated as a thanksgiving for God's mercy,[1] and it is an important act for each of the pilgrims during their hajj in Minā. As Abraham and Ishmael went to perform God's command, Satan appeared to Abraham three times in different places to tempt Abraham to disobey God. On each occasion, Abraham threw stones at Satan. During the pilgrimage, throwing stones at these three sites commemorates Abraham's acts.

Some Islamic scholars believe that the origin and early importance of the pilgrimage are earlier than the Islamic period. However,

---

[1]Mohammed Amin, Pilgrimage to Mecca (London: Macdonald and Jane's Publishers, Ltd., 1978), p. 10.

for the purpose of this study, it is not necessary to determine by whom and when the pilgrimage was started. Instead, it is important to note that in the pre-Islamic period, two annual markets were held in the month of Dhu'l-ka'da, the eleventh month in the Muslim lunar calendar, at Ukaz, near Mecca, and at Dhu'l-Madjanna. These were followed in the early days of Dhu'l-Hidjjah, the twelfth month of the Muslim lunar calendar and the month of the Muslim pilgrimage, by the market at Dhu'l-Madjjaz. From there the people went directly to Arafat.[1] Before Islam, pilgrimage to a sanctuary was an old semitic custom, but when Islam came and when the prophet Mohammed performed his only pilgrimage, the hajj to Mecca and nearby holy places became uniquely significant, different from the pilgrimage of the pre-Islamic period.[2]

Mecca, during and since the time of the prophet Mohammed, has become the primary focus of Muslims, who face Mecca five times daily in prayers. It is also recommended that Muslims perform al-Umrah, a visit to the Holy Mosque in Mecca, but the visit is not required. Unlike the pilgrimage, al'Umrah can be performed at any time of the year, and Muslims can perform it as many times as they wish. During the al'Umrah, Muslims perform the Tawaf (walking seven times around the ka'ba) and Sa'y, but they do not visit the nearby holy places, visits that are necessary in performing the pilgrimage (hajj).

---

[1]The International Union of Academics, Encyclopedia of Islam, ed. B. Lewis, C. Pellat, and J. Schachat. Vol. III, fasciculuss 41-42 (London: Luzac Society, 1965), pp. 31-33.

[2]For more discussion, see ibid., p. 31.

In the case of the pilgrimage as well as of the al'Umrah, the pilgrims should be in a state of Ihram (purity or dedicated abstinence); that is, pilgrims should wear special clothes, pray, and meet certain other requirements such as not using scent, not cutting their hair or nails, not killing any wild animals or insects except those that might be dangerous, and not having sexual relations.

A man wears two garments, mostly white, neither of which may have a single stitch of sewing. One of these garments is wrapped around the waist and must be long enough to hang below the knees. The other is put over the left shoulder so that one end hangs down in front. The other end is passed around the back and then thrown over the left shoulder again to hang down the back, balancing the opposite end. For a woman, no particular dress is required, but the usual costume is a long white gown. The woman's head is covered with a veil, although her face need not be veiled. Except for dress, all the restrictions for men apply to women.[1]

The hajj consists of a set of prescribed rites at specific hours and days in assigned locations in and near Mecca at which pilgrims commemorate the prophet Abraham's actions.[2] The hajj is a high point in the religious experience of all Muslims. Each year hundreds of thousands of pilgrims from all over the world (close to two million

---

[1]Abu Bakr Siraj ad'Din, "Pilgrimage to Mecca," Studies in Comparative Religion 1 (Winter 1967): 172.

[2]Mohammed Tahir Al-Kardy Almakky, Al Tarĩkh Al-Gawim Li Makkah Wa Bait Allah Alkarĩm [Authentic History of Mecca and Holy House of God], 1st ed., vol. 3 (Mecca: Al-Nahddah Library, 1385 [1965]), p. 47.

in 1980) gather in Mecca (a city of about 300,000) to perform this religious rite. The activities required for the hajj are governed by a specific timetable: one day at Arafat, a few hours in Muzdalifah, and three nights at Minā. (See Figure 1.)

The morning of the eighth day of Dhu al-Hijjah,[1] when most pilgrims have arrived in Mecca, a high percentage of them go to Minā,[2] eight kilometers northeast of Mecca, where they pray the five prayers to commemorate the prophet Mohammed's actions. These prayers are the midday prayer (Dhur), the afternoon prayer (A'sr), the sunset prayer (Maghrib), the evening prayer (I'sha), and, on the morning of the next day, the early morning prayer (Fajr). On this morning, the pilgrims move to Arafat. Since going to Minā is optional, the rest of the pilgrims either proceed directly on the eighth day to Arafat or stay in Mecca until the morning of the ninth day.

On the ninth day, all pilgrims must be in Arafat (20 kilometers from Mecca). This day is called the "Day of Standing." On this day in 635 A.D., the prophet Mohammed delivered his farewell sermon at the base of the Mountain of Mercy. Pilgrims at Arafat perform the midday (Dhur) and afternoon (A'sr) prayers and supplication and visit

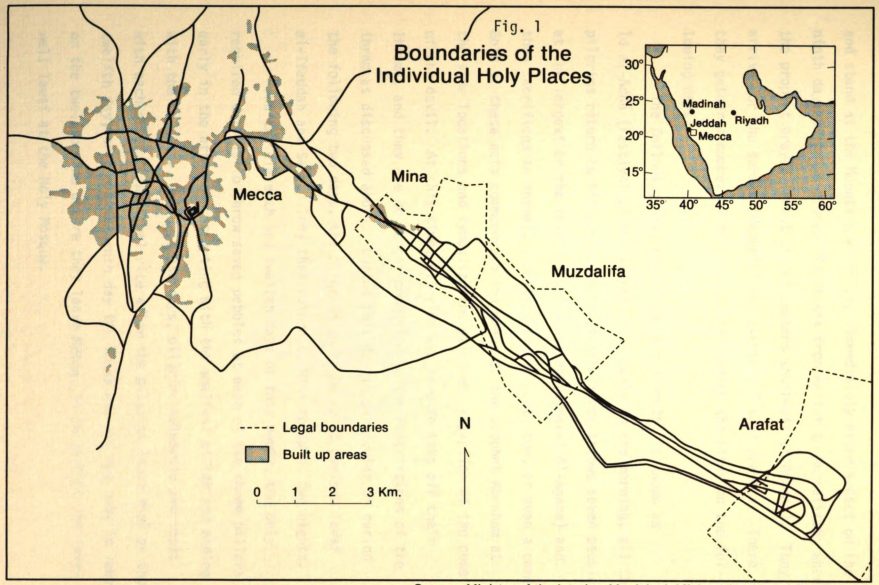
---

[1] Dhu al-Hijjah is the twelfth month of the Muslim lunar calendar. The hajj can therefore occur at different seasons in a 33-year cycle.

[2] Data from the Hajj Research Center, Jeddah, indicate that of the total movement in the eight days of Dhu al-Hijjah in 1977 (1397 A.H.), 26 percent of the pilgrims went from Mecca to Minā (405,000 people, among whom 49,000 walked), about 22 percent went from Mecca to Arafat on the same day (343,000 people, among whom 14,000 walked), whereas on the ninth day about 27 percent went from Minā to Arafat (421,000 people, among whom 88,000 walked) and about 7 percent from Mecca to Arafat (109,000 people, among whom 4,000 walked).

Fig. 1

Boundaries of the Individual Holy Places



Source: Ministry of the Interior, Municipal Affairs, Kingdom of Saudi Arabia

and stand at the Mountain of Mercy. Immediately after sunset on the ninth day, pilgrims proceed in masses from Arafat to Muzdalifah, where the prophet prayed (about six kilometers southwest of Arafat). They arrive for the sunset (Maghrib) and evening (I'sha) prayers. There they gather a number of pebbles for use during the rites on the following days.

The following day, the tenth of the month, is known as Īd al-Adhā (Festival of the Sacrifice). Early in the morning, all the pilgrims return to Minā, where each pilgrim first throws seven pebbles at the largest or the third pillar of Satan (Jamarat Al-Agaba) and then sacrifices an animal, usually a sheep, goat, cow, or even a camel. Both of these acts commemorate the deeds of the prophet Abraham at the same locations and symbolize the pilgrims' rejection of the powers of the devil. At this time, pilgrims are free to take off their Ihrams, and they are no longer committed to the restrictions of the Ihram as discussed above. During this day in particular or during the following two days, the pilgrims go to Mecca to perform Tawaf al-Ifaddah and Sa'y. They then return to Minā to spend two nights.

On the eleventh and twelfth days of this month, the only required duty is to throw seven pebbles at each of the three pillars early in the afternoon, starting with the smallest pillar and ending with the largest. During these days, pilgrims celebrate and visit with each other. The final rite after the pilgrims leave Minā on the twelfth day, or the thirteenth day for those who are not able to leave on the twelfth, and before they leave Mecca, is to perform the farewell Tawaf at the Holy Mosque.

It thus becomes clear that the hajj is unique as a religious pilgrimage and unlike other mass gatherings of organized movements, not only in terms of numbers but in the diversity among the pilgrims, their cultures, languages, and levels of education. The pilgrimage itself is the ultimate goal for most pilgrims. To achieve it, they must sacrifice much and work hard during their lifetimes, especially those from poor and distant countries.

Devout Muslims, as well as the poor, old, and uneducated, believe that the pilgrimage should be difficult (whether physically or financially), for it becomes a more satisfying experience when the difficulties are overcome. An example can be found among West African pilgrims, who believe that flying to Mecca is not a means of acquiring the title of "a hajji" (one who has made the hajj). Therefore, some of the faithful from West Africa who could afford to fly to Saudi Arabia travel overland in order to benefit from the greater blessing that is attached to those who have made pilgrimages by land. Journeys like these of about 2,000 miles are both difficult and risky and subject the pilgrims to the natural hazards of travel along the thinly populated savanna. So difficult has this journey become that many pilgrims now take over ten years to reach Mecca.[1] For other pilgrims, the pilgrimage is an annual experience. Some of them act as brokers between pilgrims of their own nationalities and the native mutawifs (pilgrimage agents) in Mecca. Others work as businessmen, selling or buying products.

---

[1] J. S. Birks, "Overland Pilgrimage from West Africa to Mecca: Anachronism or Fashion?" Geography 62 (1977): 216-17.

Background of the Problem

For the citizens of Mecca, the pilgrimage is the busiest time of the year, for the city is not equipped for the massive influx of people. Insurmountable problems occur because of lack of water, heavy traffic, movements of large crowds, hazards of disease, risk of thefts, and the high cost of living. For most citizens, the pilgrimage is of fundamental importance, especially for those who have no source of income except that which they earn from serving the pilgrims. This income has been decreasing rapidly in recent years. A few Meccans who are not financially in need profit most from the pilgrimage. The vast majority receive very little. This research is not concerned with those who take advantage of the pilgrimage. Instead, it is concerned mainly with the pilgrims and the citizens of Mecca who need help and support.

The primary task of the citizens of Mecca, as it has been since the time of Abraham, is to serve visitors to the Holy Ka'aba. Even now, the daily income of most families depends on the pilgrimage. Many families have had a great deal of experience serving the pilgrims, but they are unable to compete with the newcomers who are not from Mecca, who have recently come into the business, earning greater profit for delivering fewer services.

According to the Ministry of the Hajj in 1979, the main purpose of the mutawif in Mecca, the dalīl (a person who serves and guides the pilgrims while they are staying in Medina), and their agent (wakīl) in Jedda is to perform certain assigned services for the

pilgrims from the moment of their arrival in Jedda or Yanbu until the time of their departure. The mutawif or one of his employees should:

1. Receive the pilgrims when they arrive in the reception centers operated by the Ministry of the Hajj;

2. Provide suitable accommodations for the pilgrims or assist them in finding accommodations they like. Employees should be assigned to provide the services and advice needed by pilgrims.

3. Advise and guide the pilgrims through the prescribed religious rites inside the Holy Mosque as well as during the hajj activities in Arafat, Muzdalifah, and Minā;

4. Arrange with the motor-vehicle syndicate the necessary vehicles to transport the pilgrims from Mecca to the nearby holy places (Arafat, Muzdalifah, and Minā) and provide for accommodations in tents in Arafat, a task requiring a great deal of time and effort;

5. Make necessary arrangements for those who would like to visit Medina; and

6. Be responsible for the safety and security of the pilgrims during their stay in Mecca and also for their departure from Mecca according to their timetables.[1]

The wakīl in Jedda, in addition to collecting the service fees from each pilgrim, is required to render the following services:

1. Meet the pilgrims when they arrive in Jedda or Yanbu and assist them in getting their accommodations in the airport or in the

---

[1]Saudi Arabia, Ministry of the Hajj, Office of the Minister, Hajj Infrastructure of 1979 (Riyadh: Shemrakh Printing Press, 1979), pp. 23-33.

port. These accommodations are operated by the government and are designed to allow the pilgrims to rest until they are assisted to their mutawifs in Mecca and dalīls in Medina;

2. Arrange transportation with the motor-vehicle syndicate to transport the pilgrims either to the assigned dalīl in Medina, for those who have enough time before the rites of the hajj begin, or to transport them to the mutawifs in Mecca; and

3. Take responsibility for the pilgrims' departure on time and in the same mode of transport they arrived in unless officially changed ahead of time.[1]

The dalīl in Medina is required to perform the following services for the pilgrims:

1. Meet the pilgrims when they arrive at the reception centers;

2. Help to provide suitable lodging for the pilgrims as in the case of the mutawifs;

3. Guide the pilgrims to the principal religious shrines, especially the Prophet's Mosque;

4. Arrange with the motor-vehicle syndicate the necessary transportation to take the pilgrims to Mecca, Jedda, or Yanbu; and

5. Take responsibility, as the mutawifs do, for the comfort, safety, and security of the pilgrims while they stay in Medina.[2]

For the above services, according to the Ministry of the Hajj in 1979, pilgrims pay assigned fees as follows:

---

[1] Ibid., pp. 30-33.

[2] Ibid., pp. 27-29.

1. A fee for the services they receive in Jedda, Yanbu, and Mecca and nearby holy places, as well as Medina. In 1979, this fee was 374 S.R. ($112.31). Included in this fee was 80 S.R. ($24.02) for accommodations in Jedda or Yanbu. Pilgrims who arrive by land are exempt. This fee is paid to the wakīl when the pilgrims arrive in Saudi Arabia. The remaining 294 S.R. ($88.28) was for the services provided to the pilgrims by the mutawif, wakīl, dalīl, zam zami (person who provides the holy water), and porters in the ports.

2. The travel and transportation fee (in 1979, 295 S.R. [$88.58]) is paid in advance to the motor-vehicle syndicate to cover the following transportation services:

a. From Jedda to Medina to Mecca, or vice versa; or from Yanbu to Medina to Mecca, or vice versa (172.50 S.R. [$51.80]).

b. From Mecca to Arafat to Muzdalifah to Minā and then to Mecca (100 S.R. [$30.03]).

c. From Jedda to Mecca or vice versa (22.50 S.R. [$6.75]).

These fares cover only the bus transportation. Those pilgrims who prefer to use small cars pay the assigned differences. The above service and transportation fees apply to each adult pilgrim; pilgrims from 7 to 15 years old pay one-half, and those under 7 are free.

3. Accommodation fees, estimated by the Ministry of the Hajj, are not fixed or obligatory to either the mutawif or the pilgrims. Each mutawif can ask what he considers a fair price for the assigned accommodation for each pilgrim. However, in 1977 the Ministry of the

Hajj estimated the accommodation fee per person for the whole pilgrimage period to be 300 S.R. ($90.90) in Mecca, 100 S.R. ($30.03) for the tents in Arafat and Minā, and 150 S.R. ($45.04) in Medina. However, with the increasing cost of services and cost of living, the estimated cost per person in Mecca and Medina increased in 1979 as follows: 450-750 S.R. ($135.13-225.22) in Mecca and 150-200 S.R. ($45.04-60.06) in Medina.[1]

It is clear from the above discussion that the rules that govern the wakīls, dalīls, and especially the mutawifs are very critical to the pilgrims as they perform their religious rites and also to the business reputation of the mutawifs. The unlucky pilgrims are the ones who choose a mutawif whose aim is to guarantee himself a profit. Such pilgrims are the ones who think that they would be better off performing all the pilgrimage rites without the aid of a mutawif's services.

In contrast, for those pilgrims who choose a particular mutawif whose main concern is to serve his pilgrims and, in some cases, help them financially for the sake of Allah and his reputation among other pilgrims, the hajj is a great experience. Pilgrims admit that without the mutawifs they would not be able to perform all the required rites and would not have such an experience.

The government has realized the problems in the system and has tried to be fair with both the pilgrims and the mutawifs. A royal decree (No. M/12, 9/5/1385 [1966]) announced the right of the pilgrims to choose their own mutawif in Mecca and dalīl in Medina. Both the

---

[1]Ibid., pp. 11-14.

mutawifs and the dalīls have the right to serve as many pilgrims as they can get. They receive the full assigned service fee for the first 200 pilgrims, a half fee for the second 200 pilgrims, and a quarter fee for the third 200 pilgrims. Service charges paid by each pilgrim at the time of the decree were 50 S.R. ($15.01) for the mutawif's services and 10 S.R.($3.00) for the dalīl in Medina, if the pilgrim chose to go to Medina. Pilgrims also paid for other services as follows: 7 S.R. ($2.10) for the wakīl in Jedda, 3 S.R. ($.90) for the zam zami in Mecca, 6 S.R. ($1.80) for carrying the pilgrims' luggage in the ports and the airport upon their arrival and departure, and 7 S.R. ($2.10) for other services.[1]

The policies set forth in the royal decree of 1966 were abused by some of the mutawifs as well as some of the pilgrims. Some mutawifs arranged with some of their pilgrims to work as pilgrim brokers. The more pilgrims convinced by the broker to ask for a particular mutawif when they arrived in Saudi Arabia, the more profit the broker made. In some cases, mutawifs gave all the assigned money to their agents in order to get the pilgrims assigned to them. The mutawifs could make up the loss of this profit by charging the pilgrims more for their accommodations and other services. This practice affected not only the pilgrims who paid more for fewer services, but also those mutawifs who did not deal with pilgrim brokers and consequently did not have very many pilgrims assigned to them.

---

[1]Saudi Arabia, Ministry of the Hajj, Official Document No. 140, 13/5/1385 [1966].

When the government realized the shortcomings of the above system, on the recommendations of the Supreme Hajj Committee in 1975 (1395), a royal decree was proclaimed to cancel the old system and start a new one. According to the new plan, all the 1,610 mutawifs and their partners, numbering 4,156, and the 1,375 dalīls in Medina are divided into six groups representing the nationalities of the pilgrims. These groups represent pilgrims from the following areas: (1) Southeast Asia (Indonesia, Malaysia, the Philippines, and the Republic of China [Taiwan]); (2) India, Pakistan, Bangladesh, Afghanistan, and Burma; (3) Southwest and Central Africa; (4) All United Arab Nations; (5) Turkey; and (6) Iran.

Each of the mutawifs in Mecca, the dalīls in Medina, and the wakīls in Jedda has assigned to him a number of pilgrims from his nationality group equal to the total average of the previous three years (1972-1974 [1392-1394]). In any case, the mutawif does not have more than the number of pilgrims assigned to him by the Committee. If more pilgrims would like to be placed with him, the service costs (as shown in the previous section) for the increased number do not go to him. Those mutawifs who have fewer pilgrims than the number assigned to them by the Committee still receive the minimum service costs for 100 pilgrims.[1,2]

---

[1]Saudi Arabia, Ministry of the Hajj and Awqāf, Ministry of the Hajj and Awqāf's Work Strategy in the Holy Places and Mutawifs' Names and Addresses (Jedda: Al-Asfhani Press, 1977 [1297]).

[2]Pilgrim instructions for 1979 give the pilgrims the right to choose their favorite mutawifs. However, if the number of pilgrims who choose a particular mutawif exceeds the mutawif's assigned average based on the number of pilgrims he received in the previous three

Although these new procedures appear to be fair for some mutawifs, and although they prevent the brokers from profiting, they do not increase the quality of service provided to the pilgrims. This is because the foreign agents who can no longer work as brokers now charge the pilgrims for everything, excluding the service costs assigned by the government (paid to the mutawif for his services, as indicated above), and because it is the only service that the mutawif can be assured to get after the hajj since the pilgrims have the right to choose their accommodations.

Some of these brokers (now called hamladárs) find themselves in a position to provide, for an all-inclusive fee, all the services and guidance to the pilgrims from the time they leave their own countries to the time they return. The hamladár, unlike some of the mutawifs, does not own accommodations. Instead, he can provide accommodations he has rented in Mecca and Medina. Some find it profitable to visit both cities when there is no pilgrimage to rent accommodations in private homes and apartments for the number of pilgrims they expect. Should they rent a surplus, they can easily rent the extra space for the amount paid, or even more in some locations, to the mutawifs who

---

years, the mutawif is allowed to serve twice as many as his assigned average if the total number of his pilgrims is less than 1000 pilgrims. So if he has an assigned average of 100 pilgrims, he could have up to 300 pilgrims. If his assigned average is 1000 pilgrims, he could serve up to 3000. However, the mutawif receives the amount of service fees for his assigned average only, not for the excess numbers. Saudi Arabia, Ministry of the Hajj and Awqāf, Minister's Office, Hajj Instructions 1399 (1979) (Riyadh: Shemrakh Printing Press), p. 1.

are unable to rent ahead of time, not knowing how many pilgrims will be assigned to them.

Other hamladārs rent houses year round, leaving them or encouraging the landlords to leave them empty during nonpilgrimage periods, thus creating a housing shortage for the citizens of Mecca. In addition, some hamladārs, especially those traveling by land, deliberately plan not to house their pilgrims in Mecca and Medina. They purposely delay their arrival in Mecca and then either accommodate the pilgrims in the streets, using the shadow of houses or cars as protection against the sun, or drive them directly to Minā or Arafat.

These actions of the hamladārs create difficulties for all pilgrims, who receive fewer and less efficient services, and for the government, because it is impossible to monitor each hamladār and his pilgrims. The citizens of Mecca suffer as well. Performing the hajj, once a holy rite, is no longer satisfactory. Although many pilgrims do not complain, since physical or financial hardship is thought to add to the spirituality of the hajj, the government is committed to improve the system. Studies must be made of better methods of planning and of modifying the system of the mutawifs. A royal decree, No. M/13 4/13/1398, was approved in 1978 to transfer the present system of mutawifs to mutawif establishments.[1] In 1978, Ali Abo Alilla and his colleagues were the first to start such cooperative efforts in serving the pilgrims. In 1979 (1399 A.H.), the government gave

---

[1] Abdullah Bugis, Vice-Minister of the Ministry of the Hajj, "Project of Proposed Rules for Pilgrim Establishments," official report (Saudi Arabia: Ministry of the Hajj, Vice-Ministry of the Hajj, 1979), p. 1. (In Arabic.)

its official support to an experimental mutawif establishment, which serves only pilgrims from the Western world. The objectives of the pilgrim-service establishments are as follows:

1. To prevent all kinds of broker businesses and unreasonable profits charged by the mutawifs;

2. To devote efforts to teaching the pilgrims the hajj rites and prayers inside and outside the country;

3. To improve the pilgrim services provided by the mutawifs;

4. To prevent animosity and covetousness among the mutawifs but to foster consideration and good relations among them;

5. To reduce the cost of services mutawifs paid in the older system;

6. To stop the bad reputations of the mutawif businesses, which arose as a result of the bad actions of some mutawifs. This new system allows all mutawifs to work together in groups according to their familiarity with each pilgrim group;

7. To give the opportunity to qualified mutawifs to lead and be responsible for their establishments;

8. To maintain the reputation of female mutawifs and direct them to other jobs such as supervising the affairs of pilgrim women in the establishment; and

9. To assist the sick and disabled mutawifs who cannot perform their jobs and to guarantee them tangible shares from the establishment profits as well as to give them their share from the assigned services.[1]

---

[1] Ibid., pp. 1-3.

Each establishment has a board of directors that is responsible for planning, arranging, and supervising the work of the establishment and its branches. The board consists of twelve members elected according to the proposed nominating system in each establishment and three members selected by the Minister of the Hajj. The board of directors for each establishment sets forth the general basis and regulations for the establishment and its branches.

For a mutawif establishment, each branch consists of twelve executive members elected according to the proposed nominating system in each establishment. For the wakīl and dalīl establishments, the executive members are elected from the general assembly of the shareholders of each of the above two establishments. Included in the system are detailed rules about the time periods of each candidate as well as the general rules for the elections.

Three types of establishments were recommended: (1) a mutawif establishment in Mecca, (2) a dalīl establishment in Medina, and (3) a wakīl establishment in Jedda.[1]

Mutawif Establishment

This is the single most important establishment in serving the pilgrims. Since various nationalities with different languages, customs, and traditions perform the pilgrimage every year, their groups need to be set up according to a modified system. Six branches were recommended for the mutawif establishment. Each branch serves

---

[1]Ibid., pp. 5-14.

the group that it is more familiar with. The following were recommended as the main branches of the mutawif establishments:

1. United Arab Nations. Because of the large number of countries included in this branch, it was recommended that the countries within this branch be divided into three major groups based on their customs and language.

2. South and East Asia and Australia. This branch serves only pilgrims from the following countries: Indonesia, Malaysia, the Philippines, Singapore, the Republic of China (Taiwan), Vietnam, Japan, Australia, and Muslim immigrants from these countries to Europe and America.

3. India, Pakistan, Bangladesh, Afghanistan, Burma, Uzbekistan, Turkistan, and their Muslim immigrants in the U.S.S.R., Europe, South Africa, and North and South America.

4. East, West, South, and Central Africa, as well as their Muslim immigrants in Europe.

5. Turkey and Iran and their Muslim immigrants worldwide.

6. Zam zami branch. The zam zami are those who provide zam zam, or holy water, to the pilgrims in the Holy Mosque as well as in their accommodations. This branch was recommended as part of the mutawif establishment because of the close ties in their service objectives.

Dalīl Establishment in Medina

Dalīls hold the second most important position, to serve the pilgrims who wish to visit the Prophet's Mosque and other religious

places in Medina. The branches of this establishment are identical to the first five branches of the mutawif establishment.

Wakīl Establishment in Jedda

This establishment provides the first services to the pilgrims when they arrive at the ports of Yanbu or Jedda. It arranges the travel of the pilgrims to Mecca or Medina, and it arranges their departures to their own countries. It was recommended that the wakīls should have the same branches as the dalīls and mutawifs.[1]

Except for the zam zami branch, it was recommended that each branch within the mutawif establishment have the following departments:

1. Public Relations. To meet the pilgrims when they arrive in Mecca and make the necessary arrangements with colleagues in both the dalīl and the wakīl establishments.

2. Accommodations Department. To arrange accommodations for all pilgrims in the branch, as well as to make the necessary arrangements with the pilgrims' consular missions for the accommodations of their pilgrims.

3. Travel and Transportation Department. Based upon pilgrims' requests, to provide the preferred means of transportation within Mecca, Arafat, Muzdalifah, and Minā, as well as between the cities within the pilgrimage region.

4. Department of Preparation to Arafat. To prepare accommodations in tents and all the necessary facilities and equipment needed in Arafat.

---

[1] Ibid., p. 5.

5. Department of Preparation to Minā. To prepare accommodations and all the necessary facilities and equipment needed in Minā.

6. Department of Religious Advice. To direct and advise the pilgrims on how to perform the religious rites. This is recognized as the most important department in the branch.

7. Department of Health and Guidance. To look for lost pilgrims and to handle the necessary arrangements for sick and dead pilgrims.

8. Treasury Department. This department consists of several accountants, tellers, and other treasury employees, who help with such needs as opening accounts for pilgrims in local banks.

The zam zami branch establishment consists of six departments, each of which has responsibilities equivalent to its counterpart in the mutawif establishment. The dalīl establishment consists of the same departments, which also have the same responsibilities as their counterparts in the mutawif establishment except for the Departments of Preparation to Arafat and to Minā. The wakīl establishment consists of only four departments (1, 2, 3, and 4 above).[1]

As indicated in previous sections, the pilgrim service establishments are still under comprehensive study by officials in the Ministry of the Hajj. However, the three years' experience of some private establishments is valuable to the government officials. Other establishments, such as the one supported by the government

---

[1] Ibid., pp. 11-17.

as experimental, were started in 1979 for Western European pilgrims and provide another important example. However, from personal interviews with some pilgrims, it was found that they complain a great deal about the quality of accommodations in relation to the amount they pay. It has yet to be determined whether this system will solve all the pilgrims' and mutawifs' problems or whether some modification should be introduced to the present system.

It is important to note that there has been a drastic increase in the number of pilgrims to Mecca. Thus, this annual event, which is the economic base of Mecca, has affected the character of the city, not just during the time of the pilgrimage, but permanently.

For individual pilgrims, the hajj is a religious and emotional experience of the highest order. However, for those in charge of the administration of the hajj, the organizational and logistical problems are immense. Pilgrims must be provided with food, including a sheep or other animal to be slaughtered as part of the pilgrimage rite; water, always an expensive commodity in Mecca; transportation; health care; guide service; and housing.

For an example of the difficulties, one can hardly think of a more insurmountable problem than housing. The rites of the hajj require that all pilgrims be in certain places at specified times: three days at Minā, one day at Arafat where the single most important rite (standing) takes place, and one night at Muzdalifah. Enormous tent cities are set up to accommodate the pilgrims, only to disappear immediately after the pilgrimage. On another level, pilgrims must be housed in more orthodox settings over the duration of their stay in

Mecca. The research in this project is concerned with this problem of housing.

Need for the Study

A previous study by this writer indicated that rent and quality of accommodations are influenced greatly by distance of the accommodations from the Holy Mosque.[1] However, that study was conducted in a unique period in the history of the country when all economic sectors experienced enormous change due to the initiation of the Second Development Plan. This change will be discussed later. In the present study, accommodations and their quality are reevaluated based on data gathered not only from pilgrims but from residents as well. Whereas the first study concentrated on the pilgrims' evaluation of current conditions, this study probes the present situation and preferences of both residents and pilgrims to assist future planning of accommodations. Such a study is necessary to help solve the problems of both pilgrims and residents. In addition, whereas the initial study concentrated on the area inhabited by pilgrims, this study encompasses the entire city of Mecca and covers a two-year period. Thus it is more reliable. Not only is this study in more depth, but it also yields practical recommendations for the future regarding both housing and transportation.

---

[1] Ghazy A. Makky, "Spatial Distributions of Pilgrim Accommodations in Mecca, Saudi Arabia" (Master's thesis, Michigan State University, 1976).

Statement of the Problem

The problem that is the subject of this study consists of four parts. It is necessary to determine (1) whether spatial distribution of the pilgrims to different parts of the city is necessary to improve pilgrim housing; (2) whether the pilgrims are willing to stay far from the Holy Mosque; (3) what the supply of housing is; and (4) what its quality, occupant density, and rental rates are. The hypotheses upon which this study is based are discussed below.

Research Hypotheses

Spatial distribution of the pilgrims to different parts of the city is necessary to improve the quality of their housing. This general assumption can be analyzed in terms of the following specific hypotheses.

1. Accommodation quality, occupant density, and frequency of visits by pilgrims to the Holy Mosque are positively related to rent, whereas distance of accommodations from the Holy Mosque is negatively related to rent. Rent per room is also related to type of rental agent chosen by pilgrims.

2. Room size, rent per room, and duration of rental are positively related to occupant density, whereas distance from the Holy Mosque and accommodation quality are negatively related to occupant density. Occupant density is related to type of rental agent.

3. Significant variations exist in the decisions of pilgrims to stay farther from their present locations on subsequent pilgrimages.

4. No significant correlations exist between the age of the pilgrims and each of the following: frequency of their visits to the Holy Mosque, travel time between their accommodations and the Holy Mosque, and their five daily prayers being performed in the Holy Mosque.

5. No significant correlation exists between the pilgrims' performing the five daily prayers in the Holy Mosque and their travel time between their accommodations and the Holy Mosque.

6. Significant negative correlations exist between frequency of visits to the Holy Mosque and both travel time and distance of accommodations from the Holy Mosque.

7. Significant variations exist among groups of pilgrims from various countries with respect to rent and occupant density in accommodations.

8. Significant variations exist between type of rental agent and both rent charged and occupant density.

On the other hand, there is reason to believe that most residents of the city do not share their dwellings with pilgrims. Therefore, the following hypotheses can be stated:

9. Over 50 percent of the residents interviewed never rent their houses to pilgrims.

10. A significant percentage of residents who have had previous experience renting their houses to pilgrims choose to rent in the future.

11. A significantly low percentage of residents who never have had experience renting to pilgrims have not rented because they feel the amount of rent is too low.

12. A proportinately significant number of residents who have had no previous experience renting to pilgrims live farther from the Holy Mosque than those who have had previous experience.

13. The average rent that would be charged by residents who have had no previous experience renting to pilgrims and who are willing to rent their houses in the future is significantly more than the rent asked by residents who have had previous experience and who are willing to rent their houses.

Overview of the Dissertation

In Chapter I an introduction has been presented, including discussion of the history and organization of the hajj, the reasons for development of problems associated with the hajj, the need for the study, a statement of the problem, and the research hypotheses. A review of pertinent literature is presented in Chapter II. In Chapter III is a description of the design of the surveys of 1976 and 1977 and a discussion of the analysis strategies used in this study. A detailed discussion of the surveys is presented in Chapter IV. Included in this chapter are discussions of the present housing conditions and personal characteristics of the pilgrims, including the regions from which they come and their modes of travel. There is also a discussion of the present types of pilgrim accommodations and the quality of these accommodations. An analysis and discussion of the

pilgrims' reactions to their present housing and their recommendations for future housing are presented in Chapter V. In Chapter VI, the principal findings regarding the characteristics of the pilgrims and their future accommodation locations are presented. The conclusions of this study and recommendations for more government control and supervision are presented in Chapter VII.

CHAPTER II

REVIEW OF LITERATURE

Shelter, together with food and clothing, is fundamental to decent human life. Without such necessities, the Hobbesian description of life as "nasty," "brutish," and short would be accurate.[1]

In the United States, government regulation of the residential development process has increased rapidly over the past several years, both in the scope of its coverage and in the magnitude of its impact. It is directed at positive objectives: increase of home ownership, preservation of the environment, making homes safer, and reduction of urban sprawl. The result of these objectives has been a significant increase in the price of homes and a reduction in the number of new housing units in the United States.[2] In Saudi Arabia, even though the number of housing units increases, the price of the dwellings and rent also increase. These increases run counter to government policy.

Housing needs and demands have been approached from a number of perspectives, although definitive procedures for studying housing have yet to be formulated. This is a result of limited data resources, limited study of field application of critical interrelationships, and

---

[1] Stephen R. Seidel, Housing Costs and Government Regulations (New Brunswick, N.J.: Center for Urban Policy Research, The State University of New Jersey, 1978), p. 3.

[2] Ibid., p. 2.

the necessity of forecasting events that are as inherently unpredictable as the number of pilgrims coming to Mecca. One of the useful approaches to studying housing needs is to consider not only housing inventory conditions (substandard units) but also occupancy characteristics (overcrowding as measured by 1.5 or more persons per room) and noneffective demand (allocation of more than 20 percent of income for rent or rent equivalent).[1] For Saudi Arabia as a whole and Mecca in particular, there are only limited data concerning housing inventory conditions and occupant density. It is also true that in Saudi Arabia in general and in Mecca in particular, inhabitants pay a considerably larger portion of their incomes for rent, which accounts for high rents for the incoming pilgrims. In addition, some permanent residents find they can acquire a full year's income from the pilgrimage period and choose to leave their housing vacant the rest of the year.

Since an exhaustive survey of the housing literature would not be possible here, that portion most relevant to this study will be discussed. The five main areas of interest are housing quality, rent and price differentials, location and/or proximity, scarcity, and tourism.

Housing Quality

Much research focuses on the condition of housing and consumer satisfaction with housing in several housing markets. Wolman identified three housing markets that operate almost identically in the United States and Great Britain: private homeownership, public

---

[1] James W. Hughes, Method of Housing Analysis (New Brunswick, N.J.: Center for Urban Policy Research, The State University of New Jersey, 1977), p. 359.

housing, and private rental markets. He indicated that renters, especially those in lower-income groups, whether in public or private housing, end up in older housing with inferior amenities.[1] In Saudi Arabia, public housing is recent and not well planned, nor is it known who will occupy it. In Mecca itself, there is no public housing. Poor as well as middle-income residents and pilgrims may have undesirable housing, for there is no adequate control over the housing market.

Case identified four types of American inner-city neighborhoods, based on the quality of housing and the social and economic characteristics of the people who inhabit them. These are

1. Very old residential neighborhoods that have changed or are changing rapidly to nonresidential uses;
2. Old single-family home neighborhoods, ripe for change to higher density residential uses;
3. Older stagnant residential neighborhoods, interspersed with commercial property; and
4. Older residential areas with mixed single and multifamily structures.[2]

The above types of neighborhoods do not exist in Mecca. The inner-city neighborhoods of Mecca are characterized by changes in (1) some old residential and commercial areas to roads and public facilities and (2) the old and the small houses in an area near the city's center to both multi-family apartment buildings and retail business shops.

---

[1]Harold L. Wolman, Housing and Housing Policy in the U.S. and the U.K. (Lexington, Mass.: D. C. Heath & Co., 1975), p. 51.

[2]Frederick E. Case, ed., Inner-City Housing Enterprise, Based on Studies in Nine Cities (New York: Praeger Publishers, Inc., 1972), pp. 32-33.

Some analysts attribute the differences among people in finding good-quality housing to the existence of an imperfect housing market.[1] Under this assumption, differences within the population in housing consumption are the result of several factors. The first is socioeconomic variation. Poor people are not able to afford a down payment or high rent to obtain better-quality accommodations. The second is tastes, which vary greatly among people as they satisfy their housing needs. The third is segregation, which may be forced; i.e., certain groups are not allowed to live in certain areas.

Case's measure of quality does not apply to third-world cities such as Mecca, or to Saudi Arabia in general. When measuring quality of accommodations in third-world cities, it should be noted that neighborhood alone is the focal point in determining the residential quality and can be measured by both physical facilities and social services. Physical facilities include (1) accessibility and/or surface services, which consist of parking, streets, small retail shops and open markets, and public transportation; and (2) nonsurface physical services, which consist of power, water, sewage, and communication.

Social services include accessibility to schools, health services, police protection, and religious institutions. The residences that are located within such neighborhoods, if they are newly built but lack all or some nonsurface physical services, will have a

---

[1]Mahlon R. Straszheim, An Econometric Analysis of the Urban Housing Market (New York: Columbia University Press, National Bureau of Economic Research, 1975), p. 116.

lower quality than those that have all or some of the above, even if they are older.[1]

New or ideal neighborhoods in Mecca do not necessarily encompass new or ideal houses, and the opposite is true for older neighborhoods. It is also true that older neighborhoods are more attractive to most people than newer ones, for they are closer to religious and social activities and the city center.

Both nonsurface physical services of residences as well as physical facilities and social services of neighborhoods are greatly affected by occupant density. The central city of Mecca during the hajj suffers greatly from the massive influx of pilgrims. Greater demands are made on both surface and nonsurface facilities, which have not been well planned.

Rent and Price Differential

The factors that make accommodations available for residents vary among societies. In some societies, availability and adequacy of housing are directly related to income or segregation. Several models of housing-market discrimination have been devised.

One housing-price-discrimination model, developed by Bailey and Muth in their studies of Chicago,[2] showed that blacks pay more for

---

[1]Maurice D. Kilbridge, Robert P. O'Block, and Paul V. Teplitz, Urban Analysis (Boston: Graduate School of Business, Division of Research, Harvard University, 1970), p. 52.

[2]Martin J. Bailey, "Effects of Race and Other Demographic Factors on the Values of Single-Family Homes," in Urban Analysis, ed. Alfred N. Page and Warren R. Seyfried (Glenview, Ill.: Scott, Foresman & Co., 1970), p. 325; Richard F. Muth, Cities and Housing: The Spatial Pattern of Residential Land Use (Chicago: University of Chicago Press, 1969), pp. 108-109.

the same quality of housing than do whites. This model was criticized by Stengle, who offered a market-separation theory as an alternative.[1] Stengle argued that his theory is far better than the price-discrimination model in explaining housing-market segregation and discrimination. He added that "blacks and whites buy housing from different sellers" and that "any racial price differential that may be found to exist is, therefore, not the result of one seller charging different prices to blacks and whites," which is the situation explained by the housing-price-discrimination model.[2] However, in Saudi Arabia generally and in Mecca specifically, prices of housing are determined by the relative location and quality of the housing.

A great deal of housing research has been based on the premise that "the higher the income of the household, the lower the portion of total income paid for housing." If this is the case, then it would be true that the poor pay a larger proportion of their income for housing.[3] The factors influencing housing-price differential among pilgrims in Mecca are accessibility to the Holy Mosque and the general quality of accommodations. These factors are discussed in the following sections. The poor, who do not own their own houses in Mecca, do pay a considerably higher proportion of their income for housing, as they do in Saudi Arabia as a whole.

---

[1]Mitchell Stengel, Racial Rent Differential (East Lansing: Michigan State University, Business Studies, 1976), p. xiii.

[2]Ibid.

[3]Margaret G. Reid, Housing and Income (Chicago: University of Chicago Press, 1962), p. 1.

It is clear from the above discussion that discrimination based on race and income are two key problems facing people searching for housing in United States cities. The discrimination noted above can be attributed to various causes. One factor is the demographic composition of American society, which strengthens separation among its citizens. Government regulations regarding housing directly or indirectly support and encourage such distinctions and make them appear to be the result of ability to pay. Nonetheless, the income of an individual is a factor that cannot be ignored. The zoning systems, as well as the rapidly accelerating cost of housing, are among the other factors that facilitate discrimination. The division of residential areas into high-, middle-, and lower-class areas is a discrimination process in itself and is probably the first step toward race discrimination. Size of the house and higher construction costs cause significant increases in price and reduce the number of new housing units. Consequently, the losers are those who are in need of adequate shelter. The above experiences should be lessons to Western-educated third-world planners, especially those who do not understand the planning of their ancestors, to develop a more cautious approach before it is too late.

In the case of Saudi Arabia, most cities are in the process of being redesigned and replanned by Western contractors who use Western planning concepts. Mecca, the Holy City of Islam, is an example of this type of planning. During the first five-year period of the plan (1971-76), the resident population of the city was expected to increase by 20,000. No major changes were foreseen

within the built-up area of the city.[1] However, since 1975, the price of land and construction costs of houses have doubled or even triped (see Figure 2), and rent has rapidly accelerated (see Figure 3).

One of the projects during these five years was the demolition of some buildings, mainly those containing housing accommodations, to open and widen streets and centers, the cost of which was estimated at 811,433,793 riyals,[2] or about $243,676,815. Therefore, according to the plan, some 7,000 persons needed to be rehoused.[3] Standard accommodation units were also planned for the second five-year period (1976-81), such as the following:

1. Large villas (50 x 50 m) assigned to high-income people. These villas were to be surrounded by luxurious garden units;

2. Standard detached villas (25 x 25 m) with gardens assigned to medium- to high-income people;

3. Medium-cost housing (10 x 25 m) assigned to medium-income people. This housing is generally not detached;

4. Low-cost housing (9 x 15 m) assigned to low-income people; and

---

[1]Robert Matthew and Marshall Johnson, Master Plan Report: Mecca, Western Region Plan, a report for the Kingdom of Saudi Arabia (Riyadh: Ministry of Interior, Municipal Affairs, Regional and Town Planning Departments, 1973), p. 53.

[2]Ibrahim Abdul Kareem Alhakail, Municipal Service (Riyadh: Ministry of Municipality and Rural Affairs, 1976-1977), p. 46.

[3]Saudi Arabia, Master Plan, 1973, p. 53.

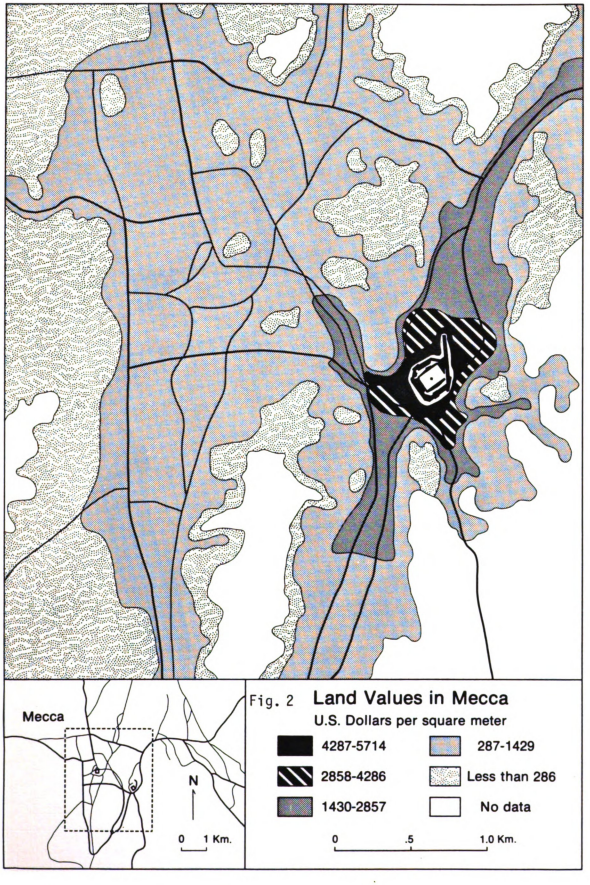
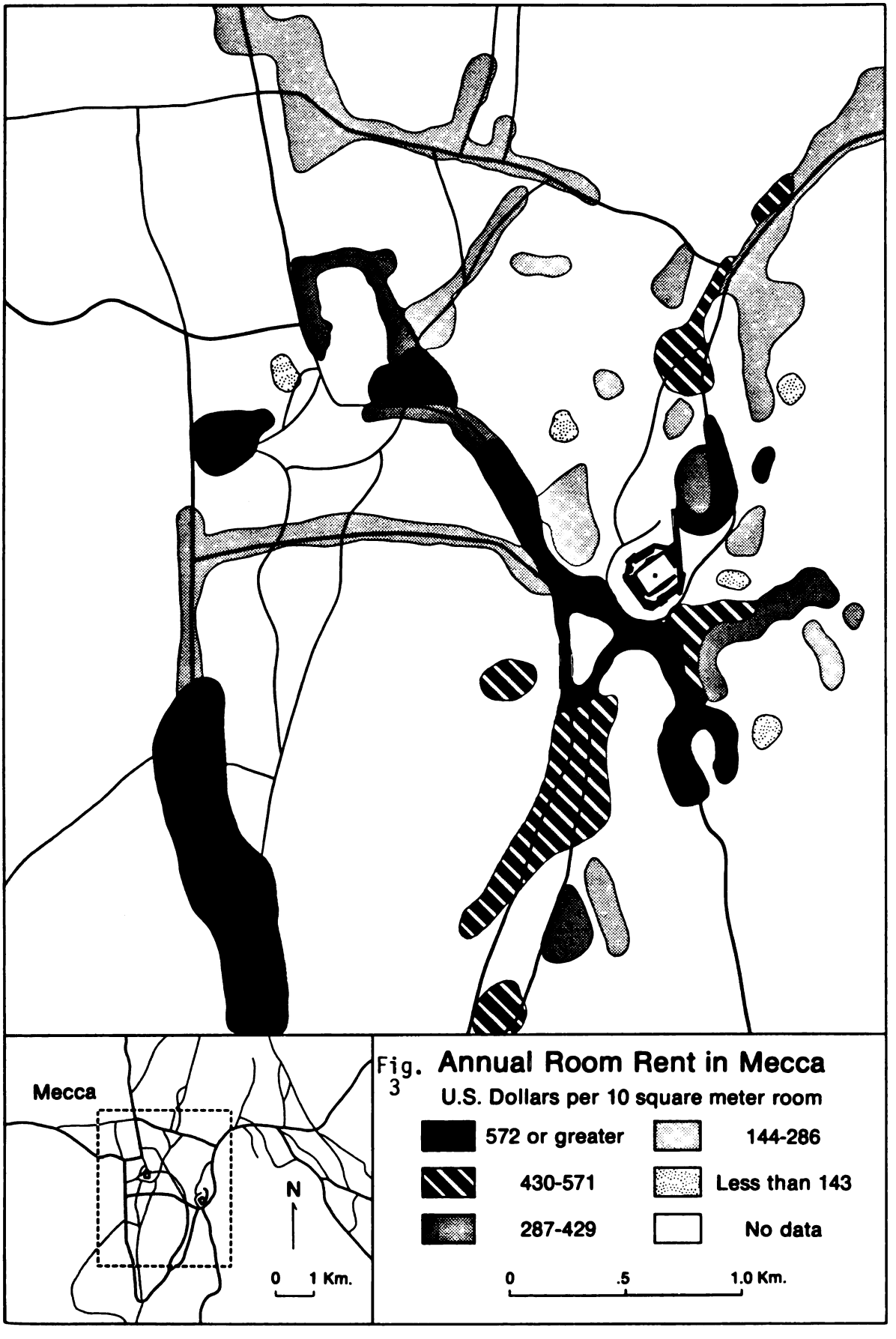

Mecca
N
0 1 Km.
Land Values in Mecca
U.S. Dollars per square meter
4287-5714
2858-4286
1430-2857
287-1429
Less than 286
No data
0 .5 1.0 Km.

Fig. 2


Mecca
N
0 1 Km.
Fig. 3 Annual Room Rent in Mecca
U.S. Dollars per 10 square meter room
572 or greater
430-571
287-429
144-286
Less than 143
No data
0 .5 1.0 Km.

5. Apartments built in high-density areas for those with incomes below the above category. These apartments were to be five stories high, on an average, with floor space per family of 100 m^2. (See Figure 4.)[1]

Initially, the plan was based on ability to pay for housing. However, it is possible that this plan could lead to segregation based not only on race but on tribe. To avoid such an outcome, planners need to be aware of the present housing situation in the West.

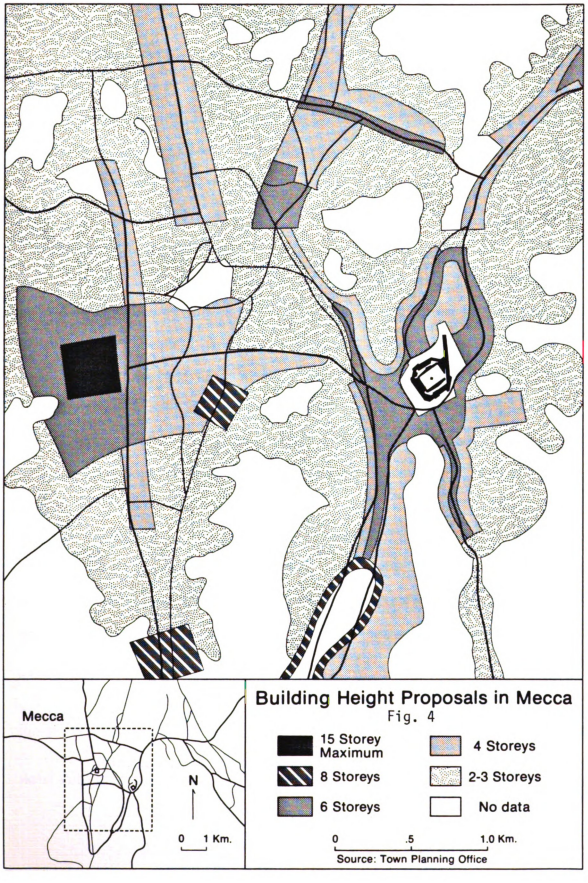
In 1975, the Real Estate Development Fund was established to offer loans with no interest rates for the citizens of Saudi Arabia who were seeking to remodel present housing or to build new accommodations for themselves. In spite of the fact that the establishment of this program facilitated acquisition of capital, it caused dramatic increases in the price of land and construction costs, as mentioned above. The total number of borrowers in Mecca from the time the fund was established in 1975 (1395 A.H.) until 1980 (1400 A.H.) was about 5,999, with a total loan of 1,609,618,301 riyals or $483,368,859.[2]

It is the writer's belief that in order to keep up with new world living standards, the development projects in Mecca should be of the highest quality in order to respect the Islamic codes.

---

[1] Ibid., p. 50.

[2] Saudi Arabia, Department of Research and Statistics, "Real Estate Development Fund," Table 788 (Riyadh: 1980), pp. 15-16.


Mecca
N
0 1 Km.
Building Height Proposals in Mecca
Fig. 4
15 Storey Maximum
8 Storeys
6 Storeys
4 Storeys
2-3 Storeys
No data
0 .5 1.0 Km.
Source: Town Planning Office

Location or Proximity

Recent research on housing-price differentials was based on the accessibility or trade-off model. According to this theory, certain groups trade off housing costs against transportation costs. Two general facts emerged from this research: housing prices decline with distance from central functions, and housing prices are greater in areas of above-average accessibility, such as those with good public transportation service.[1]

These findings were supported by a field-work study conducted by the researcher in the Holy City of Mecca, where the Holy Mosque represents the central function around which land values as well as housing costs decline with increasing distance from the center. The fluctuations in rent costs were related to changes in housing quality. (See Figures 5 and 6.) It was also found that accessibility played an important part in land value and rental costs. Mountains that are closer to the Holy Mosque had a higher land value than those at greater distances. (See Figures 7, 8, and 9.)[2]

A 1970 study by Scherer about off-campus student housing yielded some interesting results about proximity to a central attraction. One finding of importance was that the distance students lived

---

[1]Harry W. Richardson et al., Housing and Urban Spatial Structure: A Case Study (Westmead, England: D. C. Heath, Ltd., Saxon House, 1975), p. 97.

[2]Ghazy A. Makky, Mecca, The Pilgrimage City (London: Groom Helm Publishers, 1978).

Fig. 6

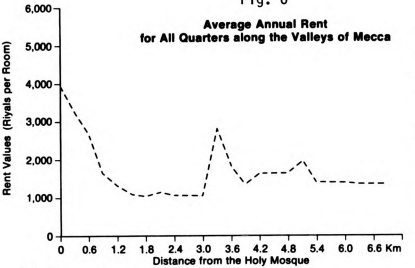


Fig. 5

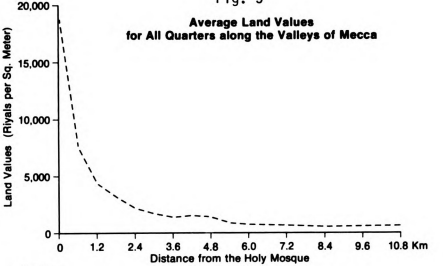


Fig. 7

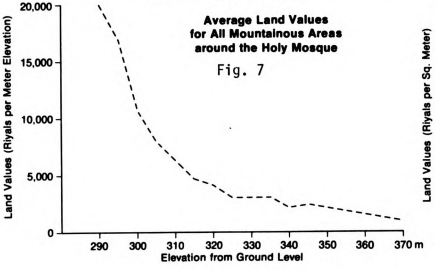


Fig. 8

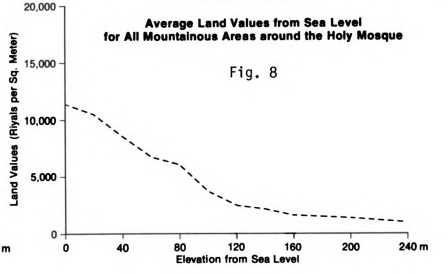
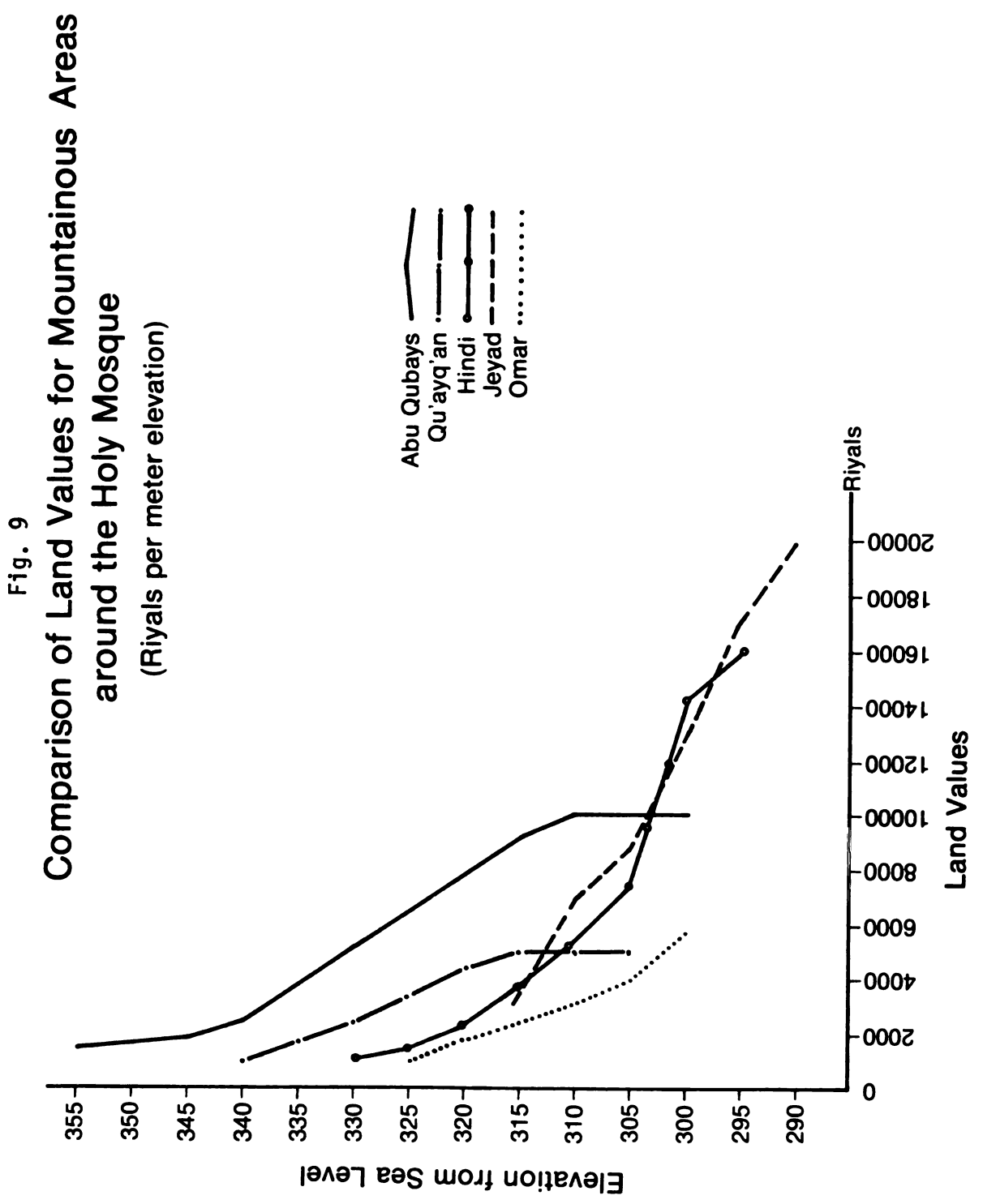


Fig. 9


Comparison of Land Values for Mountainous Areas around the Holy Mosque
(Riyals per meter elevation)
Abu Qubays
Qu'ayq'an
Hindi
Jeyad
Omar
Elevation from Sea Level
355
350
345
340
335
330
325
320
315
310
305
300
295
290
Land Values
Riyals
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000

from campus had a significant effect on their degree of socialization.[1] This would be applicable to Mecca, for those pilgrims closest to the center interact more with their peers and experience being part of the masses. A 1978 study by Makky also showed that in student-rental housing, the amount of rent per student decreased as the number of students in a given housing unit increased.[2]

For example, the 1970 census of housing indicated that rents in East Lansing, Michigan, were about 25 percent higher for all classes of housing than in the neighboring city of Lansing, even after "group housing" situations were deleted from the summary statistics. The relatively high rents were even more apparent in a survey conducted by the Michigan State Housing Authority in 1971. A comparison of two-bedroom apartments in East Lansing with those in all surrounding communities showed a difference of more than 30 percent.[3] This writer's study of off-campus foreign-student housing showed that rent and occupant density increased with decreasing distance from the campus.[4]

---

[1]Jacqueline Scherer, "A Case Study of Students Living in Flats and at Home," in Residence and Student Life, ed. Joan Brothers and W. R. Niblett (London: Tavistock Publications, 1971), p. 250.

[2]Ghazy A. Makky, "The Spatial Structure of Off-Campus Housing Among Michigan State University Foreign Students" (paper presented to Ph.D. committee in the Department of Geography, Michigan State University, June 1978), p. 42.

[3]Charles Ipcar, "The Rental Housing Market of a University Town: An Analysis of Rent Discrimination and Land Use Oligopoly in East Lansing: (Ph.D. dissertation, Michigan State University, 1974), p. 99.

[4]Makky, "The Spatial Structure of Off-Campus Housing Among Michigan State University Foreign Students," pp. 28-31.

These findings concerning the relation of rent to an attraction are pertinent in some ways to Mecca. The present study shows how rents closer to the Holy Mosque are significantly higher than the 25 percent mentioned above, and that closer to the Holy Mosque, the occupant density and rent are higher.

In general, then, all available literature confirms that rental housing in locations that attract renters tends to be more expensive than housing of comparable quality in other locations. Mecca is no exception, for pilgrims pay higher prices to be close to the Holy Mosque, where all kinds of religious and secular activities are concentrated.

Scarcity

The problem of scarce and expensive rental housing, and the corresponding decrease in the general quality of life for most American city residents, is only made worse by the fact that every possible piece of land is occupied to its capacity by buildings.

Of all the questions affecting the well-being of those who live in the congested sections of cities, there is none more fundamental than that of the proportion of a lot that may be occupied by buildings. As a rule, the greater the proportion of lot space occupied by rental housing, the larger will be the number of people living on the lot. The amount of light and air that are available to these people is diminished proportionately. The standard that has been almost universally accepted in North American cities having tenement legislation calls for the reservation of at least 30 percent of

vacant space on all interior lots, with a proportionately smaller amount, at least 10 percent, reserved on corner lots.[1] It is felt that a certain proportion of this vacant space should be reserved at the rear of the lot to promote the free circulation of air by providing an open area extending through the center of the block. Unfortunately, this standard has only recently been established, and the badly congested conditions that have developed in many cities in the absence of preventive legislation are a monument to the dangers of a laissez-faire policy.[2] The areas most affected by overcrowding are the older parts of cities or downtown residential areas. Such considerations should be inherent in laws for housing in Saudi Arabia. More important is the existence of enforcement procedures, which should maintain policies based on the above considerations.

In 1971, the central area of Mecca had a residential population of about 67,000 (out of 301,000 total population), with approximately 9,000 in the core area around the Holy Mosque.[3] During the hajj, the figure was much higher and was reflected in the pilgrims' living conditions within this area in houses that were expensive, crowded, and unhygienic.

In a previous study, this writer provided a detailed description and interpretation of the spatial aspect of pilgrim housing in

---

[1]Baltimore Association for the Improvement of the Condition of the Poor, Housing Conditions in Baltimore (New York: Arno Press, 1974), pp. 20-21.

[2]Ibid., p. 20.

[3]Saudi Arabia, Master Plan, p. 41.

Mecca.[1] It was found that quality as well as cost of housing did not discourage pilgrims from living closer to the Holy Mosque. Therefore, it is necessary to find out whether or not such problems could be solved by an increase in government control and by attempts to house pilgrims in a wider area than at present.

Tourism and Pilgrimage

Another field of study related to the problems of accommodation has been tourism. Traditionally, tourism was associated with basic objectives, such as trade, religious events, or travel for health purposes. Between 1854 and 1936, tourism was oriented toward entertainment, relaxation, and cultural pursuits. After the world recovered from the Second World War, the numbers of tourists increased dramatically. Today, the world volume of international tourism is about 128 million people.[2]

The concentration of huge masses of people into huge centers of population, the clearing away of residents' houses, and the constructing of tall buildings in the cities (as is the case in most developing countries) have not only separated man from his natural elements but have also destroyed his cultural heritage ties and family relationships. This is precisely what happened in Mecca in 1975 and 1976 and is still continuing. Families were asked to vacate housing so that streets could be widened, bridges could be built, and parking

---

[1] Makky, Mecca, The Pilgrimage City.

[2] Luis Casanova Vila, "Planning and Tourism" (conference paper 4 presented at the 30th World Congress of the International Federation for Housing and Planning, The Hague, Netherlands, 1971), p. 13.

lots could be made. Saudi Arabia's traditional family structure was disturbed, and problems were created within families. In addition, the number of houses decreased in the areas in which people wanted to live.

Planning for the future should follow humanitarian paths. Progress and modernization are not necessarily accomplished by invading the land with buildings and asphalt, but by using the available resources and then, efficiently, and only then, conscientiously building homes in suitable places, preserving the character of an area.

Since tourists seek entertainment and relaxation, their concentrations, movements, and destinations vary according to a number of factors:

1. Their instincts, aims, and goals, as well as . . . the types of transportation available; and
2. Changes in the weather, which may diminish flows in the seasons.[1]

Flows may also change if a particular region in a particular year experiences a hazardous disease. Social, economic, and cultural factors may affect the expansion and contraction of tourist flows. Examples are international or domestic political situations, economic changes at home or abroad, fluctuations in international monetary exchange rates, and the rise and fall in prices for tourist services, including board and lodging.[2]

---

[1]Y. U. K. Yefremov, "Geography and Tourism," cited by Ian M. Matley, "The Geography of International Tourism," Association of American Geographers Resource Paper No. 76-1, 1976, p. 11.

[2]P. N. Zachinyayeu and N. S. Fal'Kovich, "Geography of International Tourism," cited by Ian M. Matley, "The Geography of International Tourism," Association of American Geographers Resource Paper No. 76-1, 1976, p. 11.

Pilgrims are unique tourists, seeking worship and forgiveness. For Muslim pilgrims, the hajj is a required activity. Its movement, destination, and application are restricted to specific times and locations. It is true that the flow of pilgrims is affected by the factors mentioned, such as social, economic, political, and cultural conditions, yet most pilgrims anticipate difficulties, and they accept the consequences. To many Muslim pilgrims, the hajj should be intrinsically difficult, for it becomes a more satisfying experience when the difficulties are overcome.[1]

Another important factor is the reputation of the community that hosts the visitors. Visitors who enjoy and appreciate a particular community are more likely to spend more money, to come back again or more often than they might have come, and to recommend the community to others. As a tourist center becomes more attractive, its reputation as a hospitable and satisfying place to visit is created.[2] The mutawifs can create such a reputation for themselves. Those who provide good services to their pilgrims are more likely to be chosen the following years by pilgrims who have had previous experience with them or by those who have heard about their services from friends. The

---

[1]David E. Stephenson and Ghazy A. Makky, "Spatial Structure of a Cultural Microcosm: The Example of Mecca" (paper presented at the annual meeting of the Association of American Geographers, special session, New York, 12 April 1976).

[2]Robert W. McIntoch, Tourism and Your Community, Extension Bulletin E-729, Recreation and Tourism Series (East Lansing: Michigan State University, Cooperative Extension Services, November 1970), p. 2.

opposite is true for those who provide bad services to their clients, for they will receive fewer pilgrims.

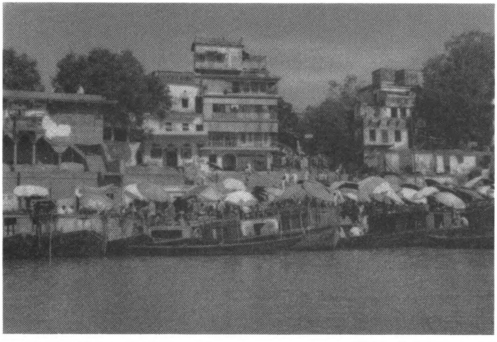
Other religious sites, such as Benares (Varanasi), India, for Hindus and Lourdes, France, for Roman Catholics, are visited by pilgrims, but these visits do not include required activities as does the hajj. Therefore, such places function as pilgrimage centers that are decreasing in their importance and as tourist attractions. This is clear in the case of Benares, which has been well known since ancient times as a center of pilgrimages. It has a dominant position among the most important cities of India for both native tourists and for foreigners. (See Plate 1.) In 1975-76, Professors S. L. Kayyastha and Sri S. N. Singh conducted a field-work study. They found that 40.95 percent of home tourists and 54.28 percent of foreign tourists considered "pleasure" to be their main reason for the visit. Pilgrimages took second position for native tourists (26 percent).[1]

In the summer of 1979, this researcher visited Benares to observe arrangements made for Hindu pilgrims and the type and quality of their accommodations. The Muslim pilgrims from India in Saudi Arabia are similar to the Hindu pilgrims in regard to quality of life, income, and age. Most of the pilgrims observed in Benares were poor, illiterate, and old, as are most Indian Muslims who come to Mecca.

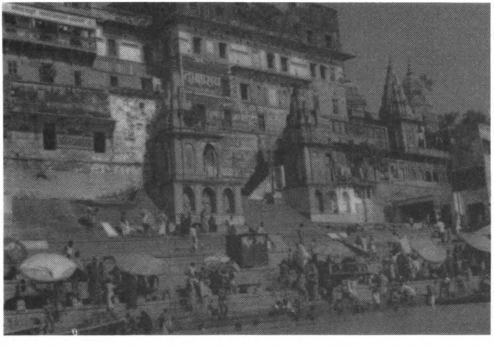
To Roman Catholics, Lourdes is a site for pilgrimage as well as a clinical center. It became a holy place in 1858 because of its

---

[1]S. L. Kayyastha and S. N. Singh, "A Study of Preferences and Behavior Patterns of Tourism in Varanasi," The National Geographical Journal of India 23 (September-December 1977): 144.



Main street leading to the holy water of the Ganges River.



Accommodations are restricted to pilgrims from different sects. They have unlimited access to the holy water of the Ganges River.

Plate 1.--City of Varanasi, India.

association with the cure of a sickly peasant girl who had visions of the Virgin in a grotto, from whom she received instructions to bathe and wash in a nearby spring. This healed her. Other miraculous cures followed.[1] Lourdes, therefore, gained a reputation as a healing place, and its reputation grew.[2] Sick people, as well as pilgrims and tourists, visit Lourdes all the year around. (See Plate 2.) In a personal interview with some officials at Lourdes in August 1980, it was found that not all the Roman Catholics come at once. Instead, there is a time schedule for each group to visit Lourdes.

Lourdes is not a site related in its history to the establishment of Christianity. There are no prescribed times for the pilgrims to gain healing. Rather, visitors come in small groups at prescribed times, primarily in August. A visit to Lourdes is clearly different from a pilgrimage to Mecca.

An example of another kind of mass gathering, one not associated with religion, was the 1980 Olympic Games held in Lake Placid, New York. A village with a population of 2,731 hosted more than 50,000 people. Accommodations were built for 1,400 athletes at a cost of about $150 million. These accommodations were to become a new prison.[3]

---

[1]D. J. West, Eleven Lourdes Miracles (London: Duckworth & Co., Ltd., 1957), p. 1.

[2]Donald Gould, "Despite Skeptics, Lourdes Is Still a Source of Solace," Smithsonian 6 (October 1975): 120.

[3]Suzanne Wittebort, "Petr Spurney's Olympian," Fortune, 14 January 1980, pp. 82-85.

Sickly pilgrims listen to the prayers of their holy man.

The ceremony of ending their daily prayer and leaving for their accommodations.

Plate 2.--City of Lourdes, France.

The influx of a large number of people, whether in Mecca or in any other place that hosts such gatherings, results in a serious strain on the urban resources of the host cities. For those in charge of administering such huge gatherings, the organizational and logistical problems are immense. Pilgrims and/or tourists must be provided with food, water, transportation, health care, guidance, and housing.

The Hajj

Unfortunately, literature about housing in Saudi Arabia in general and about Mecca in particular is limited. Very limited research has been done about the hajj. In the past seven years, however, graduate research, primarily by Saudi Arabians, has been done detailing the historical development of the pilgrimage, investigating transportation in Mecca and other sites, predicting future numbers, studying a particular nationality of pilgrims, and describing the services provided for pilgrims. The most recent dissertation, written by Bushnak, investigated the need for a comprehensive plan to integrate the transportation system to achieve intangible objectives. Bushnak also investigated the need for proper transportation techniques.[1]

A technique was developed to plan for and evaluate special-event transportation systems. This technique was applied to the transportation system during the hajj. Alternative local movement systems for the pilgrims within Mecca and its environs were evaluated.

---

[1]Adil Ahmed Bushnak, "Planning and Evaluation of Special Event Transportation Systems With Application to the Hajj" (Ph.D. dissertation, University of Michigan, 1977).

From the evaluation, it was discovered that walking, as a generic mode of movement, had the highest utility score relative to other modes. A local movement system composed of walking and bus transit had the best performance compared to alternatives involving passenger cars or rail transit.[1]

In another 1977 study, the spatial patterns of the pilgrims' circulation were investigated. The study included the historical development of the number of pilgrims, as well as predictions for the increasing number in the future.[2] An historical account of the pilgrims as well as their modes of travel to Saudi Arabia was investigated in 1976. Models for the years 1983 and 1993 were developed. These models of forecasting the major problems facing the authorities over the next twenty years and showing how these problems can be overcome was most valuable. Part of the solution offered in this study was to control the number of foreign pilgrims with the cooperation of the Muslim countries.[3]

In 1975, an architect studied the pattern of movement within the Jamarát area, concluding that all motor traffic should be moved from the Jamarát area and that certain times should be specified for the pilgrims to throw the pebbles over the Jamarát. The pattern of movements between Mecca and nearby holy places was also studied.

---

[1] Ibid.

[2] Issa Musa Shair, "Spatial Patterns of Muslim Pilgrim Circulation" (Ph.D. dissertation, University of Kentucky, 1977).

[3] Soliman Aquil Soliman El-Hamden, "The Pilgrimage to Mecca: A Study of the Physical Planning Problems With Special Reference to the Increasing Numbers of Pilgrims and Changing Modes of Travel" (Ph.D. dissertation, University of Sheffield, 1976).

Walking was found to be the best way to perform the hajj for pilgrims whose health allows it. Shuttle bus systems provided the best support for pedestrian pilgrims.

In 1973, a study dealt with the cultural background of the Nigerian pilgrims and traced their yearly movements in the pilgrimage. The socioeconomic effects of their movements on Nigeria were also investigated. The hajj, over the centuries, has caused a redistribution of Nigerians. For example, 400,000 Nigerians now live in the Democratic Republic of Sudan.[1]

Also in 1973, a valuable study was made of the historical aspects of the hajj. Various services and organizations that provide health-care services were examined, as well as the implications of the hajj for Saudi Arabia. In the 1973 study, the historical background given about Islam indicated the author's Western perception.[2]

However, none of the above studies nor any government studies that the researcher had access to were primarily concerned with the quality of living for the pilgrims. This quality of living is the most crucial problem facing the pilgrims during their stay in Mecca. On the other hand, a great deal of governmental attention in past planning has been given to transportation systems, especially automobile transportation and the corollary concern of road systems. Much

---

[1]Andrew Kayod Medugbon, "Geographical Aspects of the Hajj, With Emphasis on Northern Nigeria" (Master's thesis, University of California, Los Angeles, 1973).

[2]David Edwin Long, "The Hajj Today: A Survey of the Contemporary Pilgrimage to Makkah" (Ph.D. dissertation, George Washington University, 1973).

effort and money have been expended on these transportation systems. All this has been at the expense of improving existing housing or building new housing.

It is the belief of this writer that the success of the pilgrims' visits to Mecca and their performance of the rites of the hajj are more closely affected by the comfort of their living accommodations than they are by the regulated flow of traffic. The privacy, cleanliness, quiet, and order of the living accommodations should fulfill requirements in Islamic law for the quality of life.

If the pilgrims can stay in appropriate accommodations, all of which are prearranged, they can devote their attention to the religious focus of their journey and also have the pleasure of knowing Muslims from other nations. Therefore, this study is intended to draw the attention of the government to the crucial problems related to proper accommodations in the pilgrimage region, especially in Mecca.

CHAPTER III

DESIGN AND METHODOLOGY

Survey Methodology

The nature of this study demanded that surveys, as well as field work, be used to obtain the required data. It became clear that a survey of the general population was the only means of getting a general picture of the existing conditions of pilgrim accommodations in Mecca.

Based on information obtained in the writer's preliminary study conducted in 1975,[1] it was determined that two major surveys should be conducted in two consecutive years. The first, in 1976, focused mainly on the variations in spatial distribution of pilgrim housing based on proximity to the Holy Mosque. The second survey, in 1977, was concerned mainly with variations in spatial distribution of housing within the entire city. Only pilgrims were interviewed in the first survey. In the second survey, a pilgrim was interviewed if he was staying in the house in the sample. If not, the permanent resident was interviewed. The existing conditions of the accommodations of the sample houses, as well as the opinions given by the pilgrims, were considered representative of the population sampled.

---

[1] Makky, Mecca: The Pilgrimage City, pp. 44-80.

The following data concerning accommodations were collected from the pilgrims themselves in 1976 and 1977: site and situation, kinds of facilities present in the accommodation, ambiance, accommodation size, occupant density, rent, and the attitudes of the pilgrims toward the above conditions. Pilgrims were asked about their nationalities and also about their modes of transportation to the Holy Mosque. In addition, occupants were questioned about certain attitudes concerning housing and the hajj in general, giving them the opportunity to express their major complaints. Finally, the interview included the suggestions of the pilgrims for new accommodations. (See Appendix A for the questionnaire.)

The interview with the permanent residents of Mecca yielded the following information regarding accommodations: site and situation, kinds of facilities the accommodation offered, ambiance, accommodation size, estimated rent, and the nationalities to which residents preferred to rent. This information could help in establishing different zones within the city based on rent, quality of accommodation, and the clustering of certain nationalities. These interviews also indicated that rent costs were based on the condition of the houses and their location within different zones.

Interviews with government officials were conducted to obtain an estimate of land values[1] and to obtain information about the government housing projects.[2] Also, in 1979, the researcher was allowed

---

[1]Interviews with Ghazy bin-Zafir, Chairman of Saudi Arabian Properties and Land Value Estimation, Mecca, October 1979.

[2]Interview with the Vice-Minister of Accommodation Ministry, Jedda, September 1979.

by the chairman, Abdual Mohsin Ali Babsair, to participate in the committee investigating pilgrim-housing quality. This committee was formed from the Ministry of the Hajj, the Ministry of Interior, the Ministry of Municipality and Rural Affairs, and the Ministry of Health.

The results of the surveys and interviews are used to recommend proper use of the existing housing in Mecca during the time of the pilgrimage and to make proposals to the government regarding future housing plans.

Sample

A geographic-area sample is a widely used method of probability sampling when there are no lists of the elements in the population to be sampled, as was the case in this research. A sample unit may be selected in two or more steps. First, the list of elements, if they are available, is prepared; second, maps or aerial photographs of the selected area are obtained.[1] These techniques were used in this study for the following reasons:

1. The elements to be sampled were housing units in particular locations.

2. There was no list of housing units or individual pilgrims for a particular location.

Considerable effort was expended to reduce the bias that could occur by applying the above frame. It was decided that all

---

[1]John B. Lansing and James N. Morgan, Economic Survey Methods (Ann Arbor: Survey Research Center of the Institute for Social Research, University of Michigan, 1977), p. 68.

pilgrims who did not have a dwelling or who lived on the sidewalk should be omitted because of technical and logistical research difficulties and the bias that might result from including them. As stated above, two major surveys were conducted to examine the existing conditions of the residences during the pilgrimage time. A city-base map 1/2500 was used in performing both surveys.

The 1976 Sample Frame

The purpose of this survey was to determine the sites and situations of the houses used by pilgrims during the hajj. Accessibility to the Holy Mosque was determined by elevation above sea level. For the above purpose, the city-base map was divided into four types of classifications based on accessibility to the Holy Mosque:

1. Inaccessible houses: Houses located at a high altitude, 300 meters or more above sea level, but not on main streets;

2. Least accessible houses: Houses located at lower altitudes, less than 300 meters above sea level, but not on main streets;

3. More accessible houses: Houses at high altitudes, 300 meters or more above sea level, and on main streets; and

4. Most accessible houses: Houses located at lower altitudes, less than 300 meters above sea level, and on main streets.

Certain procedures were used to select each of the sampled accommodations:

1. Based on the researcher's familiarity, through previous studies, with the approximate locations of the pilgrims, the study area was determined;

2. To facilitate the work, the study area was then divided into sections based on time and effort needed by interviewers to work in each section;

3. Each section was then subdivided into four classifications, as indicated earlier; and

4. Houses, floors, and pilgrims to be surveyed were selected according to the following procedures:

a. The first house in the first block in the southeast of a particular section was the starting point for that particular section.

b. The fifth house across from the previous one was used. If there were no pilgrims living in that particular house, the one immediately to the west was chosen; if no pilgrims were there, the house immediately to the north; if not, the house to the east; if not, the house to the south of the sampled house.

c. The interviewer chose the level of the first floor on which to conduct an interview; subsequent floor levels were governed by this initial choice. For example, if the previous interview was conducted with pilgrims living on a second floor, that floor was excluded from the interview immediately following unless there were no other choices. The first choice of a room was the one to the right of the interviewer, then the one to the left.

d. An individual pilgrim in each room was then selected, based on the languages available to the interviewer--Arabic,

English, or in some cases, an additional language of the interviewer according to the predominant nationality in that area.

Sample Size

The method used to collect the data and the facilities available for conducting the survey permitted a total of 513 interviews to be conducted directly with the pilgrims. (See Figure 10.) Because the survey was conducted after the hajj with fewer interviewers, the number was reduced to 411, or 80.1 percent. The above sample was designed to reflect all houses occupied by pilgrims in the city.

Field Work

The field work for this survey, as well as the following one, was conducted with the assistance of the Hajj Research Center at King Abdul Aziz University in Jedda. The center provided the researcher with all the equipment needed in the field and paid for all of the expenses incurred in performing the survey.

The field work for this study consisted of personal interviews with each sampled individual. A questionnaire containing a mixture of open-ended and fixed-alternative questions was used. Each interview averaged about one hour. The survey was conducted for eight days beginning November 10, 1976 (Dhu al-Hijjah 13, 1396, lunar calendar). Within this period, most of the pilgrims were still in Mecca after performing the rites of the hajj. The interviews were administered by students from Riyadh and King Abdul Aziz Universities who had had previous experience and training in conducting such surveys.

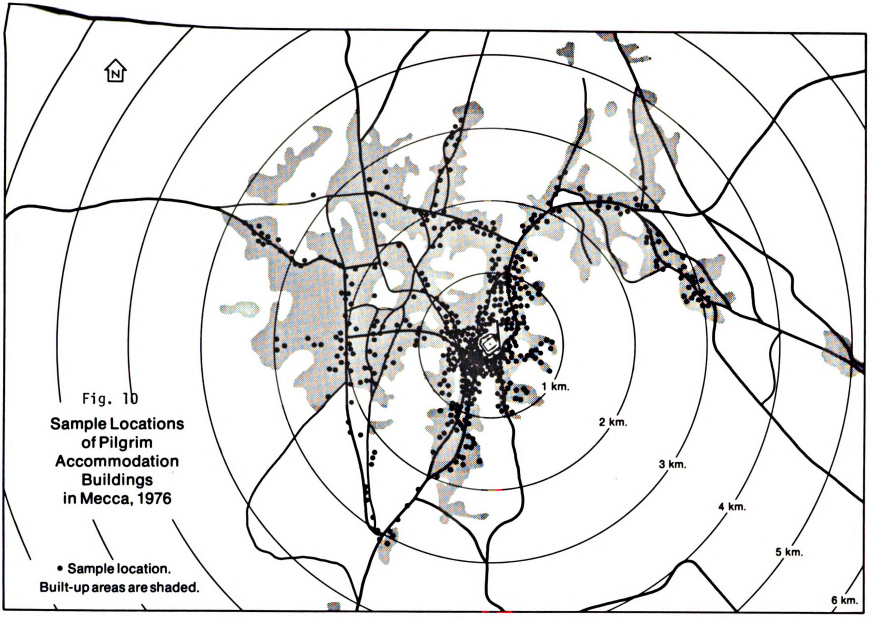


Fig. 10
Sample Locations of Pilgrim Accommodation Buildings in Mecca, 1976

For each rental location, its distance from the Holy Mosque and its elevation about sea level were computed by the researcher using measuring instruments and the contour lines that appeared on the map. This process was completed in the United States, where the researcher lived temporarily.

Editing

It was necessary to edit each interview to clarify the handwriting and check inconsistencies in the answers. This was done in the field by the researcher. The editing at times required the interviewer to go back to reinterview a pilgrim. During the editing, all the open-ended questions were categorized, and numerical codes were given by the researcher to questionnaire items such as nationality and location.

Processing the data involved keypunching the responses from the coded sheets. The computer at Michigan State University was used to perform analytical statistical tests.

The 1977 Sample Frame

The purpose of this survey was to examine the housing used by the pilgrims and the housing not used by the pilgrims. For this purpose, the same city-base map 1/2500 was used to determine the houses to be sampled. Below are the steps used in determining the population to be sampled:

1. Since houses in Mecca are not designed into blocks, especially in the older parts of the city, it was determined that the city should be divided into grids using the original lines on the

city printout sheet. Each square shown on the map was subdivided into four squares. (See Figure 11.)

2. Based on the researcher's experience and previous studies, the division of the city was based on the density of the pilgrim population. Three areas of density were divided based on previous studies by the writer:

a. High-density area within approximately a one-kilometer radius of the Holy Mosque,

b. Medium-density area within approximately a two-kilometer radius of the Holy Mosque, and

c. Low-density area within approximately a three-or-more-kilometer radius of the Holy Mosque.

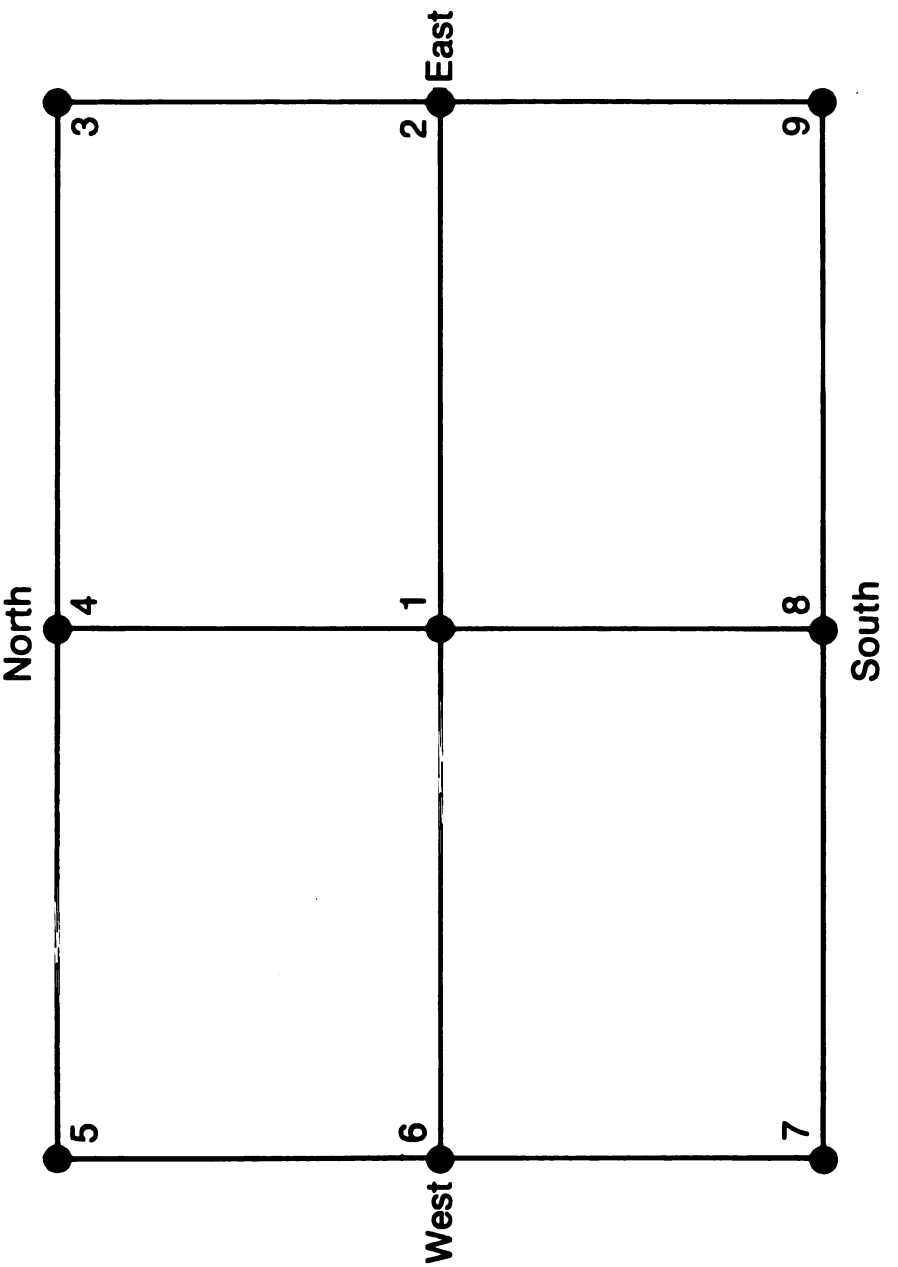
It was determined that a maximum of nine houses should be selected from the first category, five houses from the second, and one house from the third category.

To select the houses in the first category, the interviewer chose his respondents from houses located at the intersections of the lines. The middle intersection was the starting point, then the intersection located to the east, then the one to the northeast, then to the north, then to the northwest, then to the west, then to the southwest, then to the south, and then to the southeast.

To select the houses in the second area, the house chosen as a starting point was at the middle intersection. Then, in progression, the houses to the east, northeast, north, and northwest of the starting point were used. The house at the middle intersection on the map lines was the sample house for the third category.

Fig. 11

Method of Selecting Sample Houses, 1977 Survey



The persons surveyed in this study were pilgrims who lived in the sampled housing units. If no pilgrim lived in the sampled housing units, the permanent residents of these accommodations were interviewed with a different type of questionnaire.

Interviewers were instructed in the process of substituting alternative housing units if the sampled house was not appropriate. A random table was used by each interview team to determine the floor levels and the rooms to be used for the second survey.

Sample Size

The methods used to collect the data resulted in 800 interviews. However, 700 interviews, or 87.5 percent, were completed and usable. (See Figure 12.) Of those completed, 66.6 percent, or 466 interviews, were conducted with the pilgrims, and 33.4 percent, or 234 interviews, were conducted with the residents of Mecca since no pilgrims were found in the sample accommodations.

Field Work

The field work for this survey consisted of personal interviews with government officials, with the pilgrims, and with the residents of Mecca. A questionnaire containing a mixture of open-ended and fixed-alternative questions was used. Interviews with pilgrims averaged about one hour; interviews with permanent residents averaged about thirty minutes. The survey was conducted during six days beginning on November 14, 1977 (Dhu al-Hijjah 3, 1397, lunar calendar). The survey was conducted by university students who had had previous training in administering this type of questionnaire.

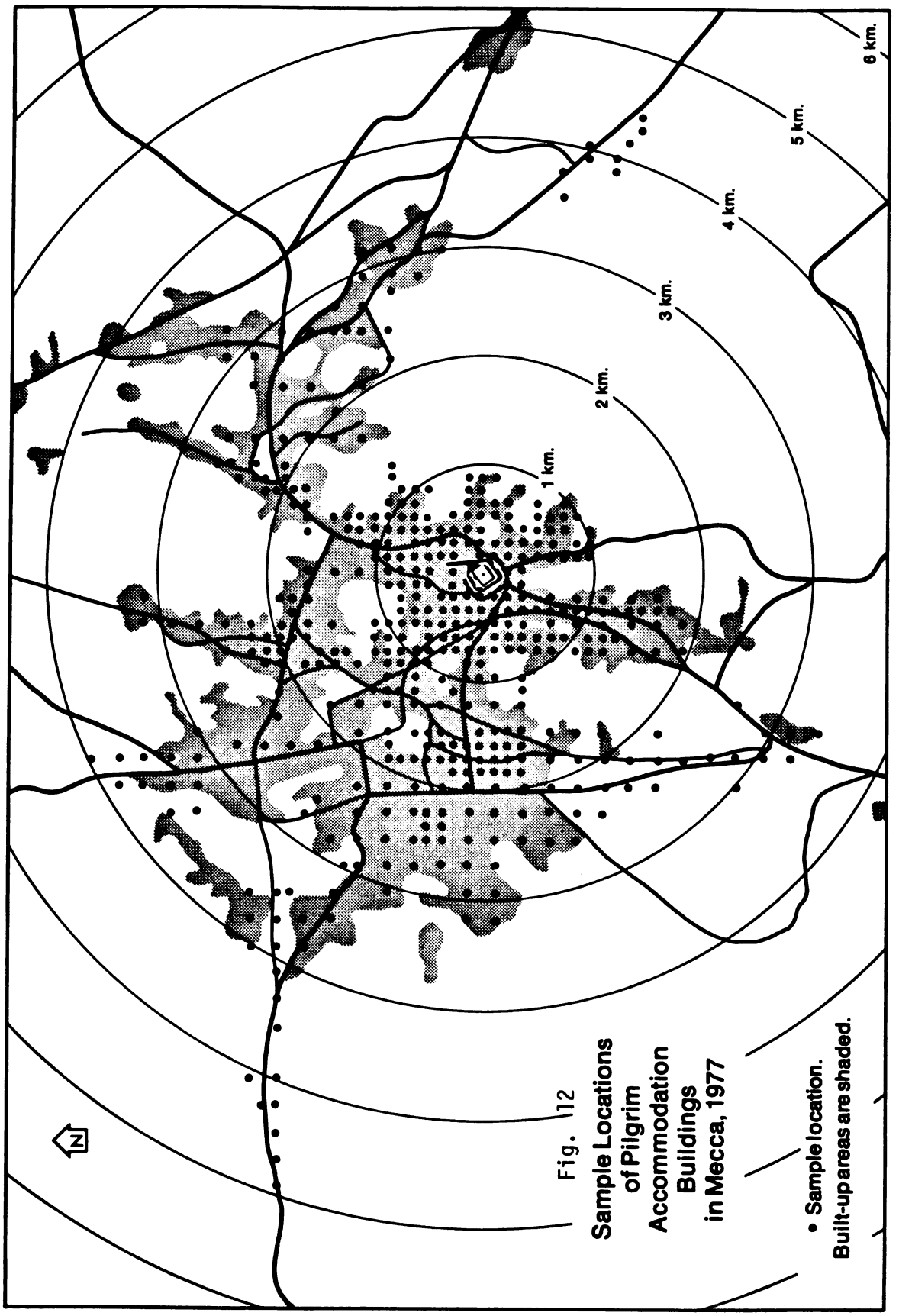


Fig. 12
Sample Locations of Pilgrim Accommodation Buildings in Mecca, 1977

Editing

It was necessary to edit each questionnaire, a process that included categorizing all the open-ended questions and assigning numerical codes to questionnaire items such as nationality and locations. The above processes were done by the researcher and his assistants from the Hajj Research Center. Processing the data involved keypunching the responses from the coded sheets. This was done by the researcher in the United States. The computer at Michigan State University was used to perform analytical statistical tests.

Analysis Strategies

As noted above, there was a different strategy in each survey for choosing the sample location. However, even though that was the case, the results of both surveys were much alike, as can be seen in the housing characteristics, pilgrims' movements, and locations, as discussed later.

Each survey is analyzed separately and then together by using the merge-files technique on data from both surveys. The merging results serve as a useful conclusion for each section. They also help determine the recommendations of the pilgrims concerning future accommodations. The last part of the research deals with the merge-files technique as a useful method in testing the hypotheses.

Various statistical tests were used. For initial familiarity with the data, such simple measures as determining mean and frequency distribution and cross-tabular survey responses were used. Other, more detailed, examinations of the data relating to the effect of

site and situation on housing characteristics, as well as existing conditions of accommodations with respect to proximity to the Holy Mosque, were conducted using a simple correlation analysis. This analysis yielded coefficients of correlation to indicate the strength of a relationship, if any, between a dependent and an independent variable and the direction of the relationship. A one-way analysis of variance (ANOVA) was used to test for differences among the means. Multiple correlations and regression were used to determine the influence of distance from the Holy Mosque on size, quality, and costs of accommodations occupied by pilgrims.

The binomial test was used especially for variables that were nominal and dichotomized (in two categories). By the binomial test, significant differences in the proportion between the expected number in each category and the number actually observed can be ascertained.[1] A breakdown test was used to derive sums, means, and standard deviations of dependent variables among subgroups of the cases. The t-test was used to test the significance of the difference in the means of a pair of variables.

Specifically, multiple linear regression was used to test Hypotheses 1 and 2. The Pearson correlation coefficient was used to test Hypotheses 4, 5, and 6. The chi-square test was used to test Hypotheses 3, 10, and 11. A one-way analysis of variance was used to test Hypotheses 7, 8, and 13. The binomial test was used to test

---

[1]Michigan State University, SPSS 6000 Supplement (East Lansing: Michigan State University Computer Laboratory, 1978), p. 88.

Hypothesis 9. The t-test was used to test Hypothesis 12. (See pages 26-28.)

The above analysis could help to determine the potential location of better houses for pilgrims and permanent residents. These analyses could also help planners in charge of organizing pilgrimage services.

CHAPTER IV

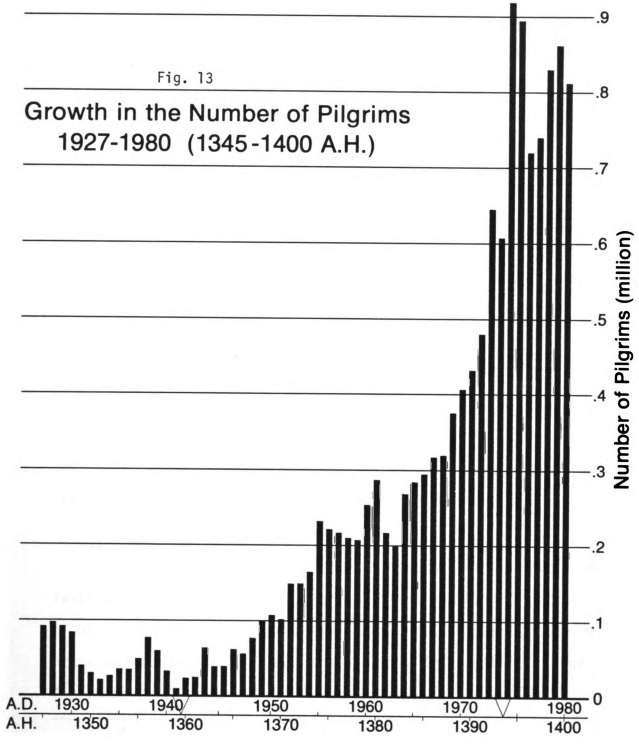
ANALYSIS AND DISCUSSION OF THE PRESENT CONDITIONS OF ACCOMMODATIONS FOR PILGRIMS

The following chapter focuses on the analysis of the housing conditions in the City of Mecca during the pilgrimage period. It is important to note the growth in the number of pilgrims from 1971 to 1979 (1390 A.H. to 1399 A.H.) as well as the changes in the pilgrims' modes of travel. The discussion is also concerned with the various nationalities that perform the hajj every year and the annual increase or decrease in their numbers compared to the number of pilgrims from Saudi Arabia, which increased from 1975 to 1979.

The Increase in Numbers of Pilgrims

There has been a drastic increase in the number of pilgrims since 1927. Official counts of the total number of pilgrims in October 1980 (1400 A.H.) indicated that 1,949,634 pilgrims performed the hajj, whereas more than five decades ago, in 1927 (1345 A.H.), the number of pilgrims did not reach 100,000. The number of pilgrims, however, fluctuated between 1950 and 1980 as a result of several factors: world stability, economic conditions in Muslim countries, and the hazards of disease. (See Figure 13.)

Fig. 13


Growth in the Number of Pilgrims
1927-1980 (1345-1400 A.H.)
Number of Pilgrims (million)
.9
.8
.7
.6
.5
.4
.3
.2
.1
0
A.D. 1930 1940 1950 1960 1970 1980
A.H. 1350 1360 1370 1380 1390 1400

In January 1941 (1359 A.H.),[1] with World War II threatening world stability, the number of pilgrims dropped to its lowest point, with only about 9,000 pilgrims performing the hajj. In the early 1950s, the number of pilgrims increased gradually until 1955. In 1955, the number of pilgrims was double that of 1950. From 1956 to 1958, the number of pilgrims decreased, perhaps because of the Suez crisis. In 1963 (1382 A.H.), the number of pilgrims dropped to 199,038, or 30.3 percent less than the number of pilgrims in 1961 (285,948). This was related to the outbreak of civil war in Yemen. In January 1974, because of the October War of 1973 between the Arabs and the Israelis, the number of pilgrims decreased 5.8 percent, dropping from 645,182 in January 1973 to 607,755 in January 1974. However, in December 1974 the number of pilgrims increased to 918,777, the largest number recorded. The number of pilgrims from abroad in October 1980 (812,892) dropped 5.75 percent below the number for 1979 (862,520). This was probably because of the Iranian-Iraqi War, the tense relationship between the Saudi Arabian and Libyan governments, and the earthquake in Algeria.

The fluctuation in the number of pilgrims may also be due to restrictions on the number of pilgrims performing the hajj each year, a policy to conserve hard currencies adopted by some foreign governments such as those of Libya, Tunisia, Egypt, India, Pakistan, and Bangladesh.

---

[1]The Islamic lunar calendar is 11 days shorter than the Gregorian calendar. Therefore, the pilgrimage occurs twice in one Gregorian year every 33 years, as shown in Figure 3.

The pilgrims who perform the hajj can be divided into three major groups: (1) the Saudis, (2) foreigners who temporarily live in Saudi Arabia, and (3) foreigners who come to the Kingdom to perform the hajj.

As shown in Figure 14, the number of Saudi pilgrims reached its highest point in 1971 (404,188) and declined rapidly until 1976, when it was 302,303, a decline of 25.2 percent. This was a result of compliance by residents with the government's request that those who had already made the hajj should give the opportunity to foreigners to perform their hajj in less-crowded conditions. The 1980 hajj showed the lowest number of resident pilgrims, as discussed earlier. Figure 14 shows the growth in numbers of foreign pilgrims who temporarily worked in various business sectors in Saudi Arabia. A sharp increase in the number of foreign pilgrims from inside the country was found after 1975, reflecting the increase in the number of foreigners in the work force engaged in the country's development projects, which started to boom in 1975.

Regions of Origin and Modes of Travel

The following discussion focuses primarily on the number of pilgrims and their modes of travel to the Kingdom. (See Figure 15.) Pilgrims who perform the hajj come from about 122 countries from all six inhabited continents. Therefore, the writer found it necessary to group the countries into the following 11 regions based on location, customs and traditions, and language, or all of the above: Asian Arab, African Arab, East and Southeast Asia, Indian Peninsula,

Fig. 14

Number of Pilgrims (Saudi Nationals, Foreign Residents of Saudi Arabia, and Foreign Visitors)

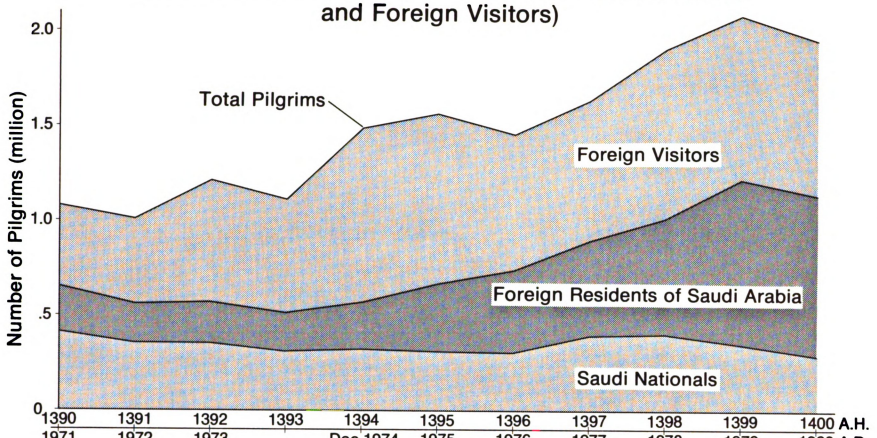
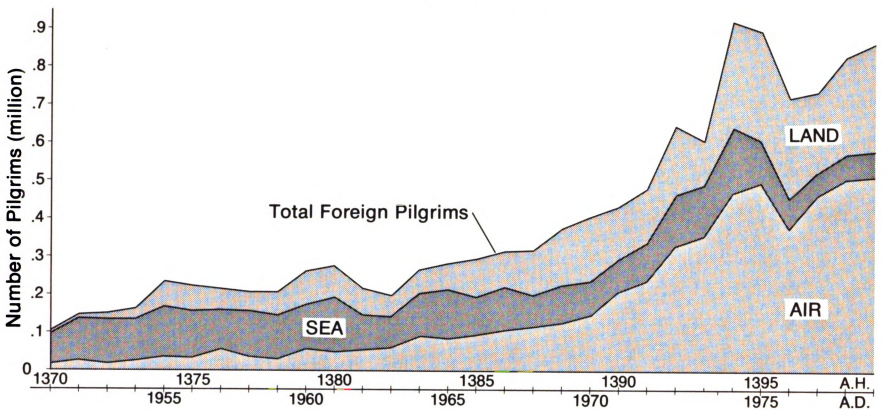


Fig. 15

Number of Foreign Pilgrims by Modes of Travel



Turkey and Iran, non-Arab Africa, West Europe, East Europe, the United States and Canada, Caribbean and South America, and Others. The discussion focuses on the number of pilgrims from the above regions with respect to their modes of travel to the Kingdom (air, sea, and/or land) from 1971 to 1979 (1390 A.H. to 1399 A.H.).[1]

The data were analyzed using the following tests: breakdown, simple correlation analysis, and simple regression analysis. The results of the above tests are summarized in the following sections.

Asian-Arab Region

From 1971 to 1979, 399,125 or 19.73 percent of the pilgrims from this region traveled to Saudi Arabia by air; 115,151 pilgrims or 5.69 traveled by sea, and 1,508,473 or 74.57 percent traveled by land.[2] (See Figure 16.) It is clear from the above figures that land was the dominant mode of travel, and this was directly related to the increase in the total number of pilgrims and the better quality of roads that connected Saudi Arabia with countries of the Asian-Arab region. The correlation result was .97. It was significant at the .001 level.[3] The percentage of those who traveled by land from this region decreased by about .21 percent each year.[4] This decrease, however, was not significant at any level. In contrast, the

---

[1]Data for this analysis were obtained from Saudi Arabia, Ministry of Interior, Department of Passports and Civil Affairs, Statistical Section, Pilgrim Statistics, 1390-1399 (1971-1979).

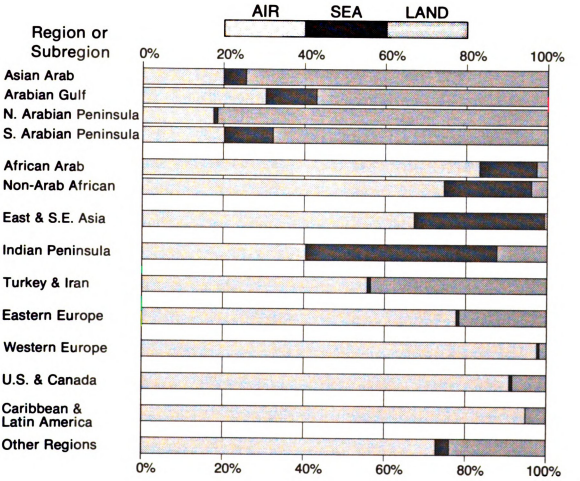
[2]Breakdown results.

[3]Simple correlation analysis.

[4]Multiple regression.

Fig. 16

Percentage of Pilgrims from Each Region Using Each Mode of Travel 1971-79



percentage of pilgrims from this region who traveled by air also increased with the increase in the total number of pilgrims from the region. The correlation result was .70; it was significant at the .001 level. However, the percentage of air travelers from this region increased by 1.2 percent each year. The percentage of sea travelers, even though they correlated with total pilgrims by .70, decreased annually by about 1 percent.

To give more detail, the above region was divided into three subregions: (1) Arabian Gulf countries, (2) North-Peninsula Arab countries, and (3) South-Peninsula Arab countries.

Arabian Gulf countries.--This subregion included Kuwait, Bahrain, Qatar, the United Arab Emirates, and Oman. From 1971 to 1979, 48,526 pilgrims or 30.4 percent traveled to Saudi Arabia by air; 19,551 or 12.3 percent traveled by sea; and 91,315 or 57.3 percent traveled by land. The correlation result showed that the percentage of land travelers increased directly with the increase of total pilgrims from this region. The correlation was .87; it was significant at the .001 level. The regression results also showed that the percentage of land travelers from this region increased each year by almost 1 percent. However, the increase was not significant at any level. In contrast, the percentage of air travelers and sea travelers showed low correlation with the total number of pilgrims from this region; the correlations were .24 and -.15 for air and sea travel, respectively. This indicated that as the number of pilgrims from within the region increased, there was a very slight increase in the number of pilgrims using airlines. At the same time, there was

a decrease in the number of pilgrims traveling by sea, which was natural because of the location of the above region in relation to Saudi Arabia and because of the relatively better road conditions that tied the above countries with Saudi Arabia.

The regression results showed a slight decrease of .2 percent in the number of air travelers; however, this decrease was not significant at any level. Also, there was a decrease of 18 percent in the number of sea travelers from the region.

North-Peninsula Arab countries.--This subregion included Jordan, Syria, Iraq, Palestine, and Lebanon. From 1971 to 1979, 184,358 pilgrims or 17.6 percent traveled by air; 188 or .018 percent by sea; and 860,271 or 82.3 percent by land. As shown above, the majority of the pilgrims from this region traveled by land, and the number increased with the increased total number of pilgrims. The correlation was 96.5 and was significant at the .001 level. However, the regression results showed a decrease in the percentage of land travel by about 1 percent annually; the decrease was not significant at any level.

The correlation result showed that as the number of pilgrims from this region increased, there was a moderate increase of .46 in the number of pilgrims who traveled by air, whereas there was a decrease of -.24 in the number of those who traveled by sea. The first was significant at the .001 level; the latter was not significant at any level. The regression results showed an increase of about 1 percent in the number of pilgrims who traveled by air; the number of

those who traveled by sea did not show any significant annual change from 1971 to 1979.

South-Peninsula Arab countries.--This subregion included Yemen and the People's Democratic Republic of Yemen. From 1971 to 1979, 166,241 pilgrims or 20.3 percent traveled by air; 95,412 or 11.7 percent traveled by sea; and 556,887 or 68.03 percent traveled by land. However, even though the percentage of land travelers was the highest yet, its relation to the increase in the total number of pilgrims from this region was highly related (.75), whereas the increase in the number of pilgrims who traveled by air as well as by sea was very highly related to the increase in the total number of pilgrims from the region. The correlations were .98 and .88 for air and sea travel, respectively.

The regression results showed an annual increase of 5.6 percent of those who traveled by air. The increase was significant at the .05 level. There was an annual decrease of about 4 percent in the number who traveled by sea; it was significant at the .01 level. Land travel also showed an annual decrease of about 1.6 percent, but the result was not significant at any level. This last statistic was related to topographic difficulties between this region and Saudi Arabia that make travel by land more difficult.

African-Arab Region

This region included Tunisia, Algeria, Dijibouti, Sudan, Somalia, Libya, Egypt, Morocco, and Mauritania. From 1971 to 1979, 1,354,965 pilgrims or 82.98 percent of the total number of pilgrims

from this region traveled by air; 235,647 or 14.4 percent traveled by sea; and 42,122 or 2.58 percent traveled by land. (See Figure 16.) The correlation results showed that as the number of pilgrims from within this region increased, the number of pilgrims who traveled by air also increased (.92). At the same time, there was a moderate increase in sea travel (.66) and a slight increase in land travel (.35). The above results were significant at the .001 level for air, sea, and land travel. These pilgrims used a combination of both sea and land travel, coming either via Europe or via other Arab countries, such as Egypt or Syria.

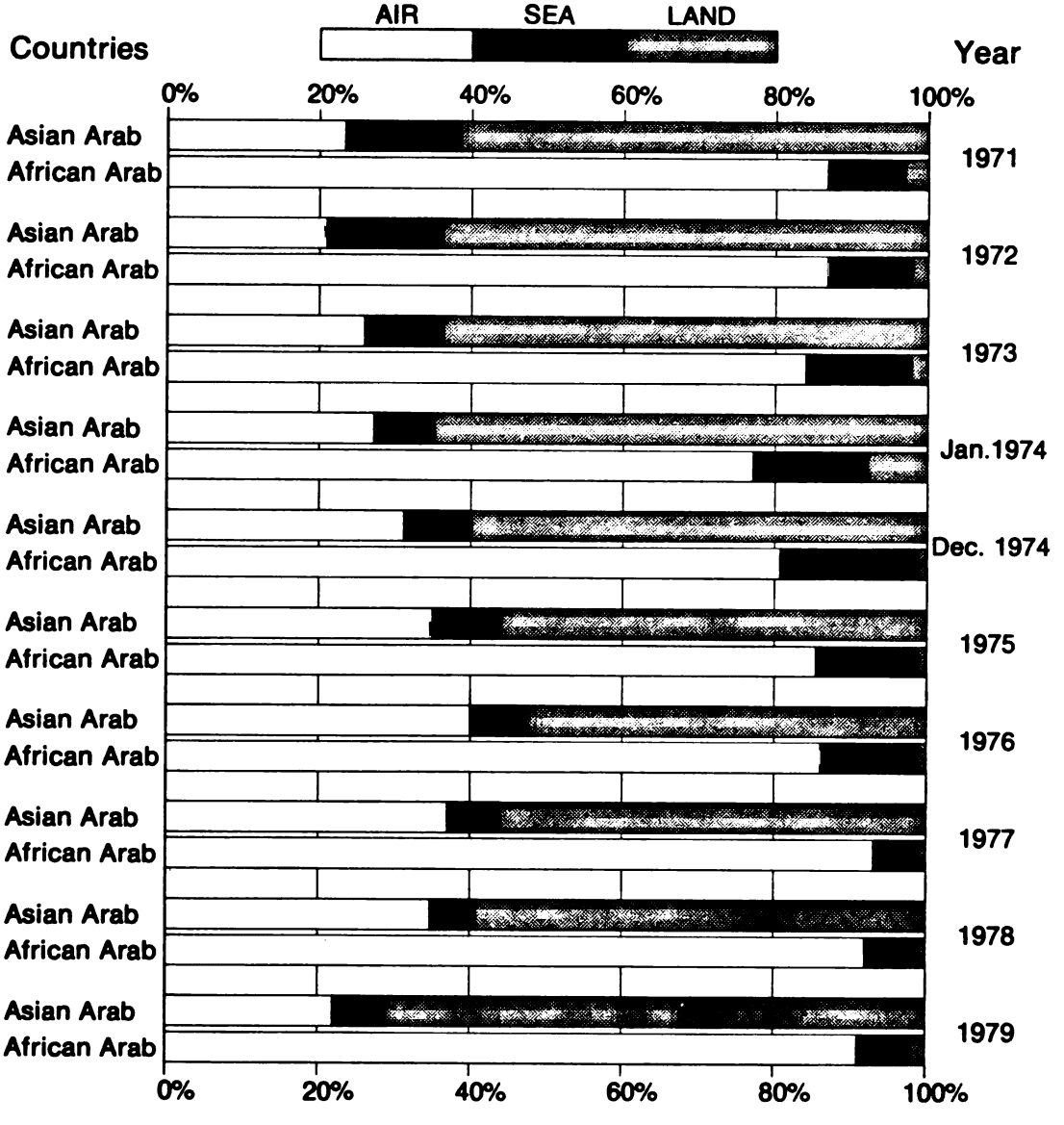
The regression results indicated an annual increase of about .88 percent in the number of pilgrims who traveled by air. There were annual decreases of .72 percent for sea and .15 for land. None of these was significant at any level.

Figure 17 shows a comparison of each year and modes of travel for the above region and the Asian-Arab region. As shown in the figure, the percentage of land travelers for the Asian-Arab region reached its highest point in 1979, and the percentage of air travelers dropped sharply in comparison to previous years. Improvement and construction of new roads linking Saudi Arabia with most countries in the above region, as well as the low cost, enjoyment, and independence of road travel, contributed to the increase in land travel and the decrease in air travel from this region in 1979.

Figure 17 also shows that the percentage of Arab-African sea travelers in December 1974 was the highest recorded between 1970 and 1979. This was related to the opening of the Suez Canal in October

Fig. 17

Percentage of Pilgrims from Asian-Arab and African-Arab Countries Traveling by Each Mode



1974 as a result of the peace treaty between Egypt and Israel, which ended the 1973 war between the Arabs and the Israelis. Almost 40 percent of the Egyptian pilgrims came by sea in December 1974 because of the above treaty, compared to 1 percent in January of the same year, when the canal was closed.

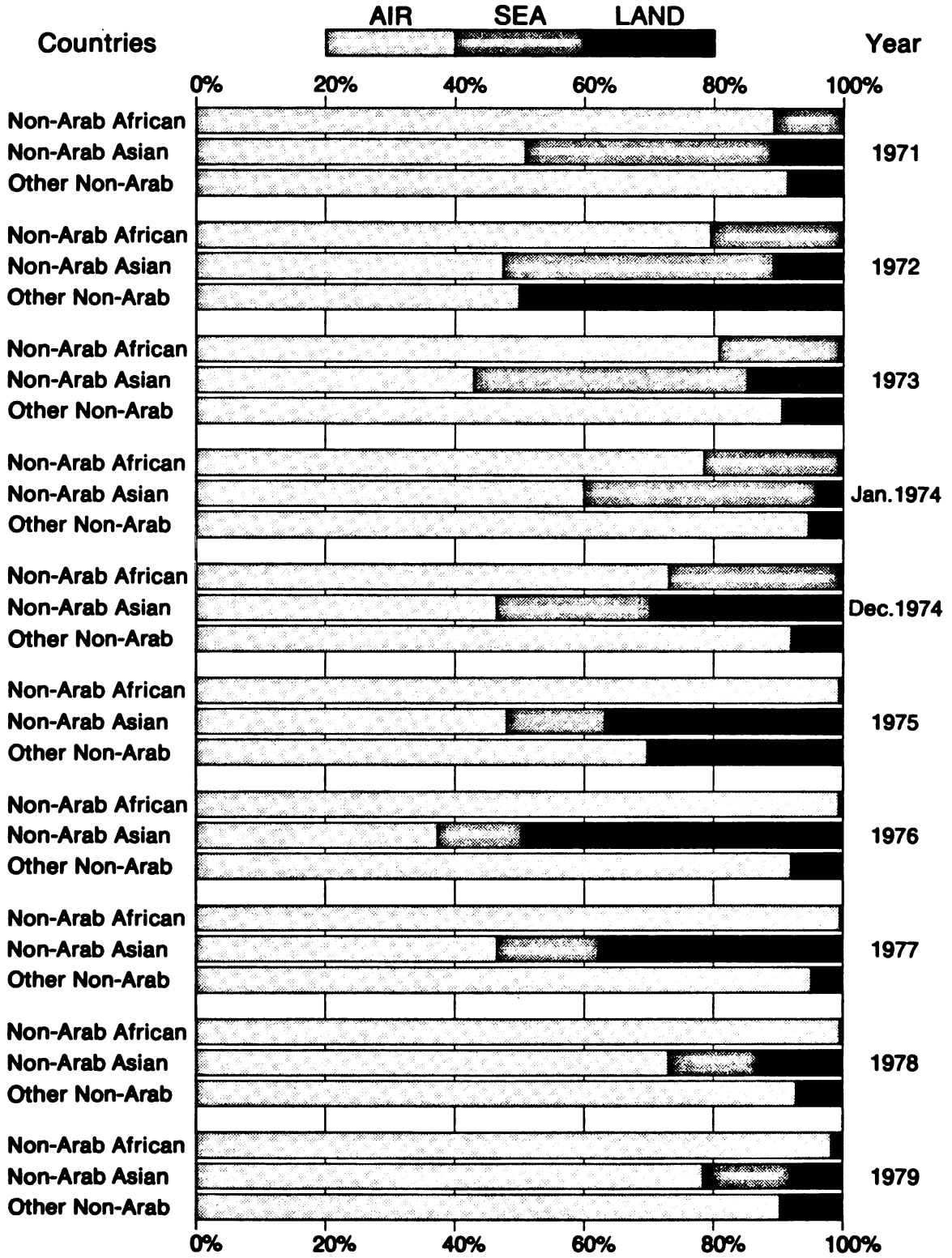
The figure also shows that the percentage of Arab-Africans who traveled by road to Saudi Arabia in the hajj of December 1974 increased compared to the percentage in January 1974. This increase was also due to the end of the war between Egypt and Israel, thus encouraging Egyptian and Moroccan pilgrims to travel by land.

Central, East, and Southeast Asia Region

This region included the USSR, China, South Korea, Japan, Hong Kong, Vietnam, Cambodia, Thailand, Malaysia, Singapore, Indonesia, Brune, and the Philippines. From 1971 to 1979, 361,933 pilgrims or 67 percent traveled by air; 177,922 or 32.9 percent traveled by sea; and only 347 pilgrims or .064 percent traveled by land. As shown above, air travel dominated the other modes. The correlation results between pilgrims who traveled by air and the total number of pilgrims showed a very high direct relationship (.96); as the total number of pilgrims from the region increased, so did the number of pilgrims who traveled by air. The result was significant at the .001 level. Although there was a moderate relationship between total pilgrims and the number of pilgrims who traveled by sea and land, the correlations were .49 and .57 for sea and land, respectively. (See Figure 18.)

Fig. 18

Percentage of Pilgrims from Non-Arab Asian, Non-Arab African and Other Non-Arab Countries Traveling by Each Mode



The regression results showed an annual increase of 4.5 percent in the number of pilgrims who traveled by air. The result was significant at the .001 level. Although there was an annual decrease of 5.7 percent for sea travel and .15 percent for land travel, the former was significant at the .001 level; the latter was not significant at any level.

The Indian Peninsula and Neighboring Countries

This region included Afghanistan, Pakistan, India, Bangladesh, Burma, Maldive Islands, Sri Lanka, and Nepal. From 1971 to 1979, 355,887 pilgrims or 40.4 percent of the total number of pilgrims from this region traveled to Saudi Arabia by air; 417,219 or 47.36 percent traveled by sea; and 107,841 or 12.24 percent traveled by land. The correlation results between each of the above modes of travel and total pilgrims from this region indicated that as the number of pilgrims increased, there was a high increase in air as well as sea travel. The correlations were .84 and .87 for air and sea, respectively. Although there was a moderate increase in the number who traveled by land, the correlation was .55. Each of the above results was significant at the .001 level.

As the regression results showed, however, there was an annual increase of 4.6 percent in the number of pilgrims who traveled by air; the result was significant at the .01 level. Although there was an annual decrease in the number of pilgrims traveling by both sea (1.3 percent) and road (1.7 percent), only land travel was significant at the .05 level.

Turkey and Iran Region

From 1971 to 1979, 624,000 pilgrims or 55.4 percent of the pilgrims from this region traveled by air; 1,050 or .093 percent traveled by sea, and 501,713 or 44.52 percent by land. (See Figure 16.) The correlation results between the total number of pilgrims from this region and pilgrims who used each mode of travel showed a very low negative relationship with air travel and a low negative relationship with sea travel. The correlations were -.09 and -.296 for air and sea, respectively; there was a very high relationship with land travel (.87). As the number of pilgrims from this region increased, the number of pilgrims who traveled by land also increased. The result was significant at the .001 level.

The regression results showed a decrease in the number of pilgrims who traveled by air, about 5.8 percent; this was not significant at any level. If each of the above countries had been tested separately, the results might have differed, for a considerable number of Iranian pilgrims traveled by air as opposed to the large number from Turkey who traveled by land. Sea travel did not show any significant increase or decrease. Although there was an annual increase of 5.8 percent in the number of pilgrims who traveled by land, the result was not significant at any level.

Non-Arab African Region

This region included Ethiopia, Kenya, Uganda, Tanzania, Barundi, Rawandi, Zaire, Zambia, Malawi, Rhodesia, Lesotho, South Africa, Southwest Africa, Botswana, Angola, Congo, Gabon, Cameroon,

Gambia, Ghana, Guinea, Benin, Togo, Ivory Coast, Liberia, Sierra Leone, Senegal, Guinea Bissau, Chad, Camaros Islands, Mali, Upper Volta, Niger, Nigeria, Central Africa, Malagasy Republic, and Mauritius Island. From 1971 to 1979, 812,220 pilgrims or 74.5 percent of those from this region traveled by air; 235,647 or 21.5 percent traveled by sea; and 42,122 or 3.86 percent traveled by land. The correlation results showed that as the total number of pilgrims increased, there was a very high increase in the number of pilgrims who traveled by air. The correlation was .99; it was significant at the .001 level. Although there was a very low increase in the number of pilgrims who traveled by sea and land, the correlations were .31 and .14, respectively. The results for both sea and land were significant at the .001 level.

The regression results showed an annual increase of .6 percent in the number of pilgrims who traveled by air; the result was not significant at any level. Although the annual number of pilgrims who traveled by sea decreased by 1.7 percent, the result was significant at the .001 level. Travel by land increased by .5 percent. The result was not significant at any level.

As shown in Figure 18, more pilgrims from non-Arab-African countries traveled by air compared to other modes of transportation. From 1975 to 1978, almost all the pilgrims coming from this region traveled by air. This might have been related to the increasing number of charter flights that were operated between most of the countries of the above region and Saudi Arabia and to the competitive air fares. These factors encouraged most pilgrims to fly.

Figure 18 also shows that sea travel played an important role in transporting non-Arab-Asian pilgrims, especially those from South and Southeast Asia. However, this mode of travel has decreased rapidly since December 1974. Such decreases in sea travel were accompanied by increases in land and air travel. The latter became the dominant mode in 1978 and 1979. The above results were directly related to the improvement in the road conditions, which made movement between major areas, such as Turkey and Saudi Arabia, much easier, and also to increased air service between the countries of the above region and Saudi Arabia.

West European Region

This region included Italy, Spain, Portugal, France, Ireland, Britain, Belgium, Holland, Switzerland, Denmark, and Sweden. From 1971 to 1979, 18,496 pilgrims, or 97.6 percent, traveled by air; 77 or .4 percent traveled by sea; and 380 or 2 percent traveled by land. The correlation results showed perfect correlation between the total number of pilgrims and pilgrims traveling by air from this region. The above result was significant at the .001 level. The results also showed a high correlation between those who traveled by road and the total number of pilgrims from within this region.[1] The result was significant at the .001 level. There was no relationship between the total number of pilgrims and those traveling by sea.

---

[1]Those who traveled by land either came from neighboring Asian-Arab countries or drove across the Arab countries. However, there were more of the former.

Although the regression results showed a slight annual increase of .6 percent in the number of pilgrims who traveled by air, the result was not significant at any level. There was a slight annual decrease of .8 percent in the number of road travelers. Sea travel did not show any significant consistent annual increase.

East European Region

This region included Finland, Poland, Romania, Czechoslovakia, Bulgaria, Yugoslavia, Albania, Greece, and Cyprus. From 1971 to 1979, 13,166 pilgrims, or 77.6 percent, traveled by air; 1 or .006 percent traveled by sea; and 3,806 or 22.4 percent traveled by land. The correlation results between the total number of pilgrims and those using each mode of travel indicated that as the number of pilgrims from the region increased, the number of air travelers was more likely to increase rapidly. Land travel showed a moderate increase. The correlations were .94 and .56 for air and land, respectively. No sea travelers, however, were counted from this region.

The regression results showed an annual decrease of 1.8 percent for air travel and 4.5 percent for land travel. The decrease in air travel was not significant at any level. However, the decrease in road travel was significant at the .05 level. There was no significant increase or decrease in the number of pilgrims traveling by sea.

The United States and Canada

From 1971 to 1979, 1,225 pilgrims, or 90.7 percent, traveled by air; 4 persons or .29 percent traveled by sea; and 131 or 9.6 percent

traveled by land.[1] The correlation results between the total number of pilgrims and those using each of the above modes of travel were .97, 1.0, and .26 for air, sea, and land, respectively. This indicated that as the number of pilgrims increased, the number of pilgrims coming by air and sea increased rapidly. The results were significant at the .001 level. In contrast, there was a very low insignificant relationship with the number of pilgrims traveling by land.

The regression results showed an annual decrease of 6.5 percent in the number of pilgrims who traveled by air from this region; the result was not significant at any level. Although there was an annual increase of 6.4 percent in the number of pilgrims who traveled by land, the result was not significant at any level. Again, the above results could be related to the fact that some overseas pilgrims did not come directly to Saudi Arabia, and some who worked in neighboring Arab countries traveled by land to the Kingdom.

The Caribbean Islands and South America

This region included Barbados, Trinidad, Jamaica, Argentina, Brazil, Venezuela, Colombia, British Guiana, and Panama. From 1971 to 1979, 126 pilgrims or 94.73 percent came by air, none by sea, and 7 or 5.26 percent by land. The pilgrims from this region who traveled by land were nationals of this region. They entered Saudi Arabia by land either after having worked in neighboring Arab countries or by

---

[1] Those who traveled by land came from neighboring Arab countries.

using other modes of travel before entering by land. The correlation results showed that as the number of pilgrims from this region increased, the number of air travelers increased, whereas the number of land travelers decreased. The correlations were .46 and -.13 for air and land travel, respectively. The regression results showed an annual increase of 13.4 percent for travel by air. They showed an annual decrease of -13.3 percent for travel by land. Neither result was significant at any level.

Others and Unspecified Countries

Included in this region were Australia, Fiji, other Asian countries, other African countries, other European countries, and other South American countries. From 1971 to 1979, 7,891 pilgrims from these areas or 72.5 percent traveled to Saudi Arabia by air; 369 or 3.4 percent traveled by sea; and 2,626 or 24.1 percent traveled by land. The correlation results between total pilgrims and percentage traveling by air, percentage traveling by sea, and percentage traveling by land were .71, -.02, and .88, respectively. Only air and land travel had a direct high relationship; both were significant at the .001 level.

The regression results, however, showed an annual increase of 1.4 percent for air travel for pilgrims from these areas. The result was not significant at any level. Although there was an annual decrease of -.5 percent in sea travel, there was also a decrease of -.87 percent in land travel. Neither of these results was significant at any level.

In conclusion, the percentage of pilgrims who traveled by air from 1970 to 1979 (1390 A.H.-1399 A.H.) increased by about 1.9 percent. This increase was significant at the .001 level. Although the percentage of pilgrims who traveled by sea and by road decreased by -2.1 percent and -.41 percent, respectively, the decrease in travel by sea was significant at the .001 level. The decrease in percentage of travel by land was not significant at any level.

Results of Study of Residents' Housing

The following discussion focuses primarily on the occupants who lived in the sampled locations not occupied by pilgrims. This method was used to find out the reasons for the vacancy in these houses and to allow follow-up studies based on the results of this pioneer study. Certain hypotheses were tested using the following statistical tests: frequency, one-way analysis of variance, and chi-square.

Characteristics of Residents

The following discussion is concerned with two types of residents: (1) owners of the accommodations who were living in the sample units and (2) renters who rented their accommodations from the owner and were living in the sample units. The results were analyzed by chi-square and frequency tests.

Characteristics of owners.--Owners represented 64.9 percent of the respondents. It was found that 95.9 percent of the owners were Saudi Arabian residents, whereas 1.7 percent were from the Republic of North Yemen and 0.7 percent were from each of the

following nations: the People's Democratic Republic of Yemen, Pakistan, and the United Arab Emirates. It was also found that 0.7 percent of the owners lived in shanties, 93.8 percent in multi-family houses, and 5.5 percent in apartments.

Characteristics of renters.--Renters who rented their accommodations from the owners represented 35.1 percent of the total sample. It was found that among the renters, 50.6 percent were Saudi Arabians, 12.7 percent were from the Republic of North Yemen, 8.9 percent were from Egypt, 6.3 percent were from Burma, 5.1 percent were from the People's Democratic Republic of Yemen, 3.8 percent each were from Syria and Nigeria, 2.5 percent each were from India and Pakistan, and 1.3 percent each were from Indonesia, Palestine, and Sudan. It was found that 7.6 percent of the renters lived in shanties, 63.3 percent in multi-family houses, and 29.1 percent in apartments.

Both owners and renters lived at various distances from the Holy Mosque. The results of one-way analysis of variance showed that the mean values of distance were 2655.2 and 2226.9 for owners and renters, respectively. The difference in the preceding two means was significant at the .05 level.

In tests of the relationship between owners and renters with respect to their previous experience in renting their houses to pilgrims, it was found that of the total number of respondents, 49.8 percent of the owners had never rented their houses to pilgrims but 31.6 percent of the renters had subleased. That was because most of the rentable housing units surrounding the Holy Mosque were apartment

buildings with renters representing the highest percentage of the occupants. It was also found that, with respect to the total number of residents, 18.3 percent of the owners were not willing to rent their housing to pilgrims, compared to 14.3 percent for renters. Fourteen percent of the owners indicated that they lived at a relatively greater distance from the Holy Mosque, compared to 5 percent for renters. Four percent indicated that the rent offered was low, compared to 0 percent for renters; 28.6 percent of the owners gave other unspecified reasons, compared to 16.1 percent for renters. The chi-square result was 8.79 with 3 degrees of freedom. It was significant at the .05 level. In general, 58.2 percent of all residents were not willing to sublease their houses in the future. The chi-square result was 8.02 with 1 degree of freedom. The result was significant at the .05 level.

Testing the differences between owners and renters with respect to the amount of rent each preferred per single room, the t-test results showed significant differences in the mean values of rent per room for both groups. The two-tail probability was 0.047 (significant at the .05 level), and the mean value was 1520.7 and 978 Saudi riyals for owners and renters, respectively.

Findings

In the following section, the hypotheses are discussed. Following the statement of each hypothesis is the result of the analysis performed on the data gathered to test that hypothesis.

Over 50 percent of the residents interviewed never rent their houses to pilgrims.

The binomial tests showed that the proportion of those who had no experience accommodating pilgrims was very significantly different from the proportion of those who had previous experience. Out of 225 cases, 183 cases or 81 percent had no previous experience. The result of the binomial test was significant at the .0001 level. Therefore, the hypothesis was not rejected.

A significant percentage of residents who have had previous experience renting their houses to pilgrims choose to rent in the future.

The chi-square result showed that 90.5 percent of the residents who had previous experience accommodating pilgrims were willing to rent their houses again. The chi-square test was 47.9 with 1 degree of freedom. The result was significant at the .0001 level. Therefore, the hypothesis was not rejected.

A significantly low percentage of residents who never have had experience renting to pilgrims have not rented because they feel the amount of rent is too low.

The chi-square results showed that only 1.6 percent had not rented their houses because they felt the rent was too low. However, 38.5 percent of the residents who had not accommodated pilgrims did not want to do so. About 16.5 percent indicated that because they lived at a relatively greater distance from the Holy Mosque, pilgrims were not attracted to their houses. However, the majority of interviewed residents, 43.4 percent, indicated some other unspecified

reasons. The result of the chi-square test of the above assumption was 26.8 with 3 degrees of freedom, and it was significant at the .0001 level. Therefore, the hypothesis was not rejected.

A proportionally significant number of residents who have had no previous experience renting to pilgrims live farther from the Holy Mosque than those who have had previous experience.

T-tests showed that the mean values were 2313.9 and 2548.6, respectively, for residents with previous experience and residents with no previous experience in accommodating pilgrims.

The F-value was 1.10, and the two-tail probability was .662. The result was not significant at any level. Therefore, the hypothesis was rejected.

Analysis of variance also showed that residents who were without previous experience in accommodating pilgrims but who were willing to rent their houses in the future were located, on the average, within 2739.3 meters of the Holy Mosque compared to 2372.9 meters for those who had previous experience and were willing to rent their houses in the future.

The result further showed that the average location of houses of those who had no previous experience in accommodating pilgrims and were not willing to rent their houses was 2464.5 meters from the Holy Mosque compared to 1753.7 meters for houses of those who had previous experience but were not willing to rent their houses. The F-ratio was .921, and the F-probability was .4315, which was not significant at any level.

The average rent that would be charged by residents who have had no previous experience renting to pilgrims and who are willing to rent their houses in the future is significantly more than the rent asked by residents who have had previous experience and who are willing to rent their houses.

It was found by one-way analysis of variance that average rents charged per room were 2039.5 and 1454.7 Saudi riyals for both residents with no previous experience and residents with previous experience in renting to pilgrims. The F-ratio was 2.094, and the F-probability was .129, which was not significant at any level. Therefore, the hypothesis was rejected.

When testing the differences in the average rent per room in relation to distance from the Holy Mosque, it was found that there was no significant difference between mean values. The F-ratio was .706, and the F-probability was .6207.

As shown in Table 1, the preferred rent per room was not consistent. Preferred rent was higher near the Holy Mosque and much higher in the suburbs of Mecca. This was because proximity to the Holy Mosque was considered to be the most important factor in determining the rent value, whereas in the suburbs, where certain nationalities preferred to stay, quality and type of dwelling were considered the main factors in determining rent, as discussed in detail later.

Table 1.--Average rent per room preferred by residents in relation to distance from the Holy Mosque.

Distance from Holy Mosque (in Meters)	Average Room Rent (in Riyals)
Lowest to 300	--
301- 600	2000.00
601- 900	994.13
901-1600	1442.90
1601-2600	1799.89
2601-3600	1768.93
More than 3601	2266.90

F-ratio = .706
F-probability = .620

Conclusion

From the above discussion, it is clear that the majority of the residents of Mecca did not rent all or parts of their houses to pilgrims. Owners of housing units, who were generally Saudi Arabian citizens, were more willing to rent their housing units to pilgrims than were renters: 75.5 percent and 24.5 percent for owners and renters, respectively.

The reasons residents specified were not that they thought they were asking high rent for their housing units nor that they thought their houses were too far away from the Holy Mosque. About 38 percent were simply not willing to rent their housing units. The majority (43.4 percent) indicated unspecified reasons. It is these unspecified reasons that must be understood and included in future plans.

An understanding of the complexity of the points of view of both residents and pilgrims can aid in organizing the housing market and planning for the annual influx of pilgrims. It is important to note that owners tend to live in the same house for a longer time than do renters. In addition, with a greater supply of housing units in proximity to the Holy Mosque, rent in this area will not increase. Also, those residents who are willing to rent their houses will be eager to take advantage of earning a second income.

Housing Conditions in Mecca

The topography of Mecca has greatly influenced the types of houses there. There are fewer detached houses in Mecca than in other cities in the country, and there is a larger proportion of apartments in Mecca than in the holy city of Medina but a smaller proportion than in Jeddah or Taif.[1]

Residential density in Mecca is higher than in any other city in the country. The area surrounding the Holy Mosque has an average "gross residential" density of 360 persons per hectare, but in the outer districts, the density drops below 95 persons per hectare. Even though the houses are crowded together, the overcrowding of people within these dwellings during nonpilgrimage time is not higher than in other cities within the western region of the country. The proportion of households having more than two persons per room is only 35.2 percent.[2] However, as is discussed later, this proportion is

---

[1] Saudi Arabia, Western Region Plan, Ministry of Interior, Alternative Urban Strategies (Mecca, Medinah: August 1972), p. 45.

[2] Ibid.

much higher during the pilgrimage time. This occupant density per dwelling is less than the three persons per room that is the basic indicator of overcrowding determined by the United Nations.[1]

Housing conditions during nonpilgrimage time in Mecca are similar to those of all cities within the western region. From 1975 to 1979 there was a rapid growth in house building within the country as a result of the new government-subsidized housing program. The following figures, although eight years old, give an approximate picture of the housing conditions in Mecca compared to those in other cities in the western region of Saudi Arabia. (See Table 2.)

It is clear from Table 2 that Mecca had a lower percentage of all accommodation types except for nondetached than did the neighboring city of Jeddah. Mecca had a lower occupant density than did Jeddah. However, housing in Mecca had a lower percentage of bathroom facilities. This affected the quality of accommodations, as discussed in the following section. (See Plate 3.)

Conditions of Accommodations for Pilgrims

The following discussion focuses on the housing conditions during the pilgrimage time for both 1976 and 1977. The discussion includes consideration of the pilgrims' ideas and recommendations for the quality of future housing conditions and locations. In the first part of the discussion, housing conditions observed in 1976 and 1977 are described. Housing conditions, characteristics of the pilgrims,

---

[1]United Nations, World Housing Survey 1974, An Overview of the States of Housing, Building and Planning Within Human Settlements (New York: United Nations Publication, 1974), p. 43.

The west and southwest of the city center of Mecca.

Old versus new housing in the city center of Mecca.

Plate 3.--Housing in the city center of Mecca.

Table 2.--Housing conditions in Mecca compared to those in other cities in the western region of Saudi Arabia (in percent).

	Mecca	Jeddah	Urban Sector
Accommodation type			
detached	1.4	4.3	3.1
not detached	65.3	51.1	61.6
apartment	21.3	28.3	23.4
shanty	11.4	15.7	10.0
others	0.6	0.6	1.8
Occupant density			
under 1 person per room	14.0	11.5	14.9
1 person per room	17.9	14.6	16.3
1-2 persons per room	32.7	32.0	34.0
2-3 persons per room	18.6	22.4	19.5
3-4 persons per room	9.8	9.7	8.5
over 4 persons per room	6.9	9.7	6.7
Dwelling tenure			
renting accommodation	52.4	64.6	57.0
Dwelling facilities			
water main connection	51.0	46.2	48.4
electric main connection	71.5	68.3	68.6
bathroom and shower	31.8	34.7	32.7
flush and W.C.	32.2	41.7	36.5

Source: Saudi Arabia, Alternative Urban Strategies, 1972, p. 45.

quality of types of accommodations of rental agents, and impressions of the pilgrims about their housing conditions are examined.

In the second part of the discussion, the recommendations by pilgrims for future accommodations and their locations are dealt with. The results of the tests of the hypotheses are the concern of the third part of the discussion.

Each year is analyzed separately. In addition, data for both years are combined in one file by using the merge-files technique. Even though the accommodations sampled for each year were different, the results closely approximate each other for most of the variables, which seems to make it practical to combine data from both years using the merge-files technique.

Characteristics of Housing for Pilgrims

The following analysis is concerned with the type of accommodation (tent, shanty, multi-family housing apartment, villa, or hotel) in relation to each of the following: location, occupant density, size, cost, quality, and elevation above sea level. (See Tables 3-5.) The methods used in this analysis were one-way analysis of variance and cross-tabulation.

Location of Accommodations

The site of each accommodation that was included in the sample and its distance from the Holy Mosque were measured on the map. The results of the one-way analysis of variance for 1976 showed an average distance of about 1046 meters for all types of accommodations. However, based on the average location for each type of accommodation, it was found that hotels and apartments were located closer to the Holy Mosque than were other types of housing, their average locations being 229 and 805.9 meters, respectively. Villas, tents, shanties, and multi-family houses were located farther than the average distance: 3207, 2231, 1553, and 1066 meters, respectively. The above variations

Table 3.--Characteristics and costs of accommodation types, 1976.

Accommodation Type	Accommodation Quality	Room Size	Occupant Density	Room Rent	Distance	Elevation
	$\bar{X}$ 5.25	$\bar{X}$ 47.22	$\bar{X}$ 6.89	$\bar{X}$ 2945.40	$\bar{X}$ 1046.78	$\bar{X}$ 298.352
Tent	2.50	34.40	6.00	999.95	2231.50	266.95
Shanty	2.00	32.78	8.30	1075.02	1553.50	288.41
House	5.07	47.75	7.07	2715.82	1066.58	300.40
Apartment	6.03	47.74	6.75	3297.82	805.90	292.05
Villa	6.78	50.61	5.42	2522.15	3207.14	304.90
Hotel	7.00	42.30	3.25	8208.30	229.16	298.32
F-ratio	17.491	.917	3.117	15.73	12.30	4.28
Significance	.001	.469	.01	.0001	.001	.001

Table 4.--Characteristics and costs of accommodation types, 1977.

Accommodation Type	Accommodation Quality	Room Size	Occupant Density	Room Rent	Distance	Elevation
	$\bar{X}$ 6.695	$\bar{X}$ 57.81	$\bar{X}$ 7.555	$\bar{X}$ 2597.1	$\bar{X}$ 1223.05	$\bar{X}$ 305.20
Tent	2.69	26.80	6.20	--	2674.00	308.92
Shanty	5.19	38.07	7.80	1600.00	880.60	302.44
House	6.50	59.72	7.78	2465.64	1076.80	305.32
Apartment	7.04	55.98	7.35	2877.59	1235.88	302.84
Villa	7.96	77.95	6.64	7875.00	3908.07	327.60
Hotel	7.40	35.78	2.00	7250.00	238.00	306.76
F-ratio	8.119	1.21	1.56	4.60	23.06	2.668
Significance	.001	.302	.169	.01	.0001	.05

in the average locations of each type of accommodation were significant at the .001 level.

The results for 1977 showed an increase in the average distance of each type of accommodation to 1223 meters away from the Holy Mosque. Hotels, shanties, and multi-family houses were located closer than the average location of all types of accommodations. The average locations for hotels, shanties, and multi-family houses were 238, 880, and 1076.8 meters from the Holy Mosque, respectively. Villas, tents, and apartments were located farther than the average from the Holy Mosque, at 3908, 2674, and 1235.9 meters, respectively. The variation in the mean values of distance for the above accommodations was significant at the .001 level.

The above results indicated that the average location of apartments was farther from the Holy Mosque in 1977 than in 1976. This increase was related directly to the growing numbers of multi-apartment buildings each year, resulting from the government-subsidized housing program. Most of the new housing has been built at locations farther from the Holy Mosque because more vacant land is available there than in the city center.

Size of Accommodations

Individual room accommodations in the sample were measured. The average accommodation size was 47.2 square meters. The following accommodations were above-average size and are arranged in descending order: villas, houses, apartments (50.6, 47.8, and 47.4 square meters,

respectively). Smaller-than-average size were hotel accommodations (42.3 square meters) and shanties (32.8 square meters).

These relative sizes were the same in 1977. The average size of accommodation was 57.81 square meters. Villas and houses were above-average size: 77.45 and 59.72 square meters, respectively. Apartments, shanties, hotels, and tents were below-average size: 56.0, 38.0, 36.0, and 26.8 square meters, respectively. Again, the increase in the average size may have been related to new government-subsidized housing programs, in which rooms were somewhat larger.

The one-way analysis of variance results did not show any significant differences in the mean variance of size among the above types of accommodations for both years.

Occupant Density

Occupant density in the city of Mecca during the pilgrimage time is, of course, much higher than in the nonpilgrimage period. The average number of persons per room in 1976 was 6.9. The highest average was for pilgrims who lived in shanties (8.3 per room), followed by those who lived in multi-family houses (7.07). The lowest average was for those who lived in hotels, villas, tents, and apartments. The occupant density for each of the above was 3.2, 5.4, 6.0, and 6.7 persons, respectively. The above variations in the mean values of occupant density for each accommodation type were significant at the .001 level.

The results for 1977 showed that the average number of persons per room was 7.6, higher than the occupant density in 1976. The

highest average was shown among those who lived in shanties (7.8) and multi-family houses (7.78 persons per room), as was the case in 1976. The remaining accommodation types--hotels, tents, villas, and apartments--each had a lower-than-average occupant density: 2.0, 6.2, 6.6, and 7.3 persons, respectively. This variation in the mean value was not significant at any level.

Since the occupant density was very high during the pilgrimage time, not only was the quality of life in such accommodations affected, but the Islamic law of privacy was violated, especially for those pilgrims accompanied by their families.

Quality of Accommodations

The quality of each type of accommodation was measured by the availability of each of the following: bathroom facilities, kitchen facilities, services, and ambiance. The average quality for all types of accommodations was 5.3. For 1976, however, hotels, villas, and apartments showed above-average qualities of 7.0, 6.8, and 6.0, respectively, whereas tents, shanties, and multi-family houses showed below-average qualities of 2.5, 2.0, and 5.0, respectively. The variation in the mean for the above types of accommodations was significant at the .001 level.

The results were generally found to be the same in 1977, even though the mean was slightly higher (6.7) than it was in 1976. Villas,

hotels, and apartments were rated above average in quality: 8.0, 7.4, and 7.0, respectively. Tents, shanties, and multi-family houses were rated below average in quality: 2.7, 5.2, and 6.5, respectively. The above variations in the mean were found to be significant at the .001 level.

The above results show that in 1976 the quality of the accommodations was lower than in 1977. This might be related both to the increasing proportion of new houses and to the pilgrims living farther away from the Holy Mosque and, hence, in better accommodations in 1977.

Cost of Accommodations

Accommodations with above-average size and above-average quality and below-average occupant density should be more expensive than accommodations that do not fulfill these conditions. Proximity to the Holy Mosque might distort this expectation, as is shown in the results of the 1976 and 1977 surveys.

The 1976 survey showed that the average accommodation cost for all types was 2945 riyals. However, for shanties, the accommodation cost was below average, 1075 riyals. This type of accommodation was above average in both occupant density and distance from the Holy Mosque and below average in quality and size.

For multi-family houses, the accommodation cost was below average, 2715.8 riyals. This type of accommodation was below average

in quality and above average in both size and occupant density and very close to the average in distance from the Holy Mosque.

Apartments were the only type of accommodation located a shorter distance from the Holy Mosque than the average. They were above average in quality and close to average in size. Therefore, rent for apartments was the highest except for that of hotels. The average rent per room in apartments was 3297.8 riyals.

Villas were characterized by their higher quality, the size of their rooms, and their lower-than-average occupant density. However, since they were located at a greater distance than average from the Holy Mosque, their rent per room was 2522 riyals, which was below the average rent.

In contrast to villa accommodations, in terms of rent and distance, hotel rooms were characterized by their below-average size, below-average occupant density, and above-average quality. However, since they were located within a shorter distance than average from the Holy Mosque, their rent per room was highest compared to all other types, 8208 riyals per room. One-way analysis of variance showed significant variations in the mean values for the above types of accommodations (the significance level was .0001).

A slight change occurred in 1977. The average rent per room decreased by about 11 percent compared to 1976; rent per room was 2597 riyals. Shanties were found to be below average in size and quality, above average in occupant density, and located a shorter

distance than average from the Holy Mosque. Therefore, rent per room was 1600 riyals, which was below average. Multi-family houses were located a shorter distance than average from the Holy Mosque, were above average in room size, below average in quality, and higher than average in occupant density. Therefore, rent for multi-family houses was less than the average, about 2465 riyals. Apartment dwellings in 1977 were above average in quality and below average in occupant density and size. However, because of their above-average distance from the Holy Mosque, rent per room in apartments was lower than in 1976. The cost per room was 2877.6 riyals.

Villas as a type of accommodation were characterized by higher quality, larger room size, lower occupant density, and above all by their lower rent per room. The only obvious reason for this was their location, which was farther than average from the Holy Mosque. Hotel accommodations were characterized by lower occupant density and room size and higher quality. They had a higher rent per room than any other type of housing because of their proximity to the Holy Mosque. The variation in the mean for all the above types of accommodations, as shown in the one-way analysis of variance, was significant at the .0001 level.

In concluding the discussion about quality, occupant density, and rent per room, the results for both years were combined by the merge-files technique. This showed that the average accommodation quality was 6.0. (See Table 5.) Tents, shanties, and multi-family houses were below average in quality: 2.69, 2.9, and 5.77, respectively. The remaining types of accommodations were above average in

Table 5.--Characteristics and costs of accommodation types, 1976 and 1977.

Accommodation Type	Accommodation Quality	Room Size	Occupant Density	Room Rent	Distance	Elevation
	$\bar{X}$ 6.01	$\bar{X}$ 52.90	$\bar{X}$ 7.25	$\bar{X}$ 2824.5	$\bar{X}$ 1141.52	$\bar{X}$ 302.03
Tent	2.69	28.72	6.14	999.95	2547.57	296.93
Shanty	2.92	34.54	8.13	1162.52	1329.20	293.10
House	5.77	53.22	7.42	2629.69	1071.65	302.84
Apartment	6.70	53.20	7.15	3123.30	1090.67	299.20
Villa	7.57	68.84	6.23	2286.85	3674.42	320.03
Hotel	7.11	41.00	3.00	8071.43	230.93	300.00
F-ratio	26.30	2.78	4.32	20.90	34.55	4.19
Significance	.001	.05	.001	.001	.001	.001

quality. The result of the one-way analysis of variance was significant at the .001 level; the F-ratio was 26.3. The average room size for both 1976 and 1977 was 52.9 square meters. However, tent, shanty, and hotel accommodations were below average in size, whereas multi-family houses, flats, and villas were above average in size. The result of the ANOVA test was significant at the .05 level; the F-ratio was 2.78.

With respect to occupant density, the result showed an average of 7.25 persons per room. Shanties and multi-family houses were above average in occupant density, whereas tents, villas, hotels, and apartments were below average. Apartments, however, were very close to average in occupant density. The result was significant at the .001 level; the F-ratio was 4.32.

With respect to rent per room, the result showed an average of 2824.5 riyals per room. Tents, shanties, houses, and villas were below average in rent per room. Apartments and hotels were above average in rent per room. The result was significant at the .001 level; the F-ratio was 20.9.

The average distance of all of the above accommodations from the Holy Mosque was 1141.52 meters. Tents, shanties, and villas were located at a greater-than-average distance, whereas multi-family houses, apartments, and hotels were located at a shorter distance from the Holy Mosque. The result was significant at the .001 level; the F-ratio was 34.55.

Characteristics of Pilgrims

The following discussion focuses on the location of accommodations, age, daily activities, means of transportation and its cost, and living quality and cost. The attitudes of pilgrims toward all of the above factors are also discussed. The methods of analysis were one-way analysis of variance and cross-tabulation. (See Tables 6-10.)

Age of Pilgrims

The age of pilgrims in 1976 ranged from 18 to as high as 101 years; the average age was 43.7 years. The variation in the age of the pilgrims was significant at the .0001 level; the F-ratio was 2.68. (See Table 9.) The 1977 results showed an age range from 18 to 80 years, with an average of 43.57 years. (See Table 10.)

Location of Pilgrims' Housing

Significant variation existed in the average distance of housing of all pilgrims from the Holy Mosque. This variation was significant at the .001 level; the F-ratio was 11.377. The average location of all pilgrims in 1976 was 1050.5 meters from the Holy Mosque. (See Table 6.) In 1977, the average location was 1223.05 meters. However, variation in average distance among pilgrim groups from different countries was significant at the .0001 level; the F-ratio was 8.7. (See Table 7.)

Table 6.--Characteristics and costs of accommodations by countries, 1976.

Country	Accommodation Quality	Room Size	Occupant Density	Room Rent	Distance	Elevation
	$\bar{X}$ 5.25	$\bar{X}$ 47.13	$\bar{X}$ 6.88	$\bar{X}$ 2938.55	$\bar{X}$ 1050.5	$\bar{X}$ 298.25
Afghanistan	-3.66	+62.31	+10.00	-1885.75	- 619.28	+315.74
Algeria	-5.16	-40.40	- 6.73	+3915.98	- 395.66	-297.85
Bahrain	+5.60	+72.00	+11.00	-2800.00	+1390.00	+312.00
Bangladesh	-1.25	-27.80	+ 8.00	-2399.95	- 660.00	+300.00
Egypt	+5.47	+51.45	+ 7.12	+3083.66	+1317.00	-290.32
India	-3.97	+52.14	- 5.82	-2282.54	- 575.29	+314.22
Indonesia	-4.82	-40.88	+ 7.11	+3459.35	- 282.66	+305.22
Iran	+6.91	+55.67	- 5.15	+3372.26	+2167.69	+307.09
Iraq	-4.11	+55.05	+ 7.83	-2187.61	+1117.66	+306.58
Jordan	--	--	--	--	--	--
Kenya	+8.12	-18.80	- 2.00	+7999.95	- 225.00	+335.00
Lebanon	+6.25	+54.00	- 5.00	--	+1800.00	+303.80
Libya	+5.62	-42.30	- 5.80	+4189.01	- 350.00	-293.90
Mali	-4.37	-23.36	- 4.33	-1806.70	+1220.00	-283.76
Mauritania	+8.12	-31.80	- 3.00	+ 800.10	+3410.00	-266.00
Morocco	+5.65	+55.16	+ 7.00	+4008.25	- 423.05	+298.71
Nigeria	-5.02	-39.65	- 6.74	-1632.05	+1429.79	-281.99

Table 6.--Continued.

Country	Accommodation Quality	Room Size	Occupant Density	Room Rent	Distance	Elevation
	$\bar{X}$ 5.25	$\bar{X}$ 47.13	$\bar{X}$ 6.88	$\bar{X}$ 2938.55	$\bar{X}$ 1050.5	$\bar{X}$ 298.25
Pakistan	-5.23	-40.85	- 6.57	+3420.93	- 410.95	+302.17
P.D.R. of Yemen	--	--	--	--	--	--
Qatar	+5.62	-36.00	- 4.00	- 599.90	- 335.00	+306.00
Senegal	-3.54	+54.03	+ 8.66	-1566.71	- 993.33	-284.03
Somalia	-1.87	-28.80	+12.00	- 719.95	- 575.00	+310.00
Sri Lanka	-5.00	+72.00	+10.00	+6000.05	- 105.00	-291.00
Sudan	-3.75	-44.71	+11.18	-2100.84	- 733.13	+300.36
Syria	-5.04	-42.40	- 6.37	-2064.27	+1059.00	-292.87
Tanzania	+5.93	+54.90	+ 7.50	-1689.97	- 455.00	-292.30
Tunisia	-5.00	+48.25	+ 7.77	+4203.50	- 427.22	-292.65
Turkey	-5.13	+53.78	+ 9.16	-2882.27	-1029.77	-297.20
Uganda	-1.25	-18.10	- 6.00	-2399.95	- 550.00	-298.00
U.A. Emirates	+8.12	+52.80	- 2.50	+15000.00	- 265.00	-295.50
Yemen	-2.98	-41.16	+ 9.33	-1099.96	- 505.88	+310.44
F-ratio	7.399	1.479	3.306	5.196	11.377	4.486
Significance	.0001	.0581	.0001	.001	.0001	.0001

Key: + = above average; - = below average.

Table 7.--Characteristics and costs of accommodations by countries, 1977.

Country	Accommodation Quality	Room Size	Occupant Density	Room Rent	Distance	Elevation
	$\bar{X}$ 6.66	$\bar{X}$ 57.85	$\bar{X}$ 7.55	$\bar{X}$ 2597.14	$\bar{X}$ 1223.05	$\bar{X}$ 305.2
Afghanistan	-6.57	-54.98	+ 8.90	-1713.60	- 612.80	+332.83
Algeria	-6.28	+59.00	+ 9.55	+3711.11	- 564.40	+305.63
Bangladesh	-5.38	+66.10	- 5.50	- 530.00	- 637.50	-286.00
Chad	-6.15	-53.66	- 6.00	-2400.00	+1411.00	-302.00
Egypt	+6.87	+59.57	+ 7.93	+3100.00	- 963.06	-297.89
India	-5.61	-54.84	+ 9.00	+4057.14	- 549.20	+305.90
Indonesia	-5.28	-50.77	+ 7.65	+3736.36	- 219.13	+311.07
Iran	+8.03	+67.27	- 5.47	+2636.55	+2467.00	+319.73
Iraq	+6.88	+68.74	+ 8.27	-2276.47	+1475.10	-300.47
Jordan	-4.61	-36.00	- 5.00	+3000.00	+1397.50	-289.00
Lebanon	+7.11	-46.24	+ 7.25	-2100.00	-1023.50	+306.32
Libya	-6.62	-43.30	- 6.15	+6500.00	- 262.15	-299.33
Malaysia	-6.41	-42.09	- 4.33	-2150.00	- 620.33	-288.33
Morocco	-6.32	-54.29	+ 8.00	-1860.00	- 754.77	+309.67
Nigeria	-6.20	-50.09	+ 8.00	-2141.87	+1567.10	-284.07
Oman	+7.38	-46.56	- 5.40	-1800.00	+1942.00	+309.12
Pakistan	+6.43	-53.82	+ 7.96	+2766.52	- 525.80	+311.58

Table 7.--Continued.

Country	Accommodation Quality	Room Size	Occupant Density	Room Rent	Distance	Elevation
	$\bar{X}$ 6.66	$\bar{X}$ 57.85	$\bar{X}$ 7.55	$\bar{X}$ 2597.14	$\bar{X}$ 1223.05	$\bar{X}$ 305.2
P.D.R. of Yemen	-3.08	+105.56	+14.00	--	- 150.00	-292.00
Philippines	+7.69	-36.00	- 2.00	-1800.00	- 120.00	-300.00
Qatar	+4.62	+71.00	- 6.00	--	- 710.00	-301.00
Saudi Arabia	-3.54	-35.91	- 7.40	-2000.00	+2436.00	+312.56
Senegal	+6.92	-36.00	- 5.00	--	+1625.00	-274.00
Somalia	-6.15	+57.97	+11.00	+3300.00	-1080.00	+312.50
Sudan	-5.66	-42.69	- 6.81	+2625.00	- 953.60	-305.27
Syria	+7.08	+60.67	- 7.21	-1992.50	+1274.40	-297.78
Tanzania	-5.38	-32.25	+10.00	+2600.00	- 274.00	+306.00
Tunisia	-6.34	+82.93	+12.25	+10000.00	- 373.25	-299.95
Turkey	+7.22	-56.81	+ 8.29	-2476.92	-1016.58	-300.53
Uganda	+7.94	+69.00	+ 8.00	-2400.00	+1398.30	-294.06
U.A. Emirates	+7.53	+91.78	- 5.00	-2000.00	+1254.80	+313.52
Yemen	-5.74	-49.53	+ 8.12	-1040.00	- 826.80	+321.16
F-ratio	4.31	.985	1.807	2.934	8.70	4.33
Significance	.0001	.492	.01	.0001	.0001	.0001

Key: + = above average; - = below average.

Living Quality and Cost for Pilgrims

Size of accommodations.--The average room size for pilgrims of all nationalities in 1976 was 47.1 square meters. One-way analysis of variance results did not show any significant variation among nationalities. (See Table 6.) The average room size in 1977 was 57.8 square meters. The result was not significant at any level; the F-ratio was .985. (See Table 7.)

It is clear that there was a change in both the average distance of housing from the Holy Mosque as well as in the average size of accommodations, not only among nationalities but also between the 1976 and 1977 surveys. The latter change was due to policy changes as well as to the rapid change taking place in the country as a whole.

Occupant density.--Occupant density and size of room were important factors in determining the living conditions of the pilgrims for each accommodation. In 1976, 73 percent of the nationalities who lived in crowded areas stayed in smaller-than-average-sized rooms; there were 65 percent in 1977.

In 1976, there were 6.8 persons per room, which was more than the standard indicators for crowded accommodations used by the United Nations to determine occupant density for the third-world countries. The results of 1977 showed an increase in the average occupant density: the average number of persons per room was 7.55. The result was significant at the .01 level; the F-ratio was 1.8.

In 1977, there were more countries whose citizens were living in very crowded rooms of much-smaller-than-average size near the Holy

Mosque than in 1976. (See Tables 6 and 7.) This was because most of these people stayed with the mutawifs and certain hamladárs, such as the Pakistanis and Afghanis, who were located within a shorter-than-average distance of the Holy Mosque.

Quality of accommodations.--Quality of accommodations was also considered to be one of the most important factors in determining living conditions. A bathroom and a kitchen are almost as necessary to comfort and well-being as shelter. During the pilgrimage time, these two elements often were not easily accessible in some accommodations.

The 1976 results showed an average score of 5.2 of a possible maximum of 16 rating quality. The result was significant at the .0001 level; the F-ratio was 7.399. In 1977, results for accommodation quality showed an average quality of 6.6 of a possible maximum score of 13, as discussed in previous sections. (See Table 7.) This result was significant at the .0001 level; the F-ratio was 4.229.

Accommodation cost.--Accommodations are like any other commodities in the market. Their value increases with more demand and decreases with less demand. Housing in Mecca during the pilgrimage time is no exception. Higher demand for the accommodations close to the Holy Mosque increases their prices and reduces the quality of living in such accommodations. This is true not only in Mecca but all over the world.

The average rent per room in 1976 was 2938.5 riyals. Rent ranged from 30 riyals minimum to 18,000 riyals maximum. The variations in room rent were significant at the .001 level; the F-value

was 5.19. The 1977 results showed an average room rent of 2597.1 riyals. The result was significant at the .0001 level; the F-value was 2.93.

Conclusion.--The preceding results showed that in 1976, with certain exceptions, pilgrims who lived within a shorter-than-average distance from the Holy Mosque, in accommodations of below-average quality, with smaller-sized rooms, were from the following countries: Indonesia, Bangladesh, Algeria, Pakistan, Tunisia, Yemen, Sri Lanka, and Somalia. Pilgrims from Indonesia had no exceptions to the above results. The exceptions were as follows: pilgrims from Bangladesh, Somalia, and Yemen paid below-average rent; pilgrims from Algeria and Pakistan lived in rooms with below-average occupant density; and pilgrims from Tunisia and Sri Lanka lived in above-average-sized rooms.

The results of the 1977 survey showed that, with certain exceptions, pilgrims who lived in accommodations that were of below-average quality, with smaller-sized rooms and above-average cost, located within a shorter-than-average distance from the Holy Mosque, were from the following countries: Algeria, India, Indonesia, Pakistan, Somalia, Tanzania, Afghanistan, Algeria, Libya, Morocco, Sudan, Tunisia, and Yemen. Pilgrims from Afghanistan, Morocco, and Yemen paid lower-than-average rent; pilgrims from Tunisia lived in above-average-sized rooms; and pilgrims from Libya and Sudan lived in below-average-density rooms.

Both surveys showed that pilgrims from Indonesia and Pakistan stayed in accommodations of below-average quality, with smaller-sized rooms and above-average costs, located within a shorter distance than

average from the Holy Mosque. On the other hand, pilgrims from Chad and Uganda stayed in accommodations characterized by higher quality, greater size, lower occupant density, and lower-than-average cost. These latter accommodations were located at a greater distance than average from the Holy Mosque. (See Table 8.)

Pilgrims' Movements and Modes of Travel

In this section, the pilgrims' daily activities and their modes of travel are discussed. The methods of analysis were one-way analysis of variance and cross-tabulation. (See Tables 9 and 10.)

Visits to the Holy Mosque.--The number of visits to the Holy Mosque performed by pilgrims is not limited to the times of the five prayers that every Muslim must perform daily. Pilgrims may visit the Holy Mosque as many times as they wish. Some limit their visits to the time of prayers, whereas others remain in the Holy Mosque, performing more than one prayer in each visit. In 1976, the average number of visits made by all pilgrims was 3.7. The test results showed that there were significant variations in the averages of various nationalities. The result was significant at the .0001 level; the F-ratio was 3.5. (See Table 9.) The 1977 results showed an average of 3.5 daily visits to the Holy Mosque. The result was significant at the .001 level; the F-ratio was 6.18. (See Table 10.)

Duration of stay.--Some pilgrims, such as those from East and Southeast Asia, may stay in Mecca more than two months. Generally, these pilgrims have come by sea. Some who have come by land from neighboring Arab countries may limit their stay to a few days. In

Table 8.--Characteristics and costs of accommodations by countries, 1976 and 1977.

Country	Accommodation Quality	Room Size	Occupant Density	Room Rent	Distance	Elevation
	$\bar{X}$ 6.01	$\bar{X}$ 52.87	$\bar{X}$ 7.24	$\bar{X}$ 2814.74	$\bar{X}$ 1144.34	$\bar{X}$ 302.01
Afghanistan	-5.40	+57.83	+ 9.33	-1780.56	- 615.33	+326.18
Algeria	-5.70	+49.54	+ 8.11	+3868.70	- 478.61	-301.67
Bahrain	-5.60	+72.00	+11.00	-2800.00	+1390.00	+312.00
Bangladesh	-4.00	+53.33	- 6.33	-1464.97	- 645.00	-290.66
Chad	+6.15	+53.66	- 6.00	-2400.00	+1411.00	-302.00
Egypt	+6.22	+55.81	+ 7.55	+3088.91	-1126.92	-294.39
India	-4.58	+53.14	- 7.00	+2822.64	- 565.62	+311.14
Indonesia	-5.08	-46.43	+ 7.41	+3572.21	- 247.02	+308.50
Iran	+7.48	+61.59	- 5.31	+3156.34	+2320.44	+313.54
Iraq	+6.32	+65.90	+ 8.18	-2239.70	+1402.40	-301.71
Jordan	-4.61	-36.00	- 5.00	+3000.00	-1397.50	-289.00
Kenya	+8.13	-18.80	- 2.00	+7999.95	- 225.00	+335.00
Lebanon	+6.94	-47.79	- 6.80	-2100.00	+1178.80	+305.82
Libya	-5.96	-42.64	- 5.92	+4455.66	- 319.94	-295.76
Malaysia	+6.41	-42.09	- 4.33	-2150.00	- 620.33	-288.33
Mali	-4.37	-23.36	- 4.33	-1806.70	+1220.00	-283.76
Mauritania	+8.13	-31.80	- 3.00	- 800.10	+3410.00	-266.00
Morocco	+6.02	+54.68	+ 7.55	+3541.24	- 605.50	+304.74
Nigeria	-5.60	-45.01	+ 7.38	-1793.05	+1499.70	-283.05

Table 8.--Continued.

Country	Accommodation Quality	Room Size	Occupant Density	Room Rent	Distance	Elevation
	$\bar{X}$ 6.01	$\bar{X}$ 52.87	$\bar{X}$ 7.24	$\bar{X}$ 2814.74	$\bar{X}$ 1144.34	$\bar{X}$ 302.01
Oman	+7.38	-46.56	- 5.40	-1800.00	+1942.00	+309.12
Pakistan	-5.96	-48.93	+ 7.42	+3078.85	- 481.14	+307.92
P.D.R. of Yemen	-3.08	+105.56	+14.00	--	- 150.00	-292.00
Philippines	+7.69	-36.00	- 2.00	-1800.00	- 120.00	-300.00
Qatar	-5.12	-53.50	- 5.00	- 599.90	- 522.50	+303.50
Saudi Arabia	-3.54	+35.91	+ 7.40	-2000.00	+2436.00	+312.56
Senegal	-4.38	-49.52	+ 7.75	-1566.71	+1151.25	-281.52
Somalia	-4.01	-43.38	+11.50	-2009.97	- 827.50	+311.25
Sudan	-4.38	-44.03	+ 9.72	-2181.48	- 806.63	-302.00
Syria	-5.88	-49.95	- 6.71	-2044.87	+1147.97	-294.90
Tanzania	-5.75	-47.35	+ 8.33	-1993.31	- 394.66	-296.86
Tunisia	-5.41	+58.92	+ 9.15	+4783.15	- 410.61	-294.90
Turkey	+6.45	+55.70	+ 8.61	-2700.56	-1021.42	-299.31
Uganda	+6.27	+56.27	+ 7.50	-2399.97	+1186.25	-295.05
U.A. Emirates	+7.51	+82.03	- 4.37	+8500.06	-1007.37	+309.01
Yemen	-4.64	-46.74	+ 8.56	-1066.65	- 711.28	+317.30
F-ratio	6.94	1.600	3.099	4.096	16.18	6.96
Significance	.001	.05	.0001	.001	.0001	.0001

Key: + = above average; - = below average.

Table 9.--Characteristics of pilgrims by countries, 1976.

Country	Age	Travel Time	Transp. Cost	Mosque Visits	Duration of Stay
	$\bar{X}$ 43.70	$\bar{X}$ 20.16	$\bar{X}$ 7.32	$\bar{X}$ 3.74	$\bar{X}$ 19.65
Afghanistan	+44.57	-14.28	--	+4.85	+25.71
Algeria	+55.53	-12.50	--	+4.30	-18.89
Bahrain	-43.00	+30.00	--	-2.00	- 8.00
Bangladesh	+48.00	+30.00	--	+5.00	+25.00
Egypt	-43.64	+31.40	- 5.22	-2.80	+20.76
India	+44.47	-17.64	- 4.90	-3.64	+29.55
Indonesia	-42.27	-12.77	--	+4.88	+30.35
Iran	-42.40	+24.50	+ 8.54	-3.05	-17.87
Iraq	+43.83	+20.42	--	+4.75	+20.08
Jordan	--	--	--	--	--
Kenya	-36.00	-10.00	--	+5.00	+20.00
Lebanon	+60.00	-10.00	+30.10	+5.00	-15.00
Libya	-43.68	-12.00	--	+4.72	-14.88
Mali	+44.00	-18.33	--	-3.66	-14.66
Mauritania	-21.00	-15.00	+15.05	-1.00	+28.00
Morocco	+46.33	-13.60	+ 7.52	+3.77	-18.11
Nigeria	-39.33	+28.51	- 3.90	-3.38	-19.44
Pakistan	-37.14	-12.85	+15.05	+4.00	+26.52
P.D.R. of Yemen	--	--	--	--	--
Qatar	-38.00	-15.00	--	+5.00	-16.00
Senegal	-40.00	+48.33	- 3.95	-2.66	-18.66
Somalia	+67.00	+30.00	--	+7.00	+20.00
Sri Lanka	-35.00	-10.00	--	+6.00	-15.00
Sudan	-40.00	-17.72	- 1.	+4.18	-16.50
Syria	+48.03	+20.92	- 1.34	-3.44	-17.50
Tanzania	-37.00	-12.50	--	+4.00	- 8.50
Tunisia	+49.88	-12.77	--	+4.11	-12.55
Turkey	+44.50	+20.27	- 3.60	+3.88	-17.66
Uganda	-32.00	-15.00	--	+5.00	+25.00
U.A. Emirates	-27.50	-10.00	--	+4.00	-17.50
Yemen	+47.11	-14.44	--	-2.88	+21.62
F-ratio	2.686	2.88	1.995	3.46	4.59
Significance	.0001	.0001	.05	.0001	.0001

Key: + = above average; - = below average.

Table 10.--Characteristics of pilgrims by countries, 1977.

Country	Age	Travel Time	Transp. Cost	Mosque Visits	Duration of Stay
	$\bar{X}$ 43.57	$\bar{X}$ 26.09	$\bar{X}$ 81.3	$\bar{X}$ 3.5	$\bar{X}$ 17.62
Afghanistan	40.72	28.63	--	4.81	+25.36
Algeria	51.34	22.24	5.00	4.17	+17.89
Bangladesh	34.00	30.00	--	5.00	+25.50
Chad	31.50	30.00	5.00	4.00	-13.00
Egypt	46.50	24.82	--	3.75	+18.17
India	45.00	22.50	--	4.00	+30.70
Indonesia	40.95	16.95	--	4.86	+29.60
Iran	44.09	25.54	7.26	2.39	-15.14
Iraq	41.97	27.71	6.85	2.68	-12.78
Jordan	50.00	30.00	1.00	2.00	- 9.00
Lebanon	43.00	26.25	10.00	2.75	- 9.00
Libya	48.00	16.15	--	4.69	+21.23
Malaysia	40.00	20.00	--	4.00	+27.33
Morocco	49.59	24.54	20.00	4.54	-14.72
Nigeria	39.41	36.16	4.75	3.26	-14.89
Oman	44.40	33.00	10.00	2.40	-14.20
Pakistan	41.72	20.90	3.00	4.66	+26.00
P.D.R. of Yemen	65.00	15.00	--	5.00	-15.00
Philippines	25.00	15.00	--	2.00	-12.00
Qatar	41.00	15.00	--	5.00	-10.00
Saudi Arabia	42.40	33.00	3.50	1.80	-10.25
Senegal	40.00	30.00	--	1.00	-15.00
Somalia	35.00	30.00	--	3.00	-15.00
Sudan	43.81	30.00	--	4.18	-15.00
Syria	41.21	26.05	17.20	3.00	-16.36
Tanzania	25.00	15.00	--	3.00	-10.00
Tunisia	43.25	15.00	--	5.00	-19.25
Turkey	45.48	27.58	2.00	3.70	-17.35
Uganda	42.33	25.00	--	3.00	-11.66
U.A. Emirates	44.00	20.00	--	3.66	-12.16
Yemen	41.43	30.00	20.00	3.50	-16.25
F-ratio	1.67	4.47	1.528	6.181	7.176
Significance	.05	.0001	.1609	.0001	.0001

1976, the average stay was about 20 days. The variation in the above averages was significant at the .0001 level; the F-ratio was 4.59. Pilgrims from East and Southeast Asia stayed longer than average, with the exception of pilgrims from Sri Lanka. Pilgrims from North African Arab countries stayed a shorter-than-average time, except for those from Egypt and Mauritania. Most of the pilgrims from Black African and Asian-Arab countries stayed a shorter-than-average time.

These variations in duration of time spent in Mecca were directly related to the modes of travel that pilgrims used. Those who came by land, such as pilgrims from Turkey and neighboring Arab countries, stayed a shorter-than-average time. These pilgrims had their own modes of travel and did not need to wait for an appointed time of departure, as was the case for those who came by air or sea transportation. Next in duration of stay were pilgrims who came by air, such as those from African countries, and then those who came by sea, such as pilgrims from East and Southeast Asia. (See Table 9.)

The 1977 results showed an average stay of 17.6 days fewer than in 1976. The variations in the average stay of the pilgrims were significant at the .0001 level; the F-ratio was 7.17. However, pilgrims from East and Southeast Asia stayed in Mecca longer than average, except for pilgrims from the Philippines. Pilgrims from North African countries also spent more time than average in Mecca, except for pilgrims from Morocco. Pilgrims from the remaining countries from the other regions spent less time in Mecca than average. Pilgrims from most of these countries came by land and air. Pilgrims from the

remaining countries in Asia came by land, and those from the remaining countries in Africa came by air. (See Table 10.)

Pilgrims' modes of travel.--Pilgrims in their movement between their accommodations and the Holy Mosque used either public transportation, rented private cars, or they walked. The 1976 results showed that 82.0 percent of the pilgrims walked to the Holy Mosque, 7.5 percent used private cars, 5.5 percent used public transportation, 1.0 percent walked and used private cars, 1.0 percent walked and used public transportation, 1.8 percent used private cars and public transportation, and 1.3 percent used all of the above. (See Table 11.)

The 1977 results showed figures very close to those for 1976: 83.4 percent of the pilgrims walked to the Holy Mosque, 9.9 percent used private cars, and 6.7 percent used public transportation. (See Table 12.)

The vast majority of the pilgrims, 80 percent and above for both 1976 and 1977, walked to the Holy Mosque. (See Tables 11 and 12.) They were from all countries except Egypt, Iran, Lebanon, and Mauritania in 1976; and Chad, Iran, Jordan, Lebanon, Oman, and Syria in 1977. Those who used means of transportation other than walking did so because they were staying at distances farther than the average from the Holy Mosque and happened to use other modes more frequently.

Pilgrims' travel time.--Location of pilgrims' accommodations with respect to the Holy Mosque was measured by the time that each pilgrim spent traveling between the above destinations. In 1976, the average time spent by all pilgrims was 20.16 minutes. The average

Table 11.--Modes of travel, 1976.

Country	N	Walk		Private Car		Public Transp.		Walk/ Private Car		Walk/ Pub. Transp.		Private Car/ Pub. Transp.		All	
		% n	% Walk	% n	% PC	% n	% PT	% n	% W/PC	% n	% W/PT	% n	% PC/PT	% n	% All
Afghanistan	7	100.0	2.1	--	--	--	--	--	--	--	--	--	--	--	--
Algeria	30	100.0	9.2	--	--	--	--	--	--	--	--	--	--	--	--
Bahrain	1	100.0	.3	--	--	--	--	--	--	--	--	--	--	--	--
Bangladesh	1	100.0	.3	--	--	--	--	--	--	--	--	--	--	--	--
Egypt	25	64.0	4.9	4.0	3.3	24.0	27.3	--	--	4.0	25.0	--	--	4.0	20.0
India	17	100.0	5.2	--	--	--	--	--	--	--	--	--	--	--	--
Indonesia	18	100.0	5.5	--	--	--	--	--	--	--	--	--	--	--	--
Iran	70	35.7	7.6	37.1	86.7	8.6	27.3	4.3	75.0	1.4	25.0	10.0	100.0	2.9	40.0
Iraq	12	100.0	3.7	--	--	--	--	--	--	--	--	--	--	--	--
Kenya	1	100.0	.3	--	--	--	--	--	--	--	--	--	--	--	--
Lebanon	1	--	--	100.0	3.3	--	--	--	--	--	--	--	--	--	--
Libya	25	100.0	7.6	--	--	--	--	--	--	--	--	--	--	--	--
Mali	3	100.0	.9	--	--	--	--	--	--	--	--	--	--	--	--
Mauritania	1	--	--	--	--	100.0	4.5	--	--	--	--	--	--	--	--
Morocco	18	94.4	5.2	--	--	5.6	4.5	--	--	--	--	--	--	--	--
Nigeria	53	86.6	14.1	--	--	7.5	18.2	--	--	3.8	50.0	--	--	1.9	20.0
Pakistan	21	95.2	6.1	--	--	--	--	--	--	--	--	--	--	4.8	20.0
Qatar	1	100.0	.3	--	--	--	--	--	--	--	--	--	--	--	--
Senegal	3	100.0	.9	--	--	--	--	--	--	--	--	--	--	--	--
Somalia	1	100.0	.3	--	--	--	--	--	--	--	--	--	--	--	--
Sri Lanka	1	100.0	.3	--	--	--	--	--	--	--	--	--	--	--	--
Sudan	22	95.5	6.4	--	--	4.5	4.5	--	--	--	--	--	--	--	--
Syria	26	84.6	6.7	7.7	6.7	7.7	9.1	--	--	--	--	--	--	--	--
Tanzania	12	100.0	.6	--	--	--	--	--	--	--	--	--	--	--	--
Tunisia	9	100.0	2.8	--	--	--	--	--	--	--	--	--	--	--	--
Turkey	18	88.9	4.9	--	--	5.6	4.5	5.6	25.0	--	--	--	--	--	--
Uganda	1	100.0	.3	--	--	--	--	--	--	--	--	--	--	--	--
U.A. Emirates	2	100.0	.6	--	--	--	--	--	--	--	--	--	--	--	--
Yemen	9	100.0	2.8	--	--	--	--	--	--	--	--	--	--	--	--
Total	399	82.0	100.0	7.5	100.0	5.5	100.0	1.0	100.0	1.0	100.0	1.8	100.0	1.3	100.0

Table 12.--Modes of travel, 1977.

Country	N	Walk		Private Car		Public Transp.	
		% N	% Walk	% N	% PC	% N	% PT
Afghanistan	11	100.0	2.8	--	--	--	--
Algeria	29	93.1	7.0	3.4	2.2	3.4	3.2
Bangladesh	2	100.0	.5	--	--	--	--
Chad	2	50.0	.3	--	--	50.0	3.2
Egypt	29	93.1	7.0	6.9	4.3	--	--
India	10	100.0	2.6	--	--	--	--
Indonesia	23	100.0	5.9	--	--	--	--
Iran	74	40.5	7.7	45.9	73.9	13.5	32.3
Iraq	46	80.4	9.5	6.5	6.5	13.0	19.4
Jordan	2	50.0	.3	--	--	50.0	3.2
Lebanon	4	75.0	.8	--	--	25.0	3.2
Libya	13	100.0	3.4	--	--	--	--
Malaysia	3	100.0	.8	--	--	--	--
Morocco	22	95.5	5.4	4.5	2.2	--	--
Nigeria	56	92.9	13.4	3.6	4.3	3.6	6.5
Oman	5	60.0	.8	20.0	2.2	20.0	3.2
Pakistan	33	97.0	8.2	--	--	3.0	3.2
P.D.R. of Yemen	1	100.0	.3	--	--	--	--
Philippines	1	100.0	.3	--	--	--	--
Qatar	1	100.0	.3	--	--	--	--
Saudi Arabia	5	80.0	1.0	--	--	20.0	3.2
Senegal	1	100.0	.3	--	--	--	--
Somalia	1	100.0	.3	--	--	--	--
Sudan	11	100.0	2.8	--	--	--	--
Syria	19	73.7	3.6	--	--	26.3	16.1
Tanzania	1	100.0	.3	--	--	--	--
Tunisia	4	100.0	1.0	--	--	--	--
Turkey	31	96.8	7.7	--	--	3.2	3.2
Uganda	3	100.0	.8	--	--	--	--
U.A. Emirates	6	83.3	1.3	16.7	2.2	--	--
Yemen	16	93.8	3.9	6.3	2.2	--	--
Total	465	83.4		9.9		6.7	

variation among all nationalities was significant at the .0001 level; the F-ratio was 2.88. (See Table 9.)

Pilgrims who spent more travel time than the average were from the following countries: Bahrain, Bangladesh, Egypt, Iran, Iraq, Nigeria, Senegal, Somalia, Syria, and Turkey. This may have been because pilgrims from Egypt, Iran, Nigeria, and Bahrain stayed farther away from the Holy Mosque or because of the above-average age of the pilgrims from Bangladesh, Iraq, Somalia, Syria, and Turkey. Pilgrims from Lebanon were the only ones who stayed at a farther distance and whose age was above average but who spent less time reaching the Holy Mosque. They used private cars instead of other modes of transportation. (See Table 12.)

The 1977 results showed an increase in the average time of travel, which was related to the increase in the average distance of pilgrim accommodations. The average time of travel for 1977 was 26.09 minutes. (See Table 10.) The variations in the averages were significant at the .0001 level; the F-ratio was 4.47. Pilgrims who spent more time than the average between their accommodations and the Holy Mosque were from the following countries: Afghanistan, Bangladesh, Chad, Egypt, Iraq, Jordan, Lebanon, Nigeria, Oman, Saudi Arabia, Senegal, Somalia, Sudan, Turkey, and Yemen. This average time may have been related to the fact that pilgrims from Iraq, Nigeria, Saudi Arabia, and Senegal stayed farther away. It may also have been related to the above-average age in addition to more distant location of pilgrims from Chad, Jordan, Oman, Sudan, and Turkey. Pilgrims from Iran, Syria, and the United Arab Emirates, in spite of the fact

that they lived at farther-than-average distances and spent less-than-average travel time because they all used automobiles.

Transportation costs.--Average transportation costs for a one-way trip between accommodations and the Holy Mosque in 1976 was 7.32 riyals. However, the variations in the average transportation cost were significant at the .05 level; the F-ratio was 1.99. (See Table 9.)

In 1977, by comparison, the average transportation cost per one-way trip between accommodations and the Holy Mosque was 8.13 riyals. However, the variations in the average transportation cost were not significant at any level. The F-ratio was 1.52, and the F-probability was .1609.

In 1976, pilgrims from Iran, Lebanon, and Pakistan paid higher-than-average transportation costs. They used private cars, which usually are more expensive than other modes of transportation. The same was true in 1977 for pilgrims from Morocco, Oman, and Yemen.

In general, for both 1976 and 1977, the average age of pilgrims was 43.64, and the average travel time to the Holy Mosque for all pilgrims was 23.3 minutes. (See Table 13.) The average transportation cost was 7.6 riyals for a one-way fare. The average number of visits to the Holy Mosque was 3.62 times per day. The average number of days that pilgrims spent in Mecca both in 1976 and 1977 was only 18.56.

Table 13.--Characteristics of pilgrims by countries, 1976 and 1977.

Country	Age	Travel Time	Transp. Cost	Mosque Visits	Duration of Stay
	$\bar{X}$ 43.64	$\bar{X}$ 23.36	$\bar{X}$ 7.60	$\bar{X}$ 3.62	$\bar{X}$ 18.56
Afghanistan	42.22	23.05	--	4.83	25.50
Algeria	53.47	17.28	5.0	4.23	18.39
Bahrain	43.00	30.00	--	2.00	8.00
Bangladesh	38.66	30.00	--	5.00	25.33
Chad	31.50	30.00	5.00	4.00	13.00
Egypt	45.20	27.87	5.22	3.31	19.37
India	44.66	19.44	4.90	3.77	29.85
Indonesia	41.53	15.12	--	4.87	29.92
Iran	43.26	25.03	8.20	2.71	16.48
Iraq	42.35	26.21	6.86	3.10	14.29
Jordan	50.00	30.00	1.00	2.00	9.00
Kenya	36.00	10.00	--	5.00	20.00
Lebanon	46.40	23.00	20.00	3.20	10.20
Libya	45.16	13.42	--	4.71	17.05
Malaysia	40.00	20.00	--	4.00	27.33
Mali	44.00	18.33	--	3.66	14.66
Mauritania	21.00	15.00	15.00	1.00	28.00
Morocco	48.12	19.62	11.68	4.20	16.25
Nigeria	39.37	32.40	4.14	3.32	17.15
Oman	44.40	33.00	10.00	2.40	14.20
Pakistan	39.90	17.77	9.02	4.40	26.20
P.D.R. of Yemen	65.00	15.00	--	5.00	15.00
Philippines	25.00	15.00	--	2.00	12.00
Qatar	39.50	15.00	--	5.00	13.00
Saudi Arabia	42.40	33.00	3.50	1.80	10.25
Senegal	40.00	43.75	3.95	2.25	17.75
Somalia	51.00	30.00	--	5.00	17.50
Sudan	41.31	21.81	1.00	4.18	16.00
Syria	45.21	23.04	11.25	3.26	17.02
Tanzania	33.00	13.33	--	3.66	9.00
Tunisia	47.84	13.46	--	4.38	14.61
Turkey	45.12	24.89	3.20	3.77	17.46
Uganda	39.75	22.50	--	3.50	15.00
U.A. Emirates	39.87	17.50	--	3.75	13.50
Yemen	43.48	24.40	20.00	3.28	18.04
F-ratio	2.87	4.81	1.20	6.49	9.04
Significance	.0001	.0001	.253	.0001	.0001

Characteristics of Rental Agents

The following discussion focuses on the rental agents and the types of nationalities they accommodated. Housing conditions and costs of accommodations rented from the mutawifs, hamladárs, owners, or renters are considered. Methods of analysis were one-way analysis of variance and cross-tabulation. (See Tables 14-18.)

The government policy during 1975 and 1976 was that pilgrims should have the choice of staying in the kinds of accommodations they preferred, regardless of whether they stayed with mutawifs or not. Therefore, the number of pilgrims assigned to the mutawifs dropped significantly, whereas it increased for other types of rental agents: hamladárs, owners, and renters. (See Table 14.) This policy made it possible for hamladárs as well as other foreigners to enter the business of pilgrim services, especially housing, which made the situation worse for both the pilgrims and the mutawifs, as was the case in 1975[1] and 1976. Only 41.5 percent of the pilgrims stayed with the mutawifs, whereas the percentage was 24.0, 27.75, and 6.75 percent for hamladárs, owners, and renters, respectively. (See Table 14.) After mutawifs, owners had the highest percentage since real-estate brokers from within Mecca played an important role that year, although their role decreased in 1977.

In 1977 the mutawifs regained their position as dominant housing subleasers to the pilgrims because of the new policy that limited the housing services to the mutawifs unless certain

---

[1]For more information see Makky, Mecca, the Pilgrimage City.

Table 14.--Types of rental agents used by pilgrims, by country--1976.

Country	Mutawif			Hamladár			Owner			Renter		
	N	% Mut.	% N	N	% Ham.	% N	N	% Own.	% N	N	% Rent.	% N
Afghanistan	--	--	--	2	2.1	28.6	4	3.6	57.1	1	3.7	14.3
Algeria	28	16.9	93.3	--	--	--	1	.9	3.3	1	3.7	3.3
Bahrain	--	--	--	1	1.0	100.0	--	--	--	--	--	--
Bangladesh	1	.6	100.0	--	--	--	--	--	--	--	--	--
Egypt	10	6.0	41.7	1	1.0	4.2	12	10.8	50.0	1	3.7	4.2
India	11	6.6	64.7	1	1.0	5.9	4	3.6	23.5	1	3.7	5.9
Indonesia	17	10.2	94.4	--	--	--	1	.9	5.6	--	--	--
Iran	--	--	--	68	70.8	95.8	3	2.7	4.2	--	--	--
Iraq	1	.6	8.3	8	8.3	66.7	2	1.8	16.7	1	3.7	8.3
Kenya	--	--	--	--	--	--	1	.9	100.0	--	--	--
Lebanon	--	--	--	1	1.0	100.0	--	--	--	--	--	--
Libya	24	14.5	96.0	--	--	--	1	.9	4.0	--	--	--
Mali	2	1.2	66.7	1	1.0	33.3	--	--	--	--	--	--
Mauritania	--	--	--	--	--	--	1	.9	100.0	--	--	--
Morocco	17	10.2	94.4	--	--	--	--	--	--	1	3.7	5.6
Nigeria	10	6.0	18.5	1	1.0	1.9	37	33.3	68.5	6	22.2	11.1

Table 14.--Continued.

Country	Mutawif			Hamladár			Owner			Renter		
	N	% Mut.	% N	N	% Ham.	% N	N	% Own.	% N	N	% Rent.	% N
Pakistan	9	5.4	42.9	1	1.0	4.8	9	8.1	42.9	2	7.4	9.5
Qatar	--	--	--	--	--	--	--	--	--	1	3.7	100.0
Senegal	3	1.8	100.0	--	--	--	--	--	--	--	--	--
Somalia	--	--	--	--	--	--	1	.9	100.0	--	--	--
Sri Lanka	1	.6	100.0	--	--	--	--	--	--	--	--	--
Sudan	11	6.6	50.0	--	--	--	10	9.5	45.5	1	3.7	4.5
Syria	8	4.8	29.5	--	--	--	14	12.6	51.9	5	18.5	18.5
Tanzania	2	1.0	100.0	--	--	--	--	--	--	--	--	--
Tunisia	9	5.4	100.0	--	--	--	--	--	--	--	--	--
Turkey	--	--	--	10	10.4	58.8	4	3.6	23.5	3	11.1	17.6
Uganda	1	.6	100.0	--	--	--	--	--	--	--	--	--
U.A. Emirates	--	--	--	1	1.0	50.0	1	.9	50.0	--	--	--
Yemen	1	.6	11.1	--	--	--	5	4.5	55.6	3	11.1	33.3
Total	166	41.50		96	24.00		111	27.75		27	6.75	

arrangements were made with them. Therefore, the percentage of pilgrims living with mutawifs increased to 63.04 percent, whereas it decreased to 18.5, 16.1, and 2.4 percent for hamladárs, owners, and renters, respectively. (See Table 15.)

Location and Proximity

There were variations in the average distance from the Holy Mosque among the types of rental agents. These variations in 1976 were significant at the .0001 level; the F-ratio was 55.5. The average distance for mutawifs was 527.3 meters from the Holy Mosque. The average distance for hamladárs was 1867.9 meters, whereas for owners it was 1050.8 meters, and for renters, 1327.4 meters. It is clear that mutawifs stayed closer to the Holy Mosque than others. The hamladárs were located at a greater distance from the Holy Mosque than were other types of rental agents. (See Table 16.)

The 1977 results showed significant variations among the above types of rental agents with respect to distance from the Holy Mosque. The F-ratio was 44.5; it was significant at the .0001 level. Mutawifs were located, on the average, within a shorter distance from the Holy Mosque (919.3 meters); hamladárs lived, on the average, at a farther distance (2333.1 meters) compared to other types of rental agents. Owners lived, on the average, 1093.5 meters away, and renters lived at 944.2 meters from the Holy Mosque. (See Table 17.)

Room Size of Accommodations of Rental Agents

The analysis of variance showed significant variations in the average room size of the above rental agents in 1976. The F-ratio

Table 15.--Types of rental agents used by pilgrims, by country--1977.

Country	Mutawif			Hamladár			Owner			Renter		
	N	% Mut.	% N	N	% Ham.	% N	N	% Own.	% N	N	% Rent.	% N
Afghanistan	6	2.1	54.4	1	1.2	9.1	3	4.1	27.3	1	9.1	9.1
Algeria	29	10.0	100.0	--	--	--	--	--	--	--	--	--
Bangladesh	2	.7	100.0	--	--	--	--	--	--	--	--	--
Chad	1	.3	50.0	--	--	--	1	1.4	50.0	--	--	--
Egypt	22	7.6	75.9	--	--	--	7	9.5	24.1	--	--	--
India	8	2.8	80.0	1	1.2	10.0	1	1.4	10.1	--	--	--
Indonesia	22	7.6	95.7	1	1.2	4.3	--	--	--	--	--	--
Iran	11	3.8	14.9	59	69.4	79.7	4	5.4	5.4	--	--	--
Iraq	27	9.3	58.7	12	14.1	26.1	4	5.4	8.7	3	27.3	6.5
Jordan	2	.7	100.0	--	--	--	--	--	--	--	--	--
Lebanon	4	1.4	100.0	--	--	--	--	--	--	--	--	--
Libya	11	3.8	84.6	--	--	--	1	1.4	7.7	1	9.1	7.7
Malaysia	2	.7	66.7	--	--	--	1	1.4	33.3	--	--	--
Morocco	20	6.9	90.9	--	--	--	2	2.7	9.1			
Nigeria	46	15.9	82.1	2	2.4	3.6	8	10.8	14.3	--	--	--
Oman	1	.3	25.0	--	--	--	3	4.1	75.0	--	--	--

Table 15.--Continued.

Country	Mutawif			Hamladár			Owner			Renter		
	N	% Mut.	% N	N	% Ham.	% N	N	% Own.	% N	N	% Rent.	% N
Pakistan	18	6.2	54.5	1	1.2	3.0	13	17.6	39.4	1	9.1	3.0
P.D.R. of Yemen	1	.3	100.0	--	--	--	--	--	--	--	--	--
Philippines	--	--	--	--	--	--	1	1.4	100.0	--	--	--
Qatar	--	--	--	1	1.2	100.0	--	--	--	--	--	--
Saudi Arabia	--	--	--	--	--	--	1	1.4	50.0	1	9.1	50.0
Senegal	1	.3	100.0	--	--	--	--	--	--	--	--	--
Somalia	1	.3	100.0	--	--	--	--	--	--	--	--	--
Sudan	10	3.4	90.9	--	--	--	1	1.4	9.1	--	--	--
Syria	12	4.1	63.2	--	--	--	6	8.1	31.6	1	9.1	5.3
Tanzania	1	.3	100.0	--	--	--	--	--	--	--	--	--
Tunisia	4	1.4	100.0	--	--	--	--	--	--	--	--	--
Turkey	25	8.6	80.6	3	3.5	9.7	3	4.1	9.7	--	--	--
Uganda	2	.7	66.7	--	--	--	1	1.4	33.3	--	--	--
U.A. Emirates	1	.3	16.7	4	4.7	66.7	1	1.4	16.7	--	--	--
Yemen	--	--	--	--	--	--	12	16.2	75.0	3	27.3	18.8
Total	290	63.04		85	18.50		74	16.10		11	2.40	

Table 16.--Characteristics of rental accommodations, 1976.

Rental Agents	Accommodation Quality	Room Size	Occupant Density	Room Cost	Distance	Travel Time
	$\bar{X}$ 5.26	$\bar{X}$ 47.15	$\bar{X}$ 6.87	$\bar{X}$ 2937.86	$\bar{X}$ 1048.36	$\bar{X}$ 20.11
Mutawifs	4.9	43.7	6.7	3334.0	527.3	15.06
Hamladárs	6.4	56.2	6.1	3495.1	1867.9	23.17
Owners	4.8	44.9	7.5	2170.2	1050.8	21.12
Renters	4.7	44.1	7.2	1683.9	1327.4	36.11
F-ratio	23.48	6.17	2.57	9.01	55.53	16.82
Significance	.0001	.001	.0539	.0001	.0001	.0001

Table 17.--Characteristics of rental accommodations, 1977.

Rental Agents	Accommodation Quality	Room Size	Occupant Density	Room Cost	Distance	Travel Time
	$\bar{X}$ 6.70	$\bar{X}$ 58.07	$\bar{X}$ 7.57	$\bar{X}$ 2597.14	$\bar{X}$ 1209.68	$\bar{X}$ 25.98
Mutawifs	6.3	58.6	8.4	2865.0	919.3	25.89
Hamladárs	7.8	66.9	5.8	2516.1	2333.1	25.41
Owners	6.7	47.2	6.3	2062.5	1093.5	27.56
Renters	6.7	47.5	5.3	1345.8	964.2	21.81
F-ratio	16.75	3.87	13.31	3.368	44.57	1.14
Significance	.0001	.01	.0001	.05	.0001	.3324

was 6.17; it was significant at the .001 level. The average room size was 47.1 square meters. The average room size for pilgrims living with mutawifs was 43.8 square meters, ranging from 8 to 118 square meters. The average room size for pilgrims living with hamladárs was 56.2 square meters, ranging from 12 to 200 square meters. The average room size of pilgrims living with owners was 44.9 square meters, ranging from 8 to 160 square meters. The average room size of renters was 44.1 square meters, ranging from 9 to 121 square meters. Hamladárs had above-average room size because they were located at a farther distance from the congested area. (See Table 16.)

The 1977 results showed significant variations in the average room sizes among the four types of rental agents. The F-ratio was 3.87; it was significant at the .01 level. The average room size was 58.07 square meters. Mutawifs had an average room size of 58.6 square meters, ranging from 12.5 to 576 square meters. Hamladárs had an average room size of 66.9 square meters, ranging from 21 to 240 square meters. Owners had an average room size of 47.2 square meters, ranging from 12.5 to 120 square meters. Renters had an average room size of 47.5 square meters, ranging from 22.5 to 105 square meters. (See Table 17.)

From the results in both 1976 and 1977, it was clear that the average room size increased from 47.1 square meters in 1976 to 57.8 square meters in 1977. This increase may have been due to the fact that pilgrims moved farther from the Holy Mosque in 1977 than in 1976. This dispersion is very important since new houses were

built away from the city center. This also explains why most hamladárs who accommodated their pilgrims at a greater distance than average housed them in above-average-size rooms compared to other types of rental agents, especially mutawifs. (See Table 18.)

Occupant Density in Accommodations of Rental Agents

One-way analysis of variance showed that the average occupant density in 1976 was 6.8 persons. The variation in the average room sizes among rental agents was significant at the .05 level; the F-ratio was 2.57. Mutawifs had an average of 6.7 persons per room, with a minimum per room of one person and a maximum of 24 persons. Hamladárs had an average of 6.2 persons per room, with a minimum of one person and a maximum of 25 persons per room. Owners had an average of 7.5 persons per room, with a minimum of three persons and a maximum of 27 persons. Both mutawifs and hamladárs had rooms that were below average in occupant density. But the maximum number of persons per room for hamladárs was more than that for mutawifs. In 1975 and 1976, all pilgrims were assigned by the government to each mutawif according to the total average of pilgrims he had served in 1972, 1973, and 1974. The pilgrims were also given the choice of staying with their mutawifs at the price ranges they chose. However, most of the hamladárs, especially those who came to Saudi Arabia by automobile, convinced their pilgrims to stay with them instead of with the mutawifs, and they accommodated them in crowded rooms.

Realizing the problems, in 1977 the government restricted the arrangement of the accommodations to the mutawifs with the following

Table 18.--Characteristics of rental accommodations, 1976 and 1977.

Rental Agents	Accommodation Quality	Room Size	Occupant Density	Room Cost	Distance	Travel Time
	$\bar{X}$ 6.03	$\bar{X}$ 53.00	$\bar{X}$ 7.24	$\bar{X}$ 2819.58	$\bar{X}$ 1134.65	$\bar{X}$ 23.24
Mutawifs	5.8	53.2	7.8	3131.4	776.6	21.90
Hamladárs	7.1	61.3	6.0	3259.1	2086.3	24.22
Owners	5.5	45.8	7.0	2138.4	1067.9	23.70
Renters	5.3	45.1	6.7	1618.5	1222.3	31.97
F-ratio	28.85	7.55	10.09	11.343	85.33	6.67
Significance	.0001	.001	.0001	.001	.0001	.001

results. The average occupant density was 7.6 persons per room in 1977. The variations in room averages among the four types of rental agents were significant at the .0001 level; the F-ratio was 13.3. The mutawifs' average occupant density was 8.4 persons per room, with a minimum of 2 and a maximum of 39 persons per room. The average occupant density for hamladárs was 5.8 persons per room, with a minimum of 2 and a maximum of 16 persons per room. The average occupant density for owners was 6.3 persons per room, with a minimum of 2 and a maximum of 20 persons per room. Renters had an average occupant density of 5.3 persons per room, with a minimum of 1 and a maximum of 12 persons per room. The preceding variations may have reflected the fact that mutawifs and renters were closer to the Holy Mosque than were hamladárs and owners.

Quality of Accommodations of Rental Agents

In 1976, the average accommodation quality for all types of rental agents was 5.2 out of a maximum score of 16. (See Table 16.) Analysis of variance showed significant variations in the average accommodation quality among the types of rental agents. The F-ratio was 23.5; it was significant at the .0001 level. The results also showed that mutawifs, owners, and renters had below-average accommodation quality: 4.9, 4.8, and 4.7 for mutawifs, owners, and renters, respectively, with a minimum score of 0 and a maximum of 10 for mutawifs and a minimum score of 0 and a maximum of 9.3 for both owners and renters. The average quality score for hamladárs was 6.4, with a minimum of 2.5 and a maximum of 10.

In 1977, the average accommodation quality was 6.7, with a possible maximum score of 13. (See Table 17.) One-way analysis of variance showed significant variations in the average accommodation quality among the four types of rental agents. The F-ratio was 16.75; it was significant at the .0001 level. The results also showed that hamladárs, owners, and renters had above-average accommodation quality. However, mutawifs had a below average quality score of 6.3.

Costs of Accommodations of Rental Agents

The 1976 results showed an average rent per room of 2937.86 riyals, with a minimum average rent of 30.1 riyals and a maximum average rent of 18,000 riyals. One-way analysis of variance showed significant variations in the average room rent among types of rentals. The F-ratio was 9.0; it was significant at the .0001 level.

Both hamladárs and mutawifs had above-average rent values, whereas owners and renters had below-average rent values. Hamladárs had higher average room rents compared to other types of rental agents. Average rent per room was 3495.1 riyals, with a minimum of 120 riyals and a maximum of 18,000.15 riyals. Mutawifs had an average room rent of 3334.0 riyals, with a minimum of 59.85 riyals and a maximum of 14,999.95 riyals. Owners had an average rent per room of 2170.3 riyals, with a minimum of 30 riyals and a maximum of

12,000 riyals. The least expensive room was found with the renters, whose average room rent was 1684 riyals, with a minimum of 50 riyals and a maximum of 5500 riyals.

As the preceding results showed, hamladárs charged higher rent per room than did other types of rental agents. This was due to the fact that the government regulations of 1976 gave them the chance to practice as real-estate brokers and also provided guidance.

In 1977, the situation changed with the introduction of new regulations. Analysis of variance showed significant variation in the average room rent among the types of rental agents. The F-ratio was 3.4; it was significant at the .05 level.

The average room rent was 2597.1 riyals, with a maximum rent of 10,000 riyals. Hamladárs, owners, and renters had less-than-average room costs: 2516.2, 2062.5, and 1345.8 riyals, respectively. Mutawifs had an average rent of 2865 riyals per room.

The combined results of both 1976 and 1977 gave a clear picture of the existing conditions in both years so that recommendations could be easily derived. The merging of the two years' results showed that the average accommodation quality was 6.03. Only hamladárs' accommodations were above-average quality. The average room size was 53 square meters. Mutawifs and hamladárs had above-average-size rooms, whereas renters and owners had rooms that were below-average size. The average occupant density was 7.24 persons per room. Mutawifs were the only ones among the rental agents who had above-average occupant density.

With respect to room cost, the average for 1976 and 1977 was 2819.58 riyals. Both mutawifs and hamladárs charged above-average rent per room. Hamladárs charged more than the mutawifs. Owners and renters charged below-average rent. The average distance from the Holy Mosque was 1134.65 meters. Mutawifs were the only ones who stayed a shorter distance from the Holy Mosque, followed by owners; hamladárs and renters stayed at greater distances from the Holy Mosque. The average travel time for all pilgrims was 23.24 minutes. Since mutawifs stayed a shorter distance from the Holy Mosque, their average travel time was less than that of the other types of rental agents.

CHAPTER V

ANALYSIS AND DISCUSSION OF THE PILGRIMS' REACTIONS AND THEIR RECOMMENDATIONS FOR THE FUTURE

The following discussion focuses on the reactions of the pilgrims to their housing conditions and costs and on their suggestions for improving the present accommodation conditions and costs. A cross-tabulation technique was used to analyze the 1976 and 1977 surveys. (See Tables 19 and 20.)

Pilgrims' Reactions

Reactions to Room Size

As shown in Figure 19, 29.8 percent of the pilgrims in 1976 complained about room size, compared to 32.8 percent in 1977. In both 1976 and 1977, the most complaints were made by pilgrims from Nigeria, then by pilgrims from Sudan. (See Tables 19 and 20.)

Reactions to Occupant Density

The results showed that 39.3 percent of the pilgrims in 1976 complained about occupant density, compared to 37.3 percent in 1977. The results showed that in 1976, pilgrims from Nigeria, followed by those from Egypt, were among those having the most complaints about occupant density. In 1977, pilgrims from Nigeria, followed by those from Iraq, had the most complaints.

Table 19.--Reactions of pilgrims to housing conditions and transportation costs, 1976.

Country	Room Size Complaint			Occupant Density Complaint			Accomm. Quality Complaint			Room Rent Complaint			Transp. Cost Complaint		
	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.
Afghanistan	7	28.6	1.7	7	28.6	1.3	7	28.6	1.3	7	28.6	1.1	6	0	0
Algeria	30	33.3	8.4	30	40.0	7.6	30	53.3	10.2	30	43.3	7.4	4	0	0
Bahrain	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0
Bangladesh	1	0	0	1	100.0	.6	1	100.0	.6	1	100.0	.6	1	0	0
Egypt	25	44.0	9.2	25	68.0	10.8	25	44.0	7.0	16	37.5	3.4	15	66.7	16.1
Ethiopia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
India	17	41.2	5.9	17	47.1	5.1	17	70.6	7.6	16	62.5	5.7	11	9.1	1.6
Indonesia	18	22.2	3.4	18	55.6	6.3	18	61.1	7.0	16	56.3	5.1	7	0	0
Iran	70	1.4	.8	71	15.5	7.0	71	4.2	1.9	64	39.1	14.3	58	55.2	51.6
Iraq	12	16.7	1.7	12	16.7	1.3	12	33.3	2.5	12	33.3	2.3	7	14.3	1.6
Jordan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kenya	1	0	0	1	0	0	1	0	0	1	0	0	1	100.0	1.6
Lebanon	1	0	0	1	0	0	1	0	0	--	--	--	1	100.0	1.6
Libya	25	32.0	6.7	25	32	5.1	25	40	6.4	23	47.8	6.3	4	25.0	1.6
Mali	3	33.3	.8	3	33.3	.6	3	33.3	.6	3	33.3	.6	--	--	--
Mauritania	1	0	0	1	0	0	1	0	0	1	100.0	.6	1	100.0	1.6
Morocco	18	11.1	1.7	18	16.7	1.4	18	33.3	3.8	18	27.8	2.9	3	33.3	1.6
Nigeria	54	37.0	16.8	54	44.4	15.2	54	44.4	15.3	52	51.9	15.4	11	63.6	11.3
Pakistan	21	28.6	5.0	21	33.3	4.4	21	33.3	4.5	21	38.1	4.6	9	11.1	1.6
P.D.R. of Yemen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Qatar	1	0	0	1	0	0	1	100.0	.6	1	100.0	.6	1	0	0
Senegal	3	0	0	3	66.7	1.3	3	33.3	.6	3	33.3	.6	2	100.0	3.2
Somalia	1	100.0	0	1	100.0	.6	1	100.0	0	1	0	0	1	0	0
Sri Lanka	1	0	0	1	0	0	1	0	0	1	0	0	--	--	--
Sudan	22	59.1	10.9	22	63.6	8.9	22	6.8	9.6	22	68.2	8.5	9	0	0
Syria	27	33.3	7.6	27	40.7	7.0	27	44.4	7.6	27	48.1	7.4	5	40.0	3.2
Tanzania	2	50.0	.8	2	50.0	.6	2	50.0	.6	2	100.0	0	--	--	--
Tunisia	9	66.7	5.0	9	66.7	3.8	9	88.9	5.1	9	88.9	4.6	--	--	--
Turkey	17	41.2	5.9	18	44.4	5.1	18	27.8	3.2	17	29.4	2.9	8	25.0	3.2
Uganda	1	100.0	.8	1	100.0	.6	1	100.0	.6	1	100.0	.6	1	0	0
U.A. Emirates	2	0	0	2	0	0	2	0	0	2	0	0	--	--	--
Yemen	8	87.5	5.9	9	88.9	5.1	9	44.4	2.5	8	75.0	3.4	6	0	0
Total	399	29.8	100.0	402	39.3	100.0	402	39.1	100.0	376	46.5	100.0	173	35.8	100.0

Table 20.--Reactions of pilgrims to housing conditions and transportation costs, 1977.

Country	Room Size Complaint			Occupant Density Complaint			Accomm. Quality Complaint			Room Rent Complaint			Transp. Cost Complaint		
	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.
Afghanistan	11	45.5	3.3	11	45.5	2.9	11	36.4	2.2	11	45.5	2.6	--	--	--
Algeria	29	48.3	9.2	29	55.2	9.2	29	58.6	9.1	29	44.8	6.7	1	100.0	4.2
Bahrain	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bangladesh	2	0	0	2	0	0	2	50.0	.5	2	100.0	1.0	--	--	--
Chad	2	0	0	2	50.0	.6	2	0	0	2	0	0	1	0	0
Egypt	29	24.1	4.6	29	20.7	3.4	29	27.6	4.3	29	31.0	4.7	--	--	--
India	10	60.0	3.9	10	70.0	4.0	10	70.0	3.8	10	90.0	4.7	--	--	--
Indonesia	23	26.1	3.9	23	26.1	3.4	23	39.1	4.8	23	30.4	3.6	--	--	--
Iran	74	1.4	.7	74	2.7	1.1	74	6.8	2.7	73	14.9	5.7	15	60.0	37.5
Iraq	46	43.5	13.2	47	48.9	13.2	47	51.1	12.9	45	55.6	13.0	7	57.1	16.7
Jordan	1	100.0	.7	2	50.0	.6	2	100.0	1.1	1	100.0	.5	1	100.0	4.2
Lebanon	4	75.0	2.0	4	75.0	1.7	4	100.0	2.2	4	100.0	2.1	1	100.0	4.2
Libya	13	46.2	3.9	13	38.5	2.9	13	61.5	4.3	13	46.2	3.1	--	--	--
Malaysia	3	33.3	.7	3	33.3	.6	3	100.0	1.6	3	33.3	.5	--	--	--
Morocco	22	50.0	7.2	22	59.1	7.5	22	50.0	5.9	21	57.1	6.2	1	100.0	4.2
Nigeria	56	53.6	19.7	56	64.3	20.7	56	58.9	17.7	55	58.2	16.6	4	50.0	8.3
Oman	5	0	0	5	0	0	5	0	0	4	0	0	1	0	0
Pakistan	33	42.4	9.2	33	45.5	8.6	33	45.5	8.1	33	57.6	9.8	1	0	0
P.D.R. of Yemen	1	100.0	.7	1	100.0	.6	1	100.0	.5	1	100.0	.5	--	--	--
Philippines	1	0	0	1	0	0	1	0	0	1	0	0	--	--	--
Qatar	1	0	0	1	0	0	1	0	0	1	0	0	--	--	--
Saudi Arabia	5	40.0	1.3	5	40.0	1.1	5	40.0	1.1	1	0	0	2	0	0
Senegal	1	0	0	1	0	0	1	0	0	1	0	0	--	--	--
Somalia	1	0	0	1	0	0	1	0	0	1	0	0	--	--	--
Sudan	11	54.5	3.9	11	45.5	2.9	11	45.5	2.7	11	72.7	4.1	--	--	--
Syria	19	21.1	2.6	19	47.4	5.2	19	47.4	4.8	19	47.4	4.7	5	80.0	16.7
Tanzania	1	100.0	.7	1	100.0	.6	1	100.0	.5	1	100.0	.5	--	--	--
Tunisia	4	50.0	1.3	4	50.0	1.1	4	50.0	1.1	4	50.0	1.0	--	--	--
Turkey	31	35.5	7.2	31	38.7	6.9	31	35.5	5.9	31	41.9	6.7	1	100.0	4.2
Uganda	3	0	0	3	0	0	3	33.3	.5	3	33.3	.5	--	--	--
U.A. Emirates	6	0	0	6	0	0	6	0	0	6	16.7	.5	--	--	--
Yemen	16	0	0	16	12.5	1.1	16	18.8	1.6	12	8.3	.5	1	0	0
Total	464	32.8	100.0	466	37.3	100.0	466	39.9	100.0	451	42.7	100.0	42	57.1	100.0

Reactions to Quality of Accommodations

The results for 1976 showed that 39.1 percent of the pilgrims complained about the quality of their accommodations, compared to 39.9 percent in 1977. The results also showed that in 1976, pilgrims from Nigeria, followed by pilgrims from Algeria and Sudan, had the most complaints, whereas in 1977, pilgrims from Nigeria, followed by those from Iraq, had the most complaints about the quality of accommodations. (See Tables 19 and 20.)

Reactions to Cost of Accommodations

In 1976, 46.5 percent of the pilgrims complained about rent per room, compared to 42.7 percent in 1977. The results showed that in 1976, pilgrims from Nigeria, followed by pilgrims from Iran, had the most complaints about rent. In 1977, pilgrims from Nigeria, followed by those from Iraq, had the most complaints.

Reactions to Cost of Transportation

About 82-83 percent of the pilgrims walked between their accommodations and the Holy Mosque. About 7.5-9.9 percent of the pilgrims rented private cars, and about 5.5-6.5 percent of the pilgrims used public transportation. (See Tables 11 and 12 and Figure 19.)

In 1976, 35.8 percent complained about transportation costs, compared to 57.1 percent in 1977. The reason for such an increase in the percentage of complaints in 1977 may have been related to the fact that the average locations for pilgrims were farther from the city center in 1977 than in 1976. In addition, in 1977, there were

restrictions on the use of pilgrims' vehicles in the center of the city, especially on trucks and buses. The results also showed that in 1976, pilgrims from Iran, followed by pilgrims from Egypt and Nigeria, had the most complaints about transportation costs. The results for 1977 showed that pilgrims from Iran, followed by those from Algeria and Syria, had the most complaints about transportation costs. (See Tables 19 and 20.)

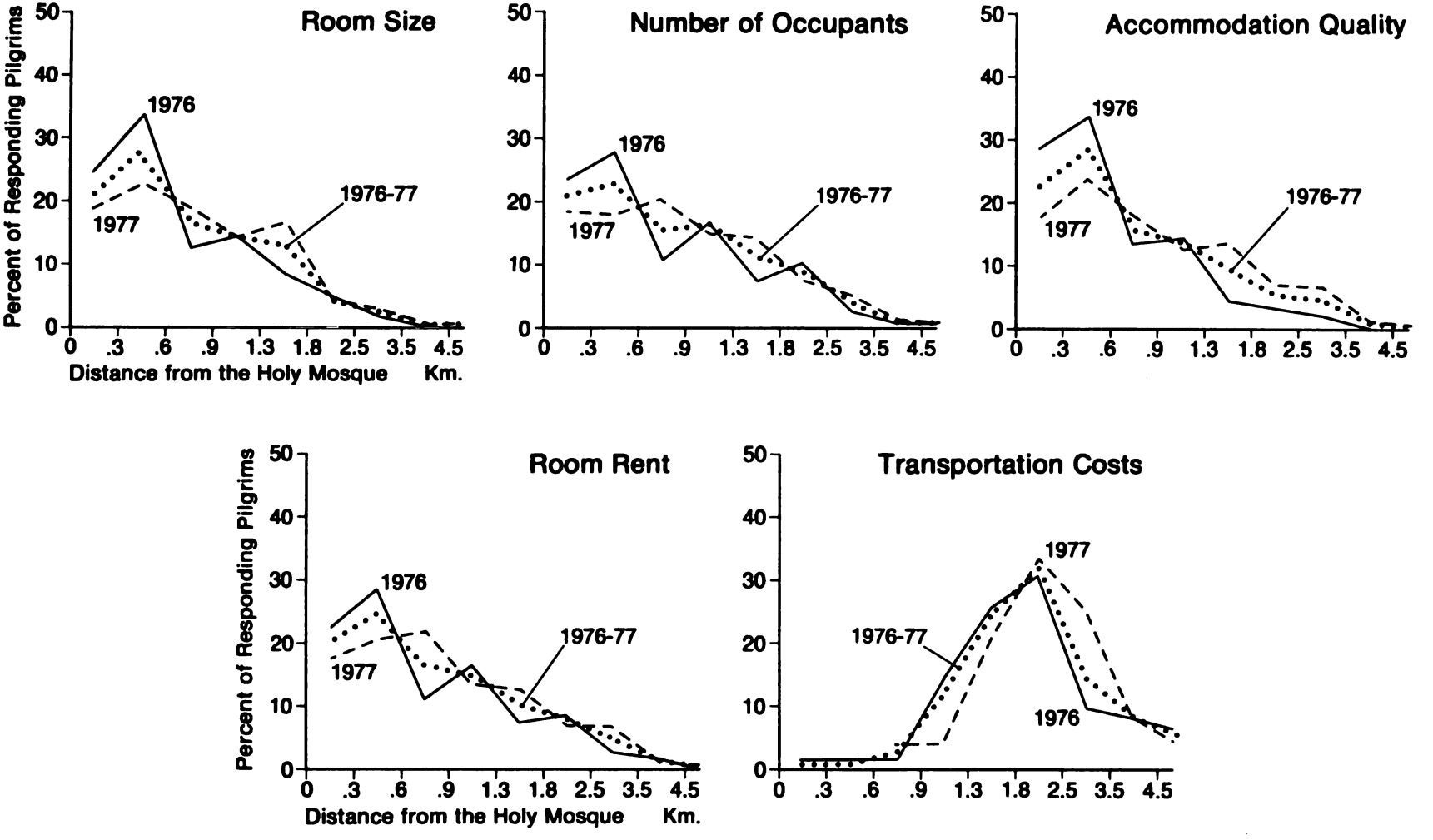
As noted before, pilgrims from Nigeria had the most complaints about all of the above issues (room size, occupant density, accommodation quality, and room rent). One explanation for this was that, in both 1976 and 1977, the pilgrims from Nigeria, even though they lived a farther distance than average from the Holy Mosque, stayed in rooms of below-average size and accommodation quality, and paid below-average rent. However, they stayed in rooms of below-average occupant density in 1976 and above-average occupant density in 1977.

Conclusion

As shown in Figure 19, the greatest number of complaints about room size, occupant density, accommodation quality, and rent per room came from pilgrims who stayed between 300 and 600 meters from the Holy Mosque. (See Tables 21-23.) These areas are within the older parts of the city and are characterized by older houses and the highest pilgrim density. Therefore, one would expect the highest number of complaints for each of the above issues from pilgrims staying in this area, especially since there was no control over the ways in which pilgrims were accommodated. The number of complaints rose

Fig. 19

Pilgrims' Complaints About Housing Conditions and Transportation Costs related to Distance from the Holy Mosque



again for all of the above housing conditions and, for 1976, reached a peak for those accommodations in the area within 1200 meters of the Holy Mosque and, for 1977, between 1300 and 1800 meters of the Holy Mosque. (See Figure 20.) The reason for such an increase was related to the fact that these areas were where pilgrims from Nigeria, Iraq, Egypt, Sudan, and Syria stayed, and these groups had the most complaints about their housing conditions.

In terms of reactions to the number of persons per room and room rent, the 1976 results showed a deep disturbance for these two variables, perhaps because in that particular year a high percentage of pilgrims rented their accommodations either directly or indirectly from the owners, who lived in various types of accommodations of various sizes and qualities. Pilgrims who rented their houses indirectly, either through brokers or through hamladárs, were accommodated by groups, regardless of the sizes of rooms, and they paid higher rent.

In 1977, the pattern for the aforementioned variables did not show such great disturbance. This may be due to the fact that the pilgrims tended to rent primarily from those who had had previous experience renting to pilgrims.

The results also showed that the area between 600 and 900 meters from the Holy Mosque had relatively the lowest number of complaints in 1976 and relatively the highest number of complaints in 1977 for both number of persons per room and room rent. This occurred because of the locations of the mutawifs, who in 1976 lost a

Table 21.--Reactions of pilgrims to housing conditions and transportation costs with respect to distance from the Holy Mosque, 1976.

Distance (Meters)	Room Size Complaint			Occup. Density Complaint			Accomm. Quality Complaint			Room Rent Complaint			Transp. Cost Complaint		
	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.
Up to 300	87	33.3	24.4	87	42.5	23.4	87	51.7	28.7	85	47.1	22.9	30	3.3	1.6
301- 600	96	41.7	33.6	96	45.8	27.8	96	55.2	33.8	95	52.6	28.6	32	3.1	1.6
601- 900	43	34.9	12.6	44	38.6	10.8	44	47.7	13.4	42	47.6	11.4	10	10.0	1.6
901-1300	57	29.8	14.3	58	44.8	16.5	58	39.7	14.6	54	53.7	16.6	22	40.9	14.5
1301-1800	36	27.8	8.4	36	33.3	7.6	36	19.4	4.5	29	44.8	7.4	21	76.2	25.8
1801-2500	48	12.5	5.0	49	32.7	10.1	49	10.2	3.2	44	34.1	8.6	32	59.4	30.6
2501-3500	20	10.0	1.7	20	20.0	2.5	20	15.0	1.9	18	27.8	2.9	15	40.0	9.7
3501-4500	8	0	0	8	12.5	.6	8	0	0	5	60.0	1.7	7	71.4	8.1
4501+	4	0	0	4	25.0	.6	4	0	0	4	0	0	4	100.0	6.5
Significance		.01			.253			.0001			.1638			.0001	
Chi-square		23.28			10.167			53.29			11.72			65.53	
df		8			8			8			8			8	

Table 22.--Reactions of pilgrims to housing conditions and transportation costs with respect to distance from the Holy Mosque, 1977.

Distance (Meters)	Room Size Complaint			Occup. Density Complaint			Accomm. Quality Complaint			Room Rent Complaint			Transp. Cost Complaint		
	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.
Up to 300	67	41.8	18.4	67	47.8	18.4	67	49.3	17.7	66	51.5	17.6	--	--	--
301- 600	101	33.7	22.4	101	30.7	17.8	101	43.6	23.7	99	40.4	20.7	--	--	--
601- 900	88	33.0	19.1	88	39.8	20.1	88	37.5	17.7	87	48.3	21.8	2	50.0	4.2
901-1300	62	33.9	13.8	62	41.9	14.9	62	37.1	12.4	61	42.6	13.5	2	50.0	4.2
1301-1800	47	53.2	16.4	48	52.1	14.4	48	52.1	13.4	45	53.3	12.4	7	71.4	20.8
1801-2500	34	20.6	4.6	35	37.1	7.5	35	37.1	7.0	32	40.6	6.7	11	72.7	33.3
2501-3500	33	18.2	3.9	33	27.3	5.2	33	36.4	6.5	31	35.5	5.7	16	37.5	25.0
3501-4500	16	6.3	.7	16	12.5	1.1	16	12.5	1.1	15	13.3	1.0	2	100.0	8.3
4501+	16	6.3	.7	16	6.3	.6	16	6.3	.5	16	6.3	.5	2	50.0	4.2
Significance		.001			.01			.05			.01			.443	
Chi-square		27.14			22.5			19.24			33.32			5.82	
df		8			8			8			16			6	

Table 23.--Reactions of pilgrims to housing conditions and transportation costs with respect to distance from the Holy Mosque, 1976 and 1977.

Distance (Meters)	Room Size Complaint			Occup. Density Complaint			Accomm. Quality Complaint			Room Rent Complaint			Transp. Cost Complaint		
	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.	N	% N	% Comp.
Up to 300	154	37.0	21.0	154	44.8	20.8	154	50.6	22.7	151	49.0	20.1	30	3.3	1.2
301-600	197	37.6	27.3	197	38.1	22.6	197	49.2	28.3	194	46.4	24.5	32	3.1	1.2
601-900	132	33.6	16.2	132	39.4	15.7	132	40.9	15.7	129	48.1	16.8	12	16.7	2.3
901-1300	119	31.9	14.0	120	43.3	15.7	120	38.3	13.4	115	47.8	14.9	24	41.7	11.6
1301-1800	83	42.2	12.9	84	44.0	11.1	84	38.1	9.3	74	50.0	10.1	28	75.0	24.4
1801-2500	82	15.9	4.8	84	34.5	8.7	84	21.4	5.2	76	36.8	7.6	43	62.8	31.4
2501-3500	53	15.1	3.0	53	24.5	3.9	53	28.3	4.4	49	32.7	4.3	31	38.7	14.0
3501-4500	24	4.2	.4	24	12.5	.9	24	8.3	.6	20	25.0	1.4	9	77.8	8.1
4501+	20	5.0	.4	20	10.0	.6	20	5.0	.3	20	5.0	.3	6	83.3	5.8
Significance		.0001			.01			.0001			.01			.0001	
Chi-square		40.79			23.59			50.04			33.58			71.35	
df		8			8			8			16			8	

considerable percentage of their pilgrims and regained them in 1977. (See Figure 19.)

The greatest increase in number of complaints about transportation costs came from pilgrims staying in an area between 1800 and 2500 meters from the Holy Mosque. This was true for 1976 and 1977 and for the combined results of both years. (See Figure 19.) Pilgrims from Iran, Iraq, and Syria lived within this area, and they had the highest number of complaints. Also, in this area, pilgrims found difficulty in getting a ride to the Holy Mosque because most public transportation comes from a greater distance and is full when it reaches this area. Therefore, pilgrims staying within this area either have to rent private cars or taxis or walk to the Holy Mosque, all of which are inconvenient. (See Tables 21 to 23.)

Pilgrims' Suggestions

Both pilgrims who complained as well as those who did not complain would have preferred better quality of accommodations and lower rent. The following discussion focuses on the suggestions pilgrims had about the present housing situation regarding size of room, occupant density, rent per room, and facility improvement. The above variables were statistically tested by one-way analysis of variance.

Preferred Room Size

The 1976 results showed that the average size of rooms that pilgrims preferred was 79.20 cubic meters compared to the actual average size of 47.13 cubic meters. The variations in the average size preferred by pilgrims from different countries were not significant

at any level. The F-ratio was .923, and the F-probability was .556.

The results showed that pilgrims from the African countries in general preferred the largest size room they could get, compared to preferences of pilgrims from East and Southeast Asia, whose preferred sizes were not much different from the actual sizes. Perhaps these preferences reflected the types of housing these pilgrims had in their own countries. (See Table 24.)

The 1977 results showed that the average size of rooms preferred by pilgrims was 116.5 cubic meters, compared to the actual average size of 57.8 cubic meters. The variations in the averages among all countries were not significant at any level. The F-ratio was 1.039, and the F-probability was .422. In general, pilgrims from African countries preferred much larger rooms than those preferred by pilgrims from other regions. (See Table 25.)

Preferred Occupant Density

The results showed that the average density preferred by pilgrims in 1976 was 4.6 persons per room compared to the average actual density of 6.88. The results for 1977 showed that the average preferred density was 5.03 persons per room compared to the average actual density of 7.55. The results for both the 1976 and 1977 surveys also showed that the higher the actual density was, the higher the preferred density. Neither result was significant at any level. (See Tables 26 and 27.)

Table 24.--Comparisons between actual and preferred room sizes, by countries, 1976.

Country	Actual Room Size	Preferred Room Size
	$\bar{X}$ 47.10	$\bar{X}$ 79.20
Afghanistan	62.31	98.00
Algeria	40.40	62.07
Bahrain	72.00	--
Bangladesh	27.80	--
Egypt	51.45	84.88
India	52.14	54.05
Indonesia	40.88	61.06
Iran	55.67	60.00
Iraq	55.05	76.50
Kenya	18.80	--
Lebanon	54.00	--
Libya	42.30	112.30
Mali	23.36	72.00
Mauritania	31.80	--
Morocco	55.16	43.70
Nigeria	39.65	88.36
Pakistan	40.85	56.36
Qatar	36.00	--
Senegal	54.03	--
Somalia	28.80	79.70
Sri Lanka	72.00	--
Sudan	44.71	87.84
Syria	42.40	67.62
Tanzania	54.90	75.60
Tunisia	48.25	86.10
Turkey	53.78	64.50
Uganda	18.10	52.50
U.A. Emirates	52.80	--
Yemen	41.16	93.40
F-ratio	1.49	.923
Significance	.056	.5568

Table 25.--Comparisons between actual and preferred room sizes, by countries, 1977.

Country	Actual Room Size	Preferred Room Size
	$\bar{X}$ 57.81	$\bar{X}$ 116.50
Afghanistan	54.98	82.10
Algeria	59.00	130.00
Bangladesh	66.10	--
Chad	53.66	--
Egypt	59.57	136.36
India	54.84	113.00
Indonesia	50.77	56.75
Iran	67.27	70.00
Iraq	68.74	130.66
Jordan	36.00	108.00
Lebanon	46.24	111.28
Libya	43.30	123.73
Malaysia	42.09	60.00
Morocco	54.29	98.03
Nigeria	50.09	99.98
Oman	46.56	--
Pakistan	53.82	159.71
P.D.R. of Yemen	105.56	240.00
Philippines	36.00	--
Qatar	71.40	--
Saudi Arabia	35.91	57.50
Senegal	36.00	--
Somalia	57.97	--
Sudan	42.69	96.97
Syria	60.67	216.75
Tanzania	32.25	150.00
Tunisia	82.93	126.00
Turkey	56.81	96.40
Uganda	69.00	--
U.A. Emirates	91.78	--
Yemen	49.53	--
F-ratio	.985	1.039
Significance	.4922	.4222

Table 26.--Comparisons between actual and preferred occupant density, by countries, 1976.

Country	Actual Occup. Density	Preferred Occup. Density
	$\bar{X}$ 6.88	$\bar{X}$ 4.63
Afghanistan	+10.00	-4.00
Algeria	- 6.73	-4.50
Bahrain	+11.00	--
Bangladesh	+ 8.00	+5.00
Egypt	+ 7.12	+5.29
India	- 5.82	-3.75
Indonesia	+ 7.11	-4.40
Iran	- 5.15	-3.80
Iraq	+ 7.83	+5.00
Kenya	- 2.00	--
Lebanon	- 5.00	--
Libya	- 5.80	-3.25
Mali	- 4.33	-3.00
Mauritania	- 3.00	--
Morocco	+ 7.00	-4.33
Nigeria	- 6.74	-4.25
Pakistan	- 6.57	-4.28
Qatar	- 4.00	--
Senegal	+ 8.66	+5.50
Somalia	+12.00	+8.00
Sri Lanka	+10.00	--
Sudan	+11.18	+5.28
Syria	- 6.37	-4.27
Tanzania	+ 7.50	+6.00
Tunisia	+ 7.77	-4.50
Turkey	+ 9.16	+7.22
Uganda	- 6.00	-3.00
U.A. Emirates	- 2.50	--
Yemen	+ 9.33	-4.71
F-ratio	3.398	1.533
Significance	.0001	.076

Table 27.--Comparisons between actual and preferred occupant density, by countries, 1977.

Country	Actual Occup. Density	Preferred Occup. Density
	$\bar{X}$ 7.55	$\bar{X}$ 5.03
Afghanistan	+ 8.90	+ 6.00
Algeria	+ 9.55	+ 5.76
Bangladesh	- 5.50	--
Chad	- 6.00	--
Egypt	+ 7.93	+ 7.50
India	+ 9.00	- 4.85
Indonesia	+ 7.65	- 4.50
Iran	- 5.47	- 4.00
Iraq	+ 8.27	+ 5.56
Jordan	- 5.00	- 4.00
Lebanon	- 7.25	- 4.00
Libya	- 6.15	- 3.66
Malaysia	- 4.33	- 4.00
Morocco	+ 8.00	- 4.35
Nigeria	+ 8.00	- 4.61
Oman	- 5.40	--
Pakistan	+ 7.96	+ 5.06
P.D.R. of Yemen	+14.00	+10.00
Philippines	- 2.00	--
Qatar	- 6.00	--
Saudi Arabia	- 7.40	- 3.50
Senegal	- 5.00	--
Somalia	+11.00	--
Sudan	- 6.81	- 4.80
Syria	- 7.21	- 4.11
Tanzania	+10.00	- 5.00
Tunisia	+12.25	+ 9.00
Turkey	+ 8.29	+ 5.07
Uganda	+ 8.00	--
U.A. Emirates	- 5.00	--
Yemen	+ 8.12	- 5.00
F-ratio	1.807	1.001
Significance	.01	.465

Preferred Room Rent

Pilgrims in 1976 would have preferred their average room rents to be 1581.21 instead of 2938.55 riyals. The variations in the preferred average room cost were significant at the .01 level. The F-ratio was 2.337. The results showed that pilgrims from East and Southeast Asia would have preferred their average rents to be, in general, 30 to 35 percent less than the actual average rent. Preferences of pilgrims from Africa ranged between 40 and 64 percent less than their actual average rents, with extreme preferred values for pilgrims from Mali and Mauritania. The preferred rents of the remaining pilgrims ranged between 20 and 50 percent less than the actual rents. (See Table 28.)

The 1977 results showed that pilgrims would have preferred their average room rents to be 1312 instead of 2597.1 riyals. The variations in the preferred average rents were not significant at any level. The results also showed that pilgrims from East and Southeast Asia would have preferred their average rents to be between 30 and 50 percent less. Pilgrims from Africa would have preferred their average room rents to be between 40 and 70 percent less than the actual rents, with extreme preferred values for pilgrims from Sudan and Tanzania. The preferred rents of the remaining pilgrims ranged between 60 and 80 percent less than the actual rents. Such pilgrims generally rented their accommodations, in both 1976 and 1977, from the hamladárs. (See Table 29.)

Table 28.--Comparisons between actual and preferred room rent, by countries, 1976.

Country	Actual Rent/Room	Preferred Rent/Room
	$\bar{X}$ 2930.50	$\bar{X}$ 1581.21
Afghanistan	-1885.75	-1249.67
Algeria	+3915.98	+2153.81
Bahrain	-2800.00	--
Bangladesh	-2399.95	+1599.85
Egypt	+3083.66	+2345.81
India	-2282.54	-1570.03
Indonesia	+3459.35	+2472.24
Iran	+3372.26	+2788.66
Iraq	-2187.61	- 887.50
Kenya	+7999.95	--
Libya	+4189.01	-1500.00
Mali	-1806.70	- 150.15
Mauritania	- 800.10	- 299.95
Morocco	+4008.25	+1966.59
Nigeria	-1632.05	- 497.58
Pakistan	+3420.93	-1375.06
Qatar	- 599.90	- 500.15
Senegal	-1566.71	+1999.90
Somalia	- 719.95	--
Sri Lanka	+6000.05	--
Sudan	-2100.84	-1013.34
Syria	-2064.27	-1358.05
Tanzania	-1689.97	- 199.85
Tunisia	+4203.50	+2393.73
Turkey	-2882.27	-1466.64
Uganda	-2399.95	- 999.95
U.A. Emirates	+15000.00	--
Yemen	-1099.96	- 516.60
F-ratio	5.196	2.337
Significance	.001	.01

Table 29.--Comparisons between actual and preferred room rent, by countries, 1977.

Country	Actual Rent/Room	Preferred Rent/Room
	$\bar{X}$ 2597.14	$\bar{X}$ 1312.04
Afghanistan	-1713.60	-1120.00
Algeria	+3711.11	2275.00
Bangladesh	- 530.00	- 250.00
Chad	+2400.00	--
Egypt	-3100.00	+1416.66
India	+4057.14	+1735.70
Indonesia	+3736.36	+1900.00
Iran	+2636.55	-1200.00
Iraq	-2276.47	-1122.30
Jordan	+3000.00	- 600.00
Lebanon	-2100.00	- 900.00
Libya	+6500.00	+3000.00
Malaysia	-2150.00	-1200.00
Morocco	-1860.00	- 500.00
Nigeria	-2141.87	- 941.00
Oman	-1800.00	--
Pakistan	+2766.52	+1333.33
P.D.R. of Yemen	--	--
Philippines	-1800.00	--
Saudi Arabia	-2000.00	--
Somalia	+3300.00	--
Sudan	+2625.00	- 506.66
Syria	-1992.50	- 383.33
Tanzania	+2600.00	- 500.00
Tunisia	+10000.00	+3000.00
Turkey	-2476.92	+2087.50
Uganda	-2400.00	--
U.A. Emirates	-2000.00	- 400.00
Yemen	-1040.00	--
F-ratio	2.934	1.674
Significance	.0001	.0587

Improvements in Facilities

The term "facilities" refers to bathroom, kitchen, and services as well as ambiance. Pilgrims were asked which of these facilities needed to be improved.

The results for 1976 showed that the average score for preferred improvement in accommodation facilities was 2.9. This means that almost three of the abovementioned facilities needed improvement. However, the variation in the averages of preferences of pilgrims from different countries was significant at the .0001 level; the F-ratio was 3.310. For example, the lower the quality of the pilgrims' present accommodations, the higher the score was for preferred improvement. Examples include pilgrims from Bangladesh, Somalia, and Uganda. The opposite was also true, however; the higher the present quality, the lower the score for preferred quality improvement. Examples include pilgrims from Iran, Kenya, Lebanon, Mauritania, and Morocco. (See Table 30.)

The 1977 results showed that the average score for preferred improvement in accommodation facilities was 4.43. The variations in the averages of preferences of pilgrims from different countries were significant at the .0001 level; the F-ratio was 2.713.

Those who lived in lower-quality accommodations were expected to have a higher score, and those with higher-quality accommodations were expected to have a lower score in preferred quality. This was not totally true, for pilgrims from Jordan and Lebanon had higher-quality

Table 30.--Comparisons between actual and preferred accommodation quality, by countries, 1976.

Country	Actual Quality	Preferred Quality
	$\bar{X}$ 5.25	$\bar{X}$ 2.90
Afghanistan	-3.66	-2.14
Algeria	-5.16	+3.96
Bahrain	+5.60	0
Bangladesh	-1.25	+13.00
Egypt	+5.47	-2.80
India	-3.97	+5.47
Indonesia	-4.82	+3.55
Iran	+6.91	- .29
Iraq	-4.11	-1.75
Kenya	+8.12	0
Lebanon	+6.25	0
Libya	+5.62	+3.48
Mali	-4.37	+3.00
Mauritania	+8.12	0
Morocco	+5.65	-2.80
Nigeria	-5.02	+3.38
Pakistan	-5.23	-2.28
Qatar	+5.62	+6.00
Senegal	-3.54	+3.00
Somalia	-1.87	+10.00
Sri Lanka	-5.00	0
Sudan	-3.75	+5.30
Syria	-5.04	+3.11
Tanzania	+5.93	+4.50
Tunisia	-5.00	+7.00
Turkey	-5.13	-2.10
Uganda	-1.25	+13.00
U.A. Emirates	+8.12	0
Yemen	-2.98	+3.10
F-ratio	7.399	3.31
Significance	.0001	.0001

accommodations but asked for more improvements. Perhaps this was because, even though the above facilities existed in their accommodations, the efficiency of the facilities was very low, as shown in complaints about quality. (See Table 31.)

Conclusion

As discussed above, in both the 1976 and 1977 surveys there were noticeable differences between the characteristics of the present accommodations and the preferred characteristics suggested by the pilgrims. An example was occupant density, for which the average for both 1976 and 1977 was 7.24 persons per room, whereas the preference was for 4.85 persons per room. In regard to room size, there was a divergence between the existing average size (52.9 square meters) and the preferred average size (100.78 square meters). More important was the rent per room. This particular example gives an idea about how commerce operates in most third-world cities. Bargaining is important. In the case of pilgrimage businesses, both the pilgrims and those who deal with them try to maximize their profits. In the case of housing, some of the four types of rental agents attempt to realize the most from the pilgrims. For most pilgrims in this study, the amount they paid was the least they could negotiate. However, when they had the opportunity to reevaluate their accommodation costs and other housing characteristics, they suggested what would best benefit them. If the rental agents were questioned, quite a different recommendation would be found. However, when owners as well as renters were asked about what they considered to be reasonable prices for

Table 31.--Comparisons between actual and preferred accommodation quality, by countries, 1977.

Country	Actual Quality	Preferred Quality
	$\bar{X}$ 6.69	$\bar{X}$ 4.43
Afghanistan	-6.57	+ 4.45
Algeria	-6.28	+ 6.72
Bangladesh	-5.38	- 3.50
Chad	-6.15	0
Egypt	+6.87	- 3.31
India	-5.61	+ 6.40
Indonesia	-5.28	+ 4.65
Iran	+8.03	- .63
Iraq	+6.88	+ 5.27
Jordan	-4.61	+10.00
Lebanon	+7.11	+11.00
Libya	-6.62	+ 6.07
Malaysia	-6.41	+ 7.66
Morocco	-6.32	+ 6.09
Nigeria	-6.20	+ 6.69
Oman	+7.38	0
Pakistan	-6.40	+ 5.45
P.D.R. of Yemen	-3.08	+12.00
Philippines	-7.69	0
Qatar	-4.62	0
Saudi Arabia	-3.54	+ 6.40
Senegal	+6.92	0
Somalia	-6.15	0
Sudan	-5.66	+ 5.00
Syria	+7.08	+ 5.47
Tanzania	-5.38	+11.00
Tunisia	-6.34	+ 5.00
Turkey	+7.22	- 3.87
Uganda	+7.94	- 3.66
U.A. Emirates	+7.53	0
Yemen	-5.74	- 2.06
F-ratio	4.31	2.71
Significance	.0001	.0001

their accommodations, their average responses fell between 2039.5 and 1454.7 riyals per room for all residents who were willing to rent their houses, as discussed in the previous section.

In view of available data, the investigator believes that a field-work housing evaluation should be made, based on actual and preferred housing characteristics. To facilitate such an investigation, the city of Mecca would be divided into sections based on their average distance from the Holy Mosque. Each section would be divided into a 300-meter radius from the Holy Mosque. The radius would increase as distance increased from the Holy Mosque. The average of both present and preferred occupant density, accommodation quality, size, and rent would be the basis for reevaluating the housing conditions. Individual housing units would then be evaluated, based on the available initial information. (See Tables 32 through 35.)

Size of accommodations was also an interesting variable. However, because it is not possible to change the existing size, size was used as a guide to evaluate and differentiate between available accommodations.

As shown in Figure 20, size generally increased with increasing distance from the Holy Mosque. However, in the area surrounding the Holy Mosque, where a considerable number of new apartment buildings were found, room size was greater; as one moved farther away, size decreased. The area between 300 and 600 meters from the Holy Mosque (the core of the city) had a high percentage of older houses; therefore (as shown in Figure 20), the quality of the accommodations as well as rent cost was generally lower. Accommodations in this

Table 32.--Comparisons between actual and preferred accommodation quality with respect to distance from the Holy Mosque, 1976 and 1977.

Distance (Meters)	Actual Quality	Preferred Quality
	$\bar{X}$ 6.01	$\bar{X}$ 3.72
Up to 300	5.62	4.53
301- 600	5.52	4.73
601- 900	5.90	4.15
901-1300	6.20	3.50
1301-1800	6.40	3.94
1801-2500	6.02	1.83
2501-3500	6.70	2.49
3501-4500	7.58	.58
4501+	8.14	.35
F-ratio	9.54	5.68
Significance	.0001	.0001

Table 33.--Comparisons between actual, preferred, and recommended rent with respect to distance from the Holy Mosque, 1976 and 1977.

Distance (Meters)	Actual Rent	Preferred Rent	Recommended Rent
	$\bar{X}$ 2820.24	$\bar{X}$ 1487.93	$\bar{X}$ 1545.92
Up to 300	4051.19	2012.90	1969.64
301- 600	3086.26	1361.15	1544.97
601- 900	2472.12	1368.70	1423.12
901-1300	2381.22	1323.30	1415.16
1301-1800	1761.70	880.30	1127.45
1801-2500	2361.75	2071.78	1412.62
2501-3500	1966.24	1147.53	1874.35
3501-4500	2269.96	1466.62	982.97
4501+	2479.99	1487.80	1399.96
F-ratio	8.46	2.63	1.80
Significance	.0001	.05	.07

Table 34.--Comparisons between actual, preferred, and recommended room size with respect to distance from the Holy Mosque, 1976 and 1977.

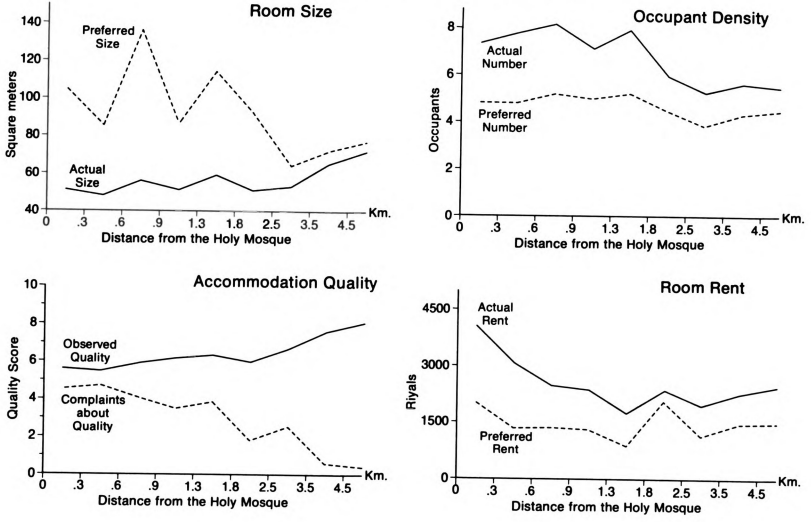
Distance (Meters)	Actual Room Size	Preferred Room Size	Recommended Room Size
	$\bar{X}$ 52.89	$\bar{X}$ 100.78	$\bar{X}$ 66.26
Up to 300	50.79	104.79	64.58
301- 600	48.20	85.10	64.25
601- 900	56.53	136.10	73.20
901-1300	51.22	86.34	63.75
1301-1800	58.80	114.30	76.80
1801-2500	50.87	92.30	54.56
2501-3500	52.56	64.62	66.87
3501-4500	64.63	72.00	66.13
4501+	71.64	77.00	71.64
F-ratio	2.40	2.38	1.40
Significance	.05	.05	.1919

Table 35.--Comparisons between actual, preferred, and recommended occupant density with respect to distance from the Holy Mosque, 1976 and 1977.

Distance (Meters)	Actual Occup. Density	Preferred Occup. Density	Recommended Occup. Density
	$\bar{X}$ 7.24	$\bar{X}$ 4.85	$\bar{X}$ 4.80
Up to 300	7.33	4.77	4.87
301- 600	7.80	4.75	4.73
601- 900	8.20	5.20	5.25
901-1300	7.10	4.98	4.99
1301-1800	7.92	5.20	5.02
1801-2500	5.98	4.51	4.20
2501-3500	5.22	3.77	4.05
3501-4500	5.62	4.33	4.87
4501+	5.55	4.50	4.55
F-ratio	5.70	.644	2.50
Significance	.0001	.7403	.05

Fig. 20

Actual and Preferred Housing Characteristics Related to Distance from the Holy Mosque



area received the greatest number of complaints about facilities. (See Figure 19.)

Size of room and occupant density dropped in the area 1200 meters from the Holy Mosque, whereas rent showed a small peak increase. In this area, the number of new houses had begun to surpass the number of older ones. There was a mixture of apartment buildings and traditional housing units. Renters as well as owners rented their houses directly or indirectly to the pilgrims.

In the area between 1300 and 1800 meters from the Holy Mosque, room size and number of persons per room reached their peak. In this area there were accommodations for pilgrims from within Saudi Arabia as well as for pilgrims of hamladárs, primarily the non-Iranian hamladárs, such as those from Iraq, Arabian Gulf countries, and some from African and Asian countries. However, because this location was relatively far from the Holy Mosque, rents were relatively low.

As one moved farther away than the above location, size, quality of accommodation, and rent per room were higher, whereas number of persons per room was generally lower. In these farther areas, especially the area in the northeast part of the city, were accommodations for pilgrims from Iran and wealthy Arab oil countries.

Pilgrims' Recommendations

This section focuses on future locations and planning for new pilgrim accommodations. The pilgrims were given the chance to make suggestions about the locations, size, occupant density, and cost of

future accommodations. They were also asked about their movements and activities in the city of Mecca. The pilgrims' recommendations were tested from the merge-files data. Cross-tabulation and one-way analysis of variance were used to test the above variables.

Recommendations for Location of Future Accommodations[1]

When pilgrims were asked whether they preferred to live farther from the Holy Mosque than their present locations in order to have better-quality accommodations at reasonable prices, 58.2 percent answered that they would prefer not to move. (See Table 36.) However, for the following countries, 50 percent or more of the pilgrims were willing to move farther away: Egypt, Iran, Iraq, Jordan, Lebanon, P.D.R. of Yemen, Philippines, Qatar, Saudi Arabia, and Tanzania. However, the Egyptian and Tanzanian pilgrims would have moved farther away if they could have cheaper, lower-density accommodations. Jordanian and Iranian pilgrims would have moved farther away if they could have cheaper accommodations. The Yemeni and Iraqi pilgrims would have moved farther away if they could have lower-density accommodations. Pilgrims from Lebanon, the Philippines, and Qatar would have moved farther away if they could have better accommodation conditions. This was also true for Saudi Arabian pilgrims. (See Tables 26 through 28.)

Based on the present locations of the accommodations of the above pilgrims and testing their reactions, the following became

---

[1] 1977 data.

Table 36.--Reactions of pilgrims to location of future accommodations in relation to the Holy Mosque, by countries, 1977.

Country	N	Yes		No	
		% N	% Yes	% N	% No
Afghanistan	11	27.3	1.5	72.7	3.0
Algeria	29	41.4	6.2	58.6	6.3
Bangladesh	2	--	--	100.0	.7
Chad	2	--	--	100.0	.7
Egypt	29	55.2	8.2	44.8	4.8
India	10	40.0	2.1	60.0	2.2
Indonesia	23	26.1	3.1	73.9	6.3
Iran	74	68.9	26.2	31.1	8.5
Iraq	47	57.4	13.8	42.6	7.4
Jordan	2	50.0	.5	50.0	.4
Lebanon	4	75.0	1.5	25.0	.4
Libya	13	23.1	1.5	76.9	3.7
Malaysia	3	33.3	.5	66.7	.7
Morocco	22	45.5	5.1	54.5	4.4
Nigeria	56	25.0	7.2	75.0	15.5
Oman	5	40.0	1.0	60.0	1.1
Pakistan	33	36.4	6.2	63.6	7.7
P.D.R. of Yemen	1	100.0	.5	--	--
Philippines	1	100.0	.5	--	--
Qatar	1	100.0	.5	--	--
Saudi Arabia	5	60.0	1.5	40.0	.7
Senegal	1	--	--	100.0	.4
Somalia	1	--	--	100.0	.4
Sudan	11	9.1	.5	90.9	3.7
Syria	19	47.4	4.6	52.6	3.7
Tanzania	1	100.0	.5	--	--
Tunisia	4	25.0	.5	75.0	1.1
Turkey	31	25.8	4.1	74.2	8.5
Uganda	3	--	--	100.0	1.1
U.A. Emirates	6	33.3	1.0	66.7	1.5
Yemen	16	12.5	1.0	87.5	5.0
Total	466	41.8	100.0	58.2	100.0
Chi-square	70.7				
Significance	.001				
df	30				

apparent: 37.3 percent of those who lived within 300 meters of the Holy Mosque would not have minded living farther away. Only 34.7 percent of those who lived within 301-600 meters would not have minded living farther away. Of those who lived within 601-900 meters, 35.2 percent were willing to live farther away. Of those who lived within 901-1300 meters, 51.6 percent were willing to move farther away. However, 35.4, 25.7, 54.5, 81.3, and 93.8 percent of the pilgrims who lived within 1301-1800, 1801-2500, 2501-3500, 3501-4500, and more than 4500 meters, respectively, were willing to move. The farther pilgrims already lived from the Holy Mosque, the more willing they were to live farther away. (See Table 37.) In general, 58.2 percent of all pilgrims were not willing to move farther than their present locations. The remaining 41.8 percent were willing to move.

In conclusion,

1. Of the pilgrims who lived within a 15-minute walking distance from the Holy Mosque, 80.3 percent wanted to live in the same location, whereas 18.5 percent would not have minded living 30 minutes away. Only 1.2 percent would have moved to a 45-minute distance from the Holy Mosque.

2. Of the pilgrims who lived at a 30-minute walk from the Holy Mosque, 41.2 percent wanted to be in the same location, whereas 48.3 percent of those who lived within a 30-minute walking distance would have liked to be closer, at a 15-minute distance. Only 8.8 percent of those who lived within a 30-minute walk were willing to live at a 45-minute distance from the Holy Mosque.

Table 37.--Reactions of pilgrims to location of future accommodations in relation to the Holy Mosque, by distance, 1977.

Distance (Meters)	N	Yes		No	
		% N	% Yes	% N	% No
Up to 300	67	37.3	12.8	62.7	15.5
301- 600	101	34.7	17.9	65.3	24.4
601- 900	88	35.2	15.9	64.8	21.0
901-1300	62	51.6	16.4	48.4	11.1
1301-1800	48	35.4	8.7	64.6	11.4
1801-2500	35	25.7	4.6	74.3	9.6
2501-3500	33	54.5	9.2	45.5	5.5
3501-4500	16	81.3	6.7	18.8	1.1
4500+	16	93.8	7.7	6.3	.4
Total	466	41.8	100.0	58.2	100.0
Chi square	41.39				
Significance	.0001				
df	8				

3. Of the pilgrims who lived within a 45-minute walk from the Holy Mosque, 22.9 percent wanted to be in the same location, whereas only 2.9 percent were willing to live at a 60-minute distance from the Holy Mosque. However, 22.9 percent of the pilgrims who lived within a 45-minute walk would have liked to be closer, at a 30-minute distance, whereas 51.4 percent of the pilgrims who lived within a 45-minute walk would have liked to be closer, at a 15-minute distance from the Holy Mosque.

4. Of those who lived within a 60-minute walk from the Holy Mosque, 10.0 percent would have liked to be at a 45-minute distance; the remaining 90 percent would have liked to be closer, at a 15-minute distance from the Holy Mosque.

Recommended Housing Characteristics

The following discussion focuses on pilgrims' recommendations regarding size, occupant density, and rent. The above variables were tested with respect to national origin of the pilgrims as well as to distance of their accommodations from the Holy Mosque. Analyses of variance were used.

Recommended room size.--One-way analysis of variance showed significant variations in the averages of recommended room size among groups of pilgrims from different countries. The F-ratio equaled 2.94; it was significant at the .0001 level.

The average recommended room size for both the 1976 and 1977 surveys was 66.3 square meters. The results showed that pilgrims from East and Southeast Asia as well as pilgrims from African countries

generally recommended rooms of below-average size. Pilgrims from the remaining countries, in general, recommended above-average-size accommodations.

In general, all pilgrims wanted larger rooms than their present averages. However, some recommended much larger sizes. Thus, the total average was much higher than the present size. Therefore, the recommended averages of pilgrims from some countries, even though they were higher than their present averages, fell below the recommended average. The same phenomenon occurred with room rent. Some pilgrims recommended such a low average rent that it made it appear as if other pilgrims recommended rent higher than their actual rent, which was not true. (See Table 38.)

Recommended occupant density.--The results showed significant variations in the average recommended occupant density with respect to countries. The F-ratio was 1.55; it was significant at the .05 level. The average recommended density was 4.8 persons per room. The results showed that pilgrims from East and Southeast Asia generally recommended fewer persons per room. The same result held true for pilgrims from African countries, whereas the average densities recommended by pilgrims from the reamining countries were split--50 percent above and 50 percent below average. (See Table 38.)

Recommended room cost.--The recommended room cost was 1548.2 riyals. The results showed significant variations in the average recommended room rent. The F-ratio was 3.06; it was significant at the .001 level. The results also showed that the majority of the

Table 38.--Housing characteristics recommended by pilgrims, 1976 and 1977.

Country	Recommended Room Size	Recommended Occup. Density	Recommended Room Cost
	$\bar{X}$ 66.30	$\bar{X}$ 4.81	$\bar{X}$ 1548.26
Afghanistan	+71.40	+5.94	-1231.33
Algeria	-65.50	+5.13	+1799.39
Bahrain	+144.00	-4.00	- 500.15
Bangladesh	-53.33	-4.33	- 599.97
Chad	-53.66	-4.00	-1000.00
Egypt	-64.14	+5.58	-1261.76
India	+69.56	-4.03	-1258.59
Indonesia	-55.21	+4.97	+2242.57
Iran	+68.70	-4.70	+2271.70
Iraq	+76.88	+4.80	-1410.73
Jordan	+72.00	-4.50	- 600.00
Kenya	-18.80	-2.00	+4000.15
Lebanon	-54.59	-4.40	- 900.00
Libya	-58.43	-4.54	+1724.12
Malaysia	-56.09	-3.00	+1500.00
Mali	-30.03	-2.66	- 149.97
Morocco	-65.29	-4.67	+2454.74
Nigeria	-62.14	-4.38	- 691.89
Oman	-52.16	-4.00	+2050.00
Pakistan	-59.67	+4.90	+1831.18
P.D.R. of Yemen	+105.56	+10.00	--
Philippines	-36.00	-4.00	+1800.00
Qatar	+375.00	+5.00	- 500.15
Saudi Arabia	-37.91	+5.80	+1100.00
Senegal	-49.55	+5.50	- 666.76
Somalia	+68.83	+7.00	+1549.92
Sudan	-66.23	-4.70	- 801.90
Syria	-61.46	-4.39	- 840.78
Tanzania	+70.33	-4.00	- 383.32
Tunisia	+85.51	+5.38	+2319.99
Turkey	+71.88	+5.62	+1717.93
Uganda	-64.87	+5.25	- 649.97
U.A. Emirates	+82.03	-3.50	+4350.00
Yemen	+69.31	+5.00	- 723.07
F-ratio	2.94	1.55	3.06
Significance	.0001	.05	.001

Key: + = above average; - = below average.

countries within each of the above regions recommended less-than-average rent per room. (See Table 38.)

It is the writer's belief that before the authorities make any final decision about future accommodations, they should take into account the present situation as well as the recommendations of each group of pilgrims, with special consideration given to the capacity and availability of services within the city. Residents who deal with pilgrims should be encouraged to be involved in any future pilgrim planning. Pilgrims should be advised how to obtain high-quality services with less effort and cost.

Pilgrims' Recommendations Concerning Activities and Movements

The following discussion examines the recommended activities and movements of the pilgrims, such as recommended travel time to and from the Holy Mosque, recommended transportation costs, recommended visits to the Holy Mosque, and recommended duration of stay in Mecca. (See Table 39.) The preceding variables were analyzed by one-way analysis of variance.

Recommended travel time.--Pilgrims recommended that the average total travel time to the Holy Mosque be 19.39 minutes. Variations among pilgrims for the above average were significant at the .0001 level; the F-ratio was 2.609. As shown in Table 39, about 48 percent of the pilgrims from different nationalities recommended that locations of their future accommodations be farther than 19.3 minutes' walk from the Holy Mosque.

Table 39.--Activities and movements recommended by pilgrims, 1976 and 1977.

Country	Recommended Travel Time	Recommended Transp. Costs	Recommended Mosque Visits	Recommended Duration of Stay
	$\bar{X}$ 19.39	$\bar{X}$ 2.02	$\bar{X}$ 4.52	$\bar{X}$ 23.66
Afghanistan	+25.27	- 1.00	+4.94	+32.00
Algeria	+20.00	- 1.47	+4.81	+28.96
Bahrain	+30.00	+ 3.01	+5.00	--
Bangladesh	+25.00	--	-4.33	+38.50
Chad	-15.00	--	+5.50	+26.00
Egypt	-17.59	- 1.33	+4.66	+27.06
India	-13.70	- 1.67	+4.81	+42.30
Indonesia	-13.90	+ 3.00	+4.95	+34.21
Iran	+21.86	+ 2.16	-3.44	-16.50
Iraq	+22.54	+ 2.44	+4.98	-18.15
Jordan	+22.50	+10.00	+5.00	- 7.00
Kenya	-10.00	--	+5.00	--
Lebanon	+24.00	+ 3.26	-4.20	- 7.87
Libya	-15.00	- 1.84	+4.97	+39.23
Malaysia	+25.00	- 1.00	+5.00	+39.66
Mali	+25.00	- 1.50	-3.66	--
Mauritania	-15.00	- 1.01	-3.00	--
Morocco	-17.37	- 1.43	+4.75	-19.29
Nigeria	-18.77	- 1.68	+4.89	-18.95
Oman	+27.00	+ 3.66	-3.80	-22.40
Pakistan	-17.87	- 1.72	+5.01	+32.33
P.D.R. of Yemen	-15.00	- 1.00	+5.00	-15.00
Philippines	+30.00	- 1.00	+5.00	-12.00
Qatar	-15.00	--	+5.00	-10.00
Saudi Arabia	+39.00	+ 2.66	+4.80	-16.50
Senegal	-16.25	- 2.01	-4.00	+30.00
Somalia	+20.00	--	+7.50	+30.00
Sudan	-19.09	- 1.17	-4.45	+24.90
Syria	+19.78	+ 2.65	-4.21	+26.29
Tanzania	-16.66	- 1.00	-3.33	-10.00
Tunisia	-17.30	+ 2.72	-4.23	+32.00
Turkey	+20.92	+ 2.92	+4.53	+32.83
Uganda	-15.00	- 1.50	+6.25	-15.00
U.A. Emirates	+21.87	- 1.50	-4.43	-18.00
Yemen	-17.40	- 1.25	-4.16	-18.62
F-ratio	2.609	1.641	4.637	3.749
Significance	.0001	.05	.0001	.0001

Key: + = above average; - = below average.

Recommended transportation costs.--The test results showed that a significant relationship existed in the variation of the pilgrims' average recommended transportation costs. The F-probability was 1.6; it was significant at the .05 level. The total average was 2 riyals instead of the present transportation cost average of 7.6 riyals. (See Table 39.)

Pilgrims who paid average or above-average transportation cost were those who lived farther than average from the Holy Mosque, except pilgrims from Bahrain, Indonesia, and Somalia, who lived in accommodations of below-average distance from the Holy Mosque.

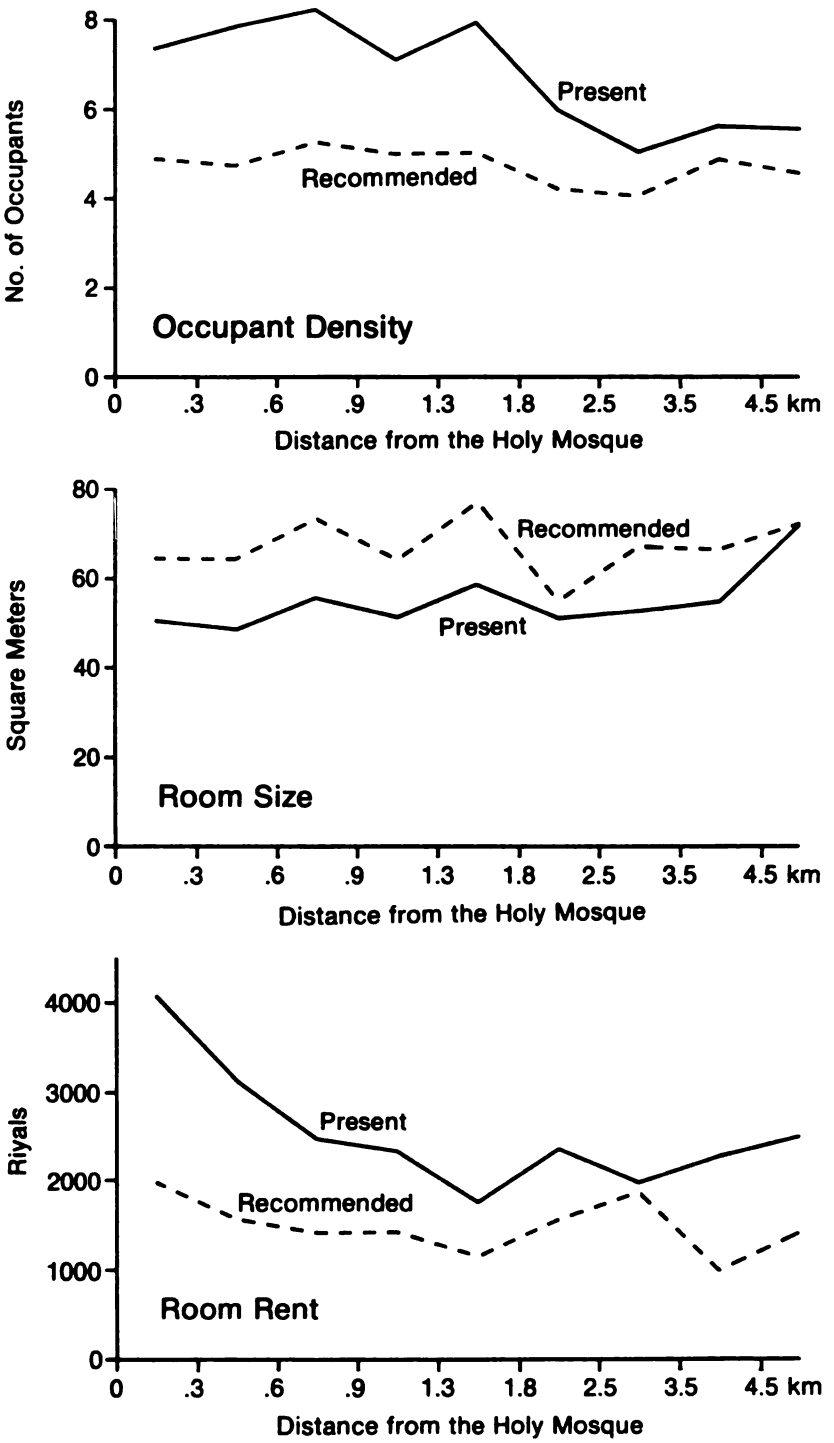
Recommended number of visits to the Holy Mosque.--The average number of recommended visits to the Holy Mosque was 4.5 per day. The variation in the average number of recommended visits was significant at the .0001 level; the F-ratio was 4.6.

Duration of stay.--The average recommended duration of stay in Mecca was 23.66 days instead of the 18.56 days actually spent in 1976 and 1977. The variations among pilgrims in the above averages were significant at the .0001 level. The F-ratio was 3.749.

It becomes clear from the characteristics discussed in the preceding sections that the accommodations recommended by the pilgrims for their stays in Mecca were very different from the actual ones. These recommendations were directly affected by the characteristics of the pilgrims' housing, including distance of housing from the Holy Mosque. In general, the divergence between the recommended and actual housing characteristics is lessening, especially for accommodations at a greater distance from the Holy Mosque. However, room

Fig. 21

Comparisons between Actual and Recommended Occupant Density, Room Size, and Room Cost with Respect to Distance from the Holy Mosque, 1976 and 1977



rent is increasing on the outskirts of the city, as discussed earlier. (See Figure 21.)

Conclusion

The pilgrims' recommendations do not encourage moving pilgrims from their present accommodations unless there are some strong attractions such as better-quality living and appropriate means of transportation. However, it might be noted that improvements in living conditions need not exceed such averages as occupant density of 4.8 persons per room of average size of 66.3 cubic meters. The cost, based on this occupant density and size, should be determined by the quality of the accommodation and its proximity to the Holy Mosque. It is important to note that the recommended average room rent is 1545 riyals for a stay of 23 days. This is a very low rent for the pilgrimage season, and it is much lower if it is divided by the number of occupants living in the room. For instance, if five people are in the room, the cost for each is 13 riyals or $4.00 per day.

CHAPTER VI

PRINCIPAL FINDINGS

This chapter focuses on testing the research hypotheses related to the pilgrims. The hypotheses are discussed in three sections: (1) pilgrims' characteristics and costs, (2) characteristics of rental agents, and (3) housing characteristics and costs. Following the statement of each hypothesis is the result of the analysis performed on the data gathered to test that hypothesis. The data were analyzed by the Pearson correlation coefficient and multiple linear regression. The dependent variables rent cost and occupant density were transformed to the square root for rent and log for occupant density.

Pilgrims' Characteristics and Costs

The characteristics of both pilgrims and rental agents were analyzed using the Pearson correlation and saturated[1] multiple linear regression.

Pilgrims' Characteristics

Significant variations exist in the decisions of pilgrims to stay farther from their present locations on subsequent pilgrimages.

---

[1]This technique was used to determine the hierarchical effect of the independent variables with dummy variables on the dependent variables.

The chi-square test result was 70.7; it was significant at the .001 level. Therefore, the hypothesis was not rejected. (See Table 36.) The result also showed that 58.2 percent of the pilgrims were not willing to stay farther from the Holy Mosque on subsequent visits. In general, the farther away pilgrims already stayed from the Holy Mosque, the more willing they were to stay farther on subsequent visits.

No significant correlations exist between the age of the pilgrims and each of the following: frequency of their visits to the Holy Mosque, travel time between their accommodations and the Holy Mosque, and their five daily prayers being performed in the Holy Mosque.

As the age of the pilgrims increased, their travel time to the Holy Mosque, their daily visits to the Holy Mosque, and their daily prayers in the Holy Mosque decreased. These relationships were very low and were not significant at any level. (See Table 40.) Therefore, the hypothesis was not rejected.

No significant correlation exists between the pilgrims' performing the five daily prayers in the Holy Mosque and their travel time between their accommodations and the Holy Mosque.

As the pilgrims' travel time to the Holy Mosque increased, there was a significant low decrease in their performance of the five daily prayers in the Holy Mosque. Therefore, the hypothesis was rejected.

Table 40.--Pilgrim and housing characteristics: Results of Pearson correlation coefficient.

Variables	Distance	Accommodation Quality	Room Cost	Occup. Density	Room Size	Age	Duration of Stay	Travel Time	Frequency of Mosque Visits	Number of Prayers	Elevation	Mutawifs	Hamladárs	Owners	Renters
Distance	--	.26*	-.23*	-.17*	.10*	-.06***	-.22*	.42*	-.45*	-.46*	-.06***	-.35*	.46*	-.03	.01
Accom. quality		--	.16*	-.19*	.14*	-.05	-.13*	.10**	-.18*	-.21*	.05***	-.10*	.29*	-.12*	-.08**
Room cost			--	.20*	.23*	.15*	.05	-.17*	.15*	.09**	.005	.13*	.09***	-.17*	-.12*
Occup. density				--	.53*	.03	.00	-.03	.12*	.11*	.04*	.16*	-.16	-.02	-.02
Room size					--	-.04	-.06***	-.02	-.05	-.07***	-.099**	.006	.12*	-.11*	-.05
Age						--	-.03	-.02	-.02	-.01	-.06	.10*	.03	-.13*	-.04
Duration of stay							--	-.15*	.23*	.23*	.08**	.05***	-.13*	.04	.02
Travel time								--	-.33*	-.28*	-.17*	-.09**	.03	.01	.13*
Frequency of Mosque visits									--	.71*	.10	.18	-.19	-.02	-.01
Number of prayers										--	.06***	.22*	-.30*	.008	.02
Elevation											--	-.09**	.22*	-.05	-.08**
Mutawifs												--	-.54*	-.55*	-.22*
Hamladárs													--	-.26*	-.11*
Owners														--	-.11*
Renters															--

*Significant at the .001 level.

**Significant at the .01 level.

***Significant at the .05 level.

Significant negative correlations exist between frequency of visits to the Holy Mosque and both travel time and distance of accommodations from the Holy Mosque.

The results showed that as travel time and distance from the Holy Mosque increased, the number of daily visits to the Holy Mosque by pilgrims decreased. Such relationships were moderate and significant at the .001 level. Therefore, the hypothesis was not rejected at the .05 level.

Travel time affected the daily visits to the Holy Mosque more than the number of daily prayers that were performed in the Holy Mosque since those who lived farther away were more concerned with performing the prayers. The correlation was -.33 for the former and -.28 for the latter.

The age of pilgrims was negatively related to accommodation quality, room size, and duration of stay in Mecca. These relationships were not significant at any level. The age of pilgrims had a low, significant, positive relationship with rent and a very low, not significant, positive relationship with occupant density.

The above results indicated the following:

1. Older pilgrims lived within a relatively shorter distance from the Holy Mosque in smaller-sized rooms with relatively lower-quality accommodations, and paid relatively higher rent.

2. Older pilgrims, because they lived within a shorter distance, spent less time travelling to the Holy Mosque. Since they made fewer visits to the Holy Mosque, they performed fewer daily prayers.

3. Older pilgrims recommended fewer daily visits to the Holy Mosque and performing fewer prayers in the Holy Mosque in the future.

4. Those older pilgrims who lived farther away and spent more time in reaching the Holy Mosque made fewer daily visits and performed fewer daily prayers in the Holy Mosque.

These four points indicated that older pilgrims suffered from their housing conditions. However, if the present situation in the city center is not improved, it is important to encourage, control, and arrange for the pilgrims to live relatively farther away than their present locations but to provide appropriate means of transportation for the elderly.

Significant variations exist among groups of pilgrims from various countries with respect to rent and occupant density in accommodations.

The analysis of variance showed significant variations existing among pilgrims with respect to rent per room. The F-ratio was 4.096; it was significant at the .001 level. The hypothesis was not rejected. (See Table 6.)

To determine the effect of country of origin on the rent of each room, multiple linear regression was used. All the countries included in the sample were used, and they yielded a coefficient of multiple correlation r about 44.6 percent, which statistically accounted for 19.9 percent of the total variations. As shown in Table 41, only Iranian pilgrims, who lived at a greater distance than average, had a significant effect on variation in rent. Among those who lived within a shorter distance from the Holy Mosque, only Yemeni pilgrims had a negative effect on rent. Table 41 shows only those pilgrims from countries, except Yemen, who had a significant effect

Table 41.--Countries of origin and their effect on rent.

Country[a]	Partial Regression Coefficient B	Significance
Yemen	-7.81	.09[b]
U.A. Emirates	43.10	.000*
Libya	22.16	.000*
Algeria	19.24	.000*
Iran	15.24	.000*
Indonesia	17.36	.000*
Morocco	17.97	.000*
Pakistan	13.68	.000*
Tunisia	22.09	.000*
Kenya	50.00	.006**
Egypt	12.16	.002**
Sri Lanka	38.03	.035***
Turkey	9.48	.015***
India	10.10	.018***
Constant	39.42	.000*

[a]Countries are listed according to the importance of their effect.

[b]Not significant at any level.

*Significant at the .001 level.

**Significant at the .01 level.

***Significant at the .05 level.

on variation in rent. The remaining countries did not have a significant effect on the dependent variables. Of pilgrims from such countries, 36.8 percent stayed within a shorter distance of the Holy Mosque.

Analysis of variance results showed that significant variations existed among countries with respect to occupant density. The F-ratio was 3.099; it was significant at the .001 level. The results supported the assumption that significant variations existed among countries. To determine the effect of each country on occupant density, multiple linear regressions were used.

All the countries of origin included in the sample were used in the regression equation. Together they yielded a coefficient of multiple correlation of 35.3 percent and statistically accounted for 12.5 percent of the total variation. (See Table 42.)

The result of the partial regression coefficient (B) showed that only Iranian and Mali pilgrims lived at a greater distance and had a negative effect on occupant density. Iranian pilgrims had a significant effect on occupant density. Pilgrims from Afghanistan and Sudan lived within a shorter distance and had a significant positive effect on occupant density. About 20 percent of the national groups that lived within a shorter distance from the Holy Mosque had a negative effect on occupant density. These results were not significant at any level. About 45 percent lived within a greater distance than average and had a negative effect on occupant density. These results were not significant at any level.

Table 42.--Countries of origin and their effect on occupant density.

Country[a]	Coefficient of Net Regression B	Significance
Iran	-.29	.000*
U.A. Emirates	-.46	.008**
Libya	-.16	.078[b]
Philippines	-1.18	.014***
Kenya	-1.18	.014**
Sudan	.23	.015**
Mali	-.53	.057[b]
Afghanistan	.25	.036**
Constant	1.87	.000*

[a]Countries are listed according to the importance of their effect.

[b]Not significant at any level.

*Significant at the .001 level.

**Significant at the .01 level.

***Significant at the .05 level.

For both rent per room and occupant density, only Iranian pilgrims had a significant effect on both variables. As for the remaining pilgrims who lived at a greater distance, if they had any effect, such effects were not significant. Excluding the effect of the Iranian pilgrims, rent decreased with increasing distance, whereas occupant density and quality of accommodations showed small decreases with increasing distance.

Characteristics of Rental Agents

Significant variations exist between type of rental agent and both rent charged and occupant density.

The results for both the 1976 and 1977 surveys showed that there were significant variations among types of rental agents with respect to average rent per room. The F-ratio was 11.34; it was significant at the .0001 level. Therefore, the hypothesis was not rejected. To determine the effect of each type of rental agent on the amount of rent, saturated multiple linear regression was used, as shown in the regression equation formula:

$$\text{Rent cost}^{1} = a + b_1 \text{ (Log Density)} + b_2\text{(Mutawifs x Log Density)} + b_3\text{(Hamladárs x Log Density)} + b_4 \text{ (Renters x Log Density)}$$

All the above variables yielded a coefficient of multiple correlation r of 36.8 percent and statistically accounted for 13.5 percent of the total variations in rent. With each unit increase in the mutawifs, there was an increase of 6.05 riyals in rent. The result was significant at the .001 level. For hamladárs, the results showed that for each unit increase in the hamladárs, there was an increase of 7.76 riyals in rent. The result was significant at the .001 level. Renters had a negative effect. With each unit increase in renters, there was a decrease of 2.2 riyals in rent.

The results also showed significant variations between the types of rental agents with respect to occupant density. The F-ratio

---

[1] Transformed to square root of rent.

was 10.09; it was significant at the .001 level. The hypothesis was not rejected. To show the effect of each type of rental agent, a saturated regression equation was used:

$$\text{Density}^{1} = a + b_1(\text{SR Rent}) + b_2(\text{Mutawifs x SR Rent}) + b_3(\text{Hamladárs x SR Rent}) + b_4(\text{Renters x SR Rent})$$

The above variables yielded a multiple correlation coefficient of 28.3 percent and statistically accounted for 8 percent of the total variation in occupant density. More important was the effect of each type of rental agent. The partial regression coefficient (B) showed that for each unit increase in the mutawifs, there was an increase in occupant density of .00065 persons per room. The result was not significant at any level. Hamladárs showed a significant decrease in density. For each unit increase in hamladárs, there was a decrease of .004 persons per room. This result was significant at the .001 level. Renters also showed a decreasing effect. The partial regression coefficient (B) showed that for each unit increase in renters, there was a decrease in occupant density of -.001 persons.

Both regression equations showed that mutawifs had a positive effect on both rent per room and occupant density; however, the latter was not significant at any level. Hamladárs had a positive effect on rent and a negative effect on occupant density. Both effects were significant. Renters had a negative effect on both rent and occupant density. Both effects were not significant at any level.

---

[1] Density was transformed for normality to the log density.

Housing Characteristics

Accommodation quality, occupant density, and frequency of visits by pilgrims to the Holy Mosque are positively related to rent, whereas distance of accommodations from the Holy Mosque is negatively related to rent. Rent per room is also related to type of rental agent chosen by pilgrims.

It was assumed that rent[1] per room paid by pilgrims was a function of distance of the room from the Holy Mosque, occupant density, duration of pilgrims' stay in Mecca, accommodation quality, room size, and type of rental agent (whether mutawifs or hamladárs were the rental agents). Each of the above variables, except distance, had a significant positive effect on room cost. Distance had a significant negative effect on room cost.

The coefficient of simple correlation showed that distance from the Holy Mosque had a low negative relationship with the dependent variable (room cost). This relationship was highly significant at the .001 level, whereas occupant density, accommodation quality, daily visits to the Holy Mosque, and room size were positively related to the dependent variable. Such relationships were low, and each was significant at the .001 level. Duration of stay, in contrast, had a very low negative relationship with the dependent variable, but it was not significant at any level.

The effects of both mutawifs and hamladárs were positively related to rent cost. Such relationships were low and significant at the .001 level.

---

[1] For normality it was transformed to square root.

As distance from the Holy Mosque increased, rent decreased to a small degree because rent decreased to a certain distance from the city center and then increased as the quality of houses improved in the outskirts of the city. (See Table 33.) There was a low relationship between room cost and quality of accommodations because distance had a low relationship with quality.

To show the effect of all the above variables together on the dependent variable (room cost), the following multiple linear regression equation was devised:

$$\sqrt{\text{Rent Cost}} = a + b_1(\text{Distance}) + b_2(\text{Duration}) + b_3(\text{Room Quality}) + b_4(\text{Room Size}) + b_5(\text{Mosque Visits}) + b_6(\text{Mutawifs}) + b_7(\text{Hamladárs}) + b_8(\text{Density})$$

The final equation was:

$$\sqrt{\text{Rent Cost}} = 18.19 + .09(\text{Room Size}) + -.0066(\text{Distance}) + 15.98(\text{Hamladárs}) + 2.35(\text{Quality}) + 7.4(\text{Mutawifs}) + 1.01(\text{Density}) + .18(\text{Duration}) + .586(\text{Mosque Visits}) - 2.24(\text{Renters})$$

All of the above variables together yielded a coefficient of multiple correlation r of about 52.1 percent or a strong relationship with the dependent variable and statistically accounted for 27.6 percent of the total variation in rent. Such an effect on rent was logical and satisfactory because of the varied topography of the city. For example, even though some of the mountains near the Holy Mosque are very close, rent per room was much cheaper than in some

parts of the city farther away. Other high-elevation areas nearby are easily accessible to the Holy Mosque, with higher-quality accommodations. The rent here was higher than in other areas that were closer to the Holy Mosque but had lower-quality accommodations.

Other factors included the national origin of the pilgrims. Some were able to pay higher prices for better-quality accommodations even at a greater distance from the Holy Mosque, and others preferred to cluster together to share the rent so that they could stay within a shorter distance from the Holy Mosque.

Tests of each of the above independent variables against the dependent variable (rent) indicated that the most important variables explaining variations in rent per room were room size, distance, and pilgrims' living with hamladárs.

a. R^2 for room size explained about 7 percent of the variation in rent as the result of variation in room size. This variation might have occurred because pilgrims were not limited to staying in rooms only but could use hallways and entryways. In addition, generally when the hamladárs rented houses for their pilgrims, they were very concerned with finding houses with as many rooms as possible, giving priority to larger ones so they could accommodate as many pilgrims as possible. Hamladárs would pay more for houses with backyard space where they could cook for their pilgrims. For each unit increase in room size there was an increase of .09 riyals in the square root rent cost. Such a result was significant at the .01 level. Therefore, the hypothesis that room size positively affects room cost was not rejected.

b. R^2 for distance from the Holy Mosque explained 6.2 percent of the variation in rent. The partial regression coefficient (B) showed that for each unit increase in distance there was a decrease in rent cost of .007 riyals in the square root rent cost. This result was significant at the .001 level. Thus the hypothesis that there was a negative effect of distance on rent cost was not rejected. Some areas within the city farther from the Holy Mosque, with higher-quality accommodations, were preferred by pilgrims from certain countries. Therefore, rent per room in such areas was very high. In contrast to the above areas, there were some areas within a shorter distance of the Holy Mosque that had lower-quality accommodations. Their rent values were therefore very low.

c. R^2 for hamladárs explained 5.4 percent of the total variance in rent. The partial regression coefficient (B) value showed that for each unit increase in the price of accommodations rented to the pilgrims through the hamladárs, there was an increase in the square root rent cost of 15.98 riyals. The result was significant at the .001 level. Therefore, the hypothesis that hamladárs have a positive effect on rent cost was not rejected. Hamladárs' accommodations were at a greater distance than any other types of rentals, yet hamladárs charged higher prices because of the higher quality of their accommodations.

d. R^2 for room quality explained about 3 percent of the total variation in rent. For each unit increase in room quality there was an increase in the square root rent cost of 2.35 riyals. The result was significant at the .001 level. Thus the hypothesis

that accommodation quality has a significant effect on rent cost was not rejected.

e. R^2 for the mutawifs explained about 2.5 percent of the total variation in rent. The result also showed that for each unit increase in the price of accommodations rented through the mutawifs, there was an increase in the square root rent cost of 7.39 riyals. The result was significant at the .001 level. Therefore, the hypothesis that the mutawifs have a positive effect on rent was not rejected. This fact does not support the common belief that the rent of the accommodations obtained through the mutawifs is higher than rent for all other types of rentals. However, quality of accommodations obtained through mutawifs was lower than that obtained from hamladárs and renters. (See Table 18.)

f. R^2 for occupant density explained only 2.4 percent of the total variation in rent. The result showed that as occupant density increased by one unit, there was an increase of 1.01 riyals in square root rent cost. The result, however, was significant at the .001 level. Thus the hypothesis concerning such a significant effect was not rejected. Such a strange result was related to the mutawifs' and hamladárs' practice of renting accommodations to a pilgrim or group of pilgrims and charging for each person according to the location of the accommodation and not (in most cases) on how much space each should get. Some pilgrims had the power to use more space than others. Hamladárs, especially those who dealt with pilgrims other than Iranians, rented or subleased their accommodations from the citizens of Mecca to accommodate as many pilgrims as they could fit in, regardless of how much space each pilgrim would get.

g. In contrast, duration of stay in Mecca had a very small effect on rent. R^2 explained only about 1 percent of the total variation in rent. With each unit increase in duration of stay in Mecca, there was an increase in square root rent cost of .18 riyals. The result was significant at the .05 level. Thus the hypothesis of a significant relationship was not rejected. This result was related to the fact that the season of the pilgrimage in Mecca is different than the season for the pilgrimage to the Holy City of Medina, where accommodations are rented more than once in the hajj season. Therefore, duration of stay in Medina was very important and determined the amount of rent. Mecca has only one season before the pilgrimage moves to Arafat. If the accommodations are not rented before this time, they will not be rented until the next season. When pilgrims performed their hajj by spending the three days at Mina and completing the requirements of the hajj, most of them left Mecca, especially those who came by land. Therefore, duration was not that important because a few days more or less did not affect the rent. Pilgrims from East and Southeast Asia stayed longer than any other pilgrims and made special arrangements with their mutawifs.

h. The final variables and the only ones that did not have significant effects on the square root rent cost were the daily visits to the Holy Mosque and renters of the accommodations. Each had a very small effect on rent: .001 for Mosque visits and .0005 for renters. The fact that there was no significant effect of Mosque visits and renters on rent means that the hypothesis of a significant relationship was rejected.

Room size, rent per room, and duration of rental are positively related to occupant density, whereas distance from the Holy Mosque and accommodation quality are negatively related to occupant density. Occupant density is related to type of rental agent.

The coefficient of simple correlation showed that distance from the Holy Mosque, accommodation quality, and pilgrims living with hamladárs all had negative effects on the dependent variable (log density). Such associations were significantly low (significant at the .001 level). Although duration and renters each had a very low negative relationship with log density, such relationships were not significant at any level. Room size had a significant moderate relationship with the dependent variable, whereas pilgrims living with mutawifs and room cost each had a significant low relationship with the dependent variable (log density).

Distance had a lower effect on occupant density because most pilgrims who lived with the hamladárs (except the majority of Iranians) lived at greater distances in very crowded conditions, not because accommodations were limited in the areas where they lived, but because of the profits that their leaders could made from such conditions.

To show the effect of all of the above variables together on the dependent variable (log density), the following multiple linear regression equation was devised:

$$\text{Log Density} = a + b_1(\text{Size}) + b_2(\text{Quality}) + b_3(\text{Distance}) + b_4(\text{Hamladárs}) + b_5(\text{Duration}) + b_6(\text{Room Cost}) + b_7(\text{Renters}) + b_8(\text{Mutawifs})$$

The final regression equation was:

Log Density = 1.99 + .099(Size) + -.075(Quality) +
-.00008(Distance) + 0.2(Hamladárs) + -.004(Duration) +
.00002(Room Cost) + -.1(Owners) + -.04(Mutawifs)

All of the above variables yielded a coefficient of multiple correlation r of about 56 percent, indicating a strong relationship with the dependent variables. The correlation statistically accounted for 31 percent of the total variation in the dependent variable.

Tests of each of the independent variables against the dependent variable (log density) indicated that the most important variables explaining variations in log density were room size, accommodation quality, distance, hamladárs, duration, and room cost.

a. R^2 for room size explained about 14 percent of the total variation in occupant density per room. However, as room size increased by one unit, there was an increase of .009 persons. This result was significant at the .001 level and was related to the fact that there was no limit of occupants per room.

b. R^2 for accommodation quality explained about 11 percent of the variation in the dependent variable. As accommodation quality increased by one unit, there was a decrease in the dependent variable of -.075 persons per room. The result was significant at the .001 level.

c. R^2 for distance explained .035 percent of the total variation in the dependent variable. As distance increased by one unit, there was a decrease in occupant density of -.00007 persons. The result was significant at the .01 level. However, when the Iranian pilgrims were eliminated from the analysis, the correlation was lower than when they were included. The correlation was lowered from -.170 with the Iranians to -.045 without them, for the Iranians preferred to live in better-quality accommodations even if they were farther away.

d. R^2 for hamladárs explained .007 percent of the variation in occupant density. The results also showed that for each unit increase in the hamladárs' accommodation quality, there was a decrease in occupant density of -.18 persons per room, the highest decrease in occupant density recorded for this equation. The result was significant at the .01 level.

e. R^2 for duration of stay in Mecca explained about -.0045 percent of the total variation in occupant density. For each unit increase in duration of stay, there was a decrease in occupant density of about -.0045 persons per room. The result was significant at the .05 level.

f. $R^2$for rent explained about .006 percent of the total variation in occupant density. The result also showed that for each unit increase in rent, there was an increase in density of .00002 persons per room. The result was significant at the .05 level.

Other variables that were not significantly important in determining variation in occupant density were renters, mutawifs, and visits to the Holy Mosque.

Conclusion

Distance from the Holy Mosque, therefore, had a significant negative effect on rent per room as well as occupant density. Distance also had a significant effect on accommodation quality. Such an effect was not very high and did not determine a great deal of the variation in both rent and occupant density. If Iranian pilgrims, who lived mainly at a greater distance from the Holy Mosque in less-crowded, higher-quality accommodations, with higher rent, were excluded, the effect of distance on rent would be much greater. The correlation would be -.4 without Iranians instead of -.23 with them. The occupant density would be higher without Iranian pilgrims. The correlation would be -.045 without them instead of -.17 with them. Quality of accommodations was also affected by whether or not Iranians were included. The correlation dropped from .264 with the Iranians to .082 without them. Iranian pilgrims were advised to live in less-crowded areas in much-better-quality accommodations.

Even though these results showed that the cost and quality of accommodations were much better the farther they were away from the city center, the results also indicated that the situation will be much worse if pilgrims are encouraged to live in such areas without better planning and stricter control over the quality of their

accommodations, as we have seen when the Iranians were excluded from the analysis. Therefore, it is the writer's belief that the government should seriously consider remodeling all the houses in the center of Mecca, giving first priority to those closest to the Holy Mosque. This remodeling should include in its design Islamic tradition and architecture. The cost of this remodeling should be repaid to the government on an annual basis by the owners of the houses from their income from the pilgrimage.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

It is clear from the discussion presented in this study that, in general, the number of pilgrims is increasing, especially the number of pilgrims from within Saudi Arabia. This number of pilgrims is a serious matter. There is no control over how many pilgrims from inside Saudi Arabia perform the hajj nor over how long they stay in Mecca. The number of pilgrims from within the country must be a factor in the planning process, as well as the number of those who come from abroad. Since increased availability of charter flights has facilitated travel, it is inevitable that more pilgrims will come for shorter periods of time. Therefore, plans for accommodating pilgrims for shorter visits should be incorporated into general plans to improve conditions of the hajj in Mecca and in the entire pilgrimage region.

It is also clear that the majority of the residents in Mecca did not share all or parts of their accommodations with pilgrims. The primary reason for this is that residents felt that they needed more guidance and information about how to accommodate pilgrims. Therefore, there should be extensive field-work evaluation in the city of Mecca to determine the ranges of rent appropriate for each housing unit, based on its location and its quality. These rents

should be reevaluated every five years. To encourage competition in the housing market, however, renters should not be allowed to increase their rents over the estimated range. However, if renters wish to fix their prices lower than the estimate, the choice should be left to them. The residents who are willing to rent their houses should be given this information so that they can make their decision.

The results of this study indicate that within the city center, most of the houses were used to their utmost. Farther away, the situation improved. However, the improvement in the average quality was not as marked as it would seem from the analysis. This is not because every single housing unit at a greater distance was fully used but because every housing unit that was occupied by pilgrims was used to its utmost. Thus the area in general was not crowded, but the housing units that were used were overcrowded. Therefore, encouraging pilgrims to stay at a greater distance from the city center is highly recommended. However, such encouragement will not at present improve conditions without direct control and supervision because pilgrims will find themselves in crowded conditions and with the added problem of finding transportation. Therefore, to improve the housing in the whole city, there must be direct control and careful supervision by the government.

Recommendations

It is the writer's belief that with more careful plans and strict rules, housing conditions in Mecca during the pilgrimage period can be improved. Some recommendations for this planning process are given below.

Objectives

The government plan for accommodations in Mecca during the pilgrimage time should maximize the quality of living for both the residents of Mecca and the visitors. It will not be possible to achieve this within a short period of time. However, some actions should be taken immediately, such as the following:

1. The possible average number of pilgrims who would be assigned to each mutawif for the next year's pilgrimage should be determined. Each mutawif should arrange accommodations for at least 50 percent of the possible number of pilgrims that he may be given at least six months ahead of time, whether he owns the houses or is renting them. The quality of these accommodations should be evaluated by a special committee of the Ministry of the Hajj. The mutawifs who have special arrangements with hamladárs of such groups as the Iranians should meet the above deadlines. By the first day of Sha'aban (the eighth month of the hijra), at least 75 percent of the needed accommodations should be contracted for and guaranteed to the mutawifs. By the end of Shawāl (the tenth month of the hijra), all the needed accommodations should be contracted for by each mutawif.

If, at the time of final assignments, particular mutawifs are assigned fewer than their expected pilgrims but have already committed themselves to contracts for housing, the Ministry of the Hajj should help these mutawifs by renting their housing to others who are in need of such vacancies.

2. Because of reasons such as the above, an office to supervise renting to pilgrims should be established within the Ministry of

the Hajj. One of the purposes of this office would be to mediate between the residents who have some accommodation units for rent and the mutawifs and the pilgrims who would like to rent these units.

3. Residents of Mecca who are willing to rent their housing units should fill out a form on which they should state their names, addresses, telephone numbers, duration of time for renting, number of floors, number of bathrooms and kitchens on each floor, size of each room, and the preferred rents. Blank copies of these forms should be printed every day in all local newspapers. Residents could mail completed forms directly to the office supervising pilgrim rentals. The completed forms should be available in this office seven months before the hajj.

After receiving the list of available accommodations, this office should evaluate the validity of the information by conducting field-work investigations. Owners of houses that do not meet the standards for renting should be informed about modifications that need to be made. Owners could obtain the Ministry's support. A list should be prepared of all housing units that are rentable. The houses should be listed by quarters, and rents asked by owners should be available to everyone, especially the mutawifs.

4. In each local newspaper there should be a section listing houses for rent that have been approved by the Ministry. The price for this listing should not exceed 100 riyals for the whole period of advertising. This listing would also facilitate communication between the renters and pilgrims from within Saudi Arabia who have no connections with the Ministry of the Hajj.

5. The government should determine a deadline for issuing a hajj visa that should be not less than three months before the hajj.

6. Since pilgrims have the right to choose their own mutawifs, who are responsible for arranging accommodations in Mecca, at the time of applying for visas, each head of a household of pilgrims or group of pilgrims should indicate the number of persons in his party and should choose the names of two mutawifs, indicating his first choice. Pilgrims should also specify the types of accommodations they need and the range of rents they can pay. This information should be sent directly to the Ministry of the Hajj. All the information about the number of pilgrims coming from each country should be available at the Ministry of the Hajj not more than a week after the deadline for the visas. Upon receiving this information, the Ministry of the Hajj, after sorting the pilgrims according to their chosen mutawifs, should notify the mutawifs of their groups of pilgrims.

7. Mutawifs should prepare the needed accommodations, which have already been rented, at least three or four days before the arrival of their pilgrims.

8. Telex is the most practical means of communication between government representatives abroad and the Ministry of the Hajj. Communication between the Ministry of the Hajj and mutawifs should be by telephone and/or personal contact to avoid delay by mail.

Mutawif Establishment

If mutawif establishments are implemented, the following recommendations should be considered. They are primarily concerned with the activities of the mutawif establishments in relation to pilgrim housing. Considering the responsibilities of the Ministry of the Hajj, the mutawifs, and the pilgrims themselves, the mutawif establishments could be a very productive system. However, the following responsibilities should be assigned to each of the above parties.

Responsibilities of the Ministry of the Hajj.--

1. The main objective of the Ministry of the Hajj is to oversee peaceful, organized, and beneficial pilgrimages for both the pilgrims and those who serve them, such as the mutawifs. Therefore, it is very important for the Ministry to have employees who are most productive and responsible and to improve the communications between the Ministry of the Hajj and both the mutawifs and their colleagues in Jeddah and Medina, and with the embassies of the Saudi government abroad.

2. The Ministry of the Hajj should arrange with the Ministry of Post, Telegraph, and Telephone to make available at least one telephone for each mutawif in Mecca. The mutawif would be responsible for paying the costs of installation and the bills. During the hajj period, there should be a direct line between the Ministry of the Hajj and each mutawif establishment and a line between each establishment and each of its member mutawifs.

3. The Ministry of the Hajj should arrange with the authorities of the Water and Sewage Department to furnish the amount of water needed by pilgrims staying with each mutawif based on the average amount of water needed per person per day. This water should be delivered by water tanks from the city if the city water system should fail. The cost should be paid by each mutawif, based on the annual utility rate for water. If for any reason the mutawifs are not supplied with the necessary water, the mutawifs should have the right to buy the necessary water based on the number of occupants in their houses, paying the market price, and the Ministry should reimburse them. At the same time, the authorities of the Water and Sewage Department should ascertain that the sewage facilities are adequate for the number of pilgrims in each housing unit.

4. In the case of any disruption or damage to the sewage facilities during the hajj, both the Ministry of the Hajj and the Water and Sewage Department should be responsible for the immediate repair of the damages and disruptions.

Responsibilities of the mutawifs.--

1. Each mutawif within each establishment should devote all the abilities and facilities that are available to him for the use of the pilgrims assigned to him. The mutawif should provide proper accommodations, which are the most important facilities for the pilgrims, as follows:

a. Each mutawif should have ready at least 50 percent of the needed accommodations for his expected number of pilgrims no later than the first day of Jumad al-Thani (the sixth month of the hijra

year).[1] Each mutawif establishment should determine the quality of the accommodations, the number of persons per room, the price per individual pilgrim, and the price per room for all accommodations needed by all member mutawifs not later than Rajab (the seventh month of the hijra year).[2] The profit from accommodation rents for each mutawif should not exceed 25 percent of the total rent. The special committee of the Ministry of the Hajj should determine if the rent paid to the owner by each mutawif exceeds the quality of the accommodation. If it does, the committee has the right to determine the amount that should be paid to the owner.

b. A report should be submitted to the Ministry of the Hajj not later than the first day of Sha'ban (the eighth month of the hijra year). This report should include the quality of each accommodation, average number of persons per room, price per room and per person, and the address and location of each accommodation.

c. A committee consisting of a member from each establishment and a member each from the Ministry of the Hajj, the Ministry of Interior, and the Water and Sewage Department should check at least 5 percent of each establishment's accommodations.

d. At an appropriate time, the mutawif establishments should provide the Ministry of the Hajj with information about available

---

[1]Pilgrimage happens in the twelfth month of the hijra year.

[2]This does not mean that houses should be vacant by this time. However, a few days before the pilgrims arrive in Mecca, the houses should be vacated and ready for them.

housing so that the Ministry can provide Saudi embassies with this information.

e. By the end of Shawwāl (the tenth month of the hijra year), all mutawifs in each establishment should know exactly how many pilgrims they will serve and where they will be accommodated.

Responsibilities of the pilgrims.--

a. Each pilgrim should have access to all the information about each mutawif from the Saudi embassy in his country and should have the right to indicate two choices for mutawifs, the priority going to the first choice. However, each pilgrim should be committed to the mutawif and the level of accommodation he chooses unless different arrangements are made with his mutawif upon his arrival. However, if the number of pilgrims assigned to each mutawif exceeds the total average number assigned to each mutawif (as instituted in 1975 [1395]), or if the mutawif is not willing or able to serve all the pilgrims assigned to him, the additional number of pilgrims should be distributed by the establishment according to the policy of the mutawif establishments.

Rules and Regulations

The writer feels that it is most important to state clearly the duty of each of the mutawifs, residents, and pilgrims to insure well-organized and peaceful pilgrimages. Therefore, the following should be noted:

1. The mutawif should arrange for the accommodations of his pilgrims and make them ready for the pilgrims' arrival.

2. Each room with an average size of 66 cubic meters should accommodate no more than five persons. If more than one family wishes to live in a room and their number does not exceed five persons, the room should be temporarily divided between families to meet Islamic cultural practices and traditions. The responsibility of the mutawifs is to make this arrangement possible, and the responsibility of the pilgrims is to respect the Islamic rules.

3. The responsibility of the residents in regard to housing they have for rent is to abide by the estimate that the special committee makes for the rent per single room based on size. Residents should also abide by the maximum number of persons per room decided by the committee.

4. Any renter who does not abide by the recommendations of the committee should be penalized by not being allowed to rent his housing units to the pilgrims the next year.

5. Any mutawif who accommodates more persons or who charges more rent than recommended by the committee should be penalized by having his fees reduced by 50 percent for that year. If he continues to ignore restrictions the following year, all his fees for that year should be taken from him. If it happens a third time, he should be dismissed from the service completely.

6. A method for registering complaints should be set up.

7. In each crowded and large neighborhood, there should be a committee to oversee each mutawif and hamladar. These committees should consist of specialists with very high qualifications and should have access to high officials in the Ministry of the Hajj. None of

the committee members should have any ties with any mutawifs, and they should not be from the same neighborhood to which they are assigned. The committee should also trace the pilgrims who work as brokers.

The Ministry of Municipal and Rural Affairs or any concerned branch of the government should start immediately to plan for assigning numbered addresses to all buildings in the city of Mecca and should conduct a comprehensive and reliable housing census.

Long-Range Actions

1. After determining and reporting on all housing conditions, the Ministry of Housing or any concerned branches of the government should study the possibility of redeveloping or remodeling according to Islamic traditions all houses in appropriate locations that need such action.

2. Maps should be produced to show the location of all houses in Mecca, either by each neighborhood or by zones. In either case, there should be assigned to each the maximum rent based on location and facilities available in each housing unit.

Hajj Accommodation Committees

The present plan of having only one committee established for a very short time to supervise and control pilgrims' housing is not effective for fulfilling the responsibility originally assigned to the committee. The writer feels that there should be ten committees working in the field. Each member of each committee should be a Saudi Arabian qualified for the work assigned to him and should have

access to high officials in the Ministry of the Hajj, as indicated above. The following tasks should be assigned to all ten committees:

1. Verify that the living quarters of all pilgrims are approved by the Ministry of the Hajj or a special committee assigned to this purpose.

2. Verify that the prices paid for the accommodations are as approved by the committee.

3. If pilgrims are found to be living in unapproved accommodations, penalize the owners of such accommodations with no exceptions.

Further Research

Housing availability should be of primary concern in future studies of the pilgrimage. Important aspects of housing to be studied would be number of rooms, bathrooms, and kitchen facilities within each available housing unit. Included in further study, which would be on a larger scale than the present study, should be attitudes of the residents of Mecca toward accommodating pilgrims. It is also important to note rent preferences of residents in determining the average costs.

There should also be research on the pilgrims by countries of origin. This research would help the planners of the hajj understand the cultural and social needs of all pilgrims so that all would have the most satisfying experience possible in their pilgrimage to Mecca.

APPENDICES

APPENDIX A

THE QUESTIONNAIRE

PILGRIM ACCOMMODATION SURVEY IN MECCA 1396
Established and Directed by GHAZY A. MAKKY.
HAJJ RESEARCH CENTRE.

مسح مساكن الحجاج بمكة ١٣٩٦
اعداد واشراف غازى مكى
مركز الحج للأبحاث

		Name and number of surveyors	الرقم	اسم الباحث ورقمه	1
		House reference number (see map)		رقم المنزل (أنظر الخارطة)	2
		Floor level of accommodation surveyed		رقم الطابق	3
		Not located on a mountain لا يقع على جبل	Located on a mountain يقع على جبل	Neighbourhood اسم الحى	Location of accommodation موقع المسكن	4
		Flat شقة	Villa فلا	Hotel فندق	House منزل	Shant Tent خيمة صندلة	Kind of accommodation نوع المسكن	5
		What kind of facilities does the accommodation utilise?					ما نوع المرافق المتوفرة فى المسكن ؟	6
		Bidet شطافة	Bath مغطس	WHB مغسلة	Shower دوش	W.C. كرسى تواليت	Bathroom حمام	7
		Cupboard دولاب	Fridge ثلاجة	Sink حوض	Cooker جهاز طبخ	Kitchen مطبخ	8
		Drainage شبكة مجارى	Piped Water ماء جارى	Electricity كهرباء	Services خدمات	9
		Hotel Services خدمات فندقية	Cook طباخ	Cleaner عامل نظافة	External Services خدمات اضافية	10
		Health: Clean نظيفة / Dirty وسخة	Noise: High شديدة / Low قليلة	Ventilation: Good جيدة / Bad رديئة	Daylight: Good جيدة / Bad رديئة	Ambience الحالة العامة	11
Yes نعم	No لا	Are you satisfied with the standard of accommodation ?					هل أنت راض بحالة السكن ؟	12
		If not, which of the following need improvement?					اذا لم تكن راض فما هى الأشياء التى تحتاج الى تحسين ؟	13
		Ambience الحالة العامة	Ext. Services خدمات اضافية	Services خدمات	Kitchen المطبخ	Bath الحمام	
		Would you recommend some solutions for the above quality?					هل لديك اقتراح بخصوص ما ذكر من حالة السكن ؟	14
		Height الارتفاع	Width العرض	Length الطول	Size of selected room مساحة الغرفة المختارة			15
Yes نعم	No لا	Are you satisfied with size of room ?					هل أنت راض بمساحة الغرفة ؟	16
		Height الارتفاع	Width العرض	Length الطول	If not, what size is sufficient اذا لم تكن راض فماذا تقترح أن تكون ؟			17
	No عدد	Number of persons sharing selected room/rent.					عدد الأفراد الذين يشاركون فى الغرفة أو الخيمة ؟	18
Yes نعم	No لا	Are you satisfied with the present number in one room?					هل أنت راض بهذا العدد من الأشخاص فى الغرفة الواحدة ؟	19
	No عدد	If not, what number would you prefer?					اذا لم تكن راض فما هو العدد الذى تفضله ؟	20
	No عدد	For how long has the room been rented?					ما هى مدة ايجار هذه الغرفة ؟	21
	S.R. ريال	What is the price of the room for the period rented?					ما هى الأجرة المخصصة لهذه الفترة ؟	22
	S.R. ريال	If item 22 is not applicable, what is the price per person for the specified period?					اذا لم تكن الفقرة ٢٢ ممكنة فما هو الاجار للشخص الواحد لنفس الفترة ؟	23
Yes نعم	No لا	Are you satisfied with the rent charged?					هل أنت راض بقيمة الايجار ؟	24
	S.R. ريال	If not, what do you consider to be a satisfactory rent as good value?					اذا لم تكن راض فما هى القيمة الايجارية التى تعتقد أنها مناسبة لهذا السكن ؟	25
		Occupier الساكن	Owner المالك	Pilgrim Leader حملدار	Pilgrim Agent	From whom did you rent this room?	من الذى استأجرتم هذه الغرفة الطريف	26
		Is the rent included in the total pilgrimage cost?					هل قيمة الايجار مدفوعة مقدما مع تكاليف الحج الاجمالية ؟	27
	S.R. ريال	If yes, how much is the total cost per person?					اذا كان الجواب بالايجاب فكم تبلغ التكاليف الاجمالية للشخص ؟	28
		Female أنثى	Male ذكر	Age عمره	Nationality جنسية	Nationality, age and sex of the Pilgrim.	ما هى جنسية وعمر وجنس الحاج ؟	29
		How long does it take to travel to the Mosque?					ما هى المدة التى تستغرقها للوصول الى الحرم ؟	30
		More than 2 hrs أكثر من ساعتين	90 min ٩٠ د دقيقة	75 min ٧٥ د دقيقة	60min ٦٠ د دقيقة	45 min ٤٥ د دقيقة	30 min ٣٠ د دقيقة	15 min ١٥ د دقيقة	Less than 15 min أقل من ١٥ دقيقة	
		All جميعها	Public trans. ٦ مواصلات عامة	Private car. ١ سيارة خاصة	By foot ماشيا	How do you travel to the Mosque?	ما هى الوسيلة التى تستخدمها للوصول الى الحرم ؟	31
	S.R. ريال	How much are you paying for one way transportation?					ما هى تكاليف المواصلات الى الحرم ؟	32
Yes نعم	No لا	Are you satisfied with transportation cost?					هل أنت راض بتكاليف الانتقال ؟	33
		How often a day do you visit the Mosque ?					كم عدد المرات التى تزور فيها الحرم يوميا ؟	34
	عدد No.	Which prayer do you perform daily in the Mosque.	١ الفجر	٢ الظهر	٣ العصر	٤ المغرب	٥ العشاء			ما هى الصلوات التى تؤديها يوميا فى الحرم ؟

PLEASE TURN OVER TO SIDE 2

من فضلك اقلب الى الصفحة الثانية

35 List the number of different naticnalities sharing this room. عدد الجنسيات التي تشاركك السكن في هذه الغرفة

		4			1
		5			2
		6			3

36 How many of each type. ماهو العدد من كل جنسية ؟

No. of Persons عدد الافراد	No. 3 رقم ٣	No. of Persons عدد الافراد	No 2 رقم ٢	No. of Persons عدد الافراد	No. 1 رقم ١	How many of each type.	
No. of Persons عدد الافراد	No. 6 رقم ٦	No. of Persons عدد الافراد	No. 5 رقم ٥	No. of Persons عدد الافراد	No. 4 رقم ٤	ماهو العدد من كل جنسية ؟	

37 List at maximum three major nationalities in this neighborhood عدد الجنسيات الغالبة في المنطقة على الا تزيد من ثلاث جنسيات :

3	2	1

38 The general quality of the house must be classified by the surveyor معلومات ينبغي على الباحث تقييمها بنفسه من الحالة العامة للمسكن :

Quiet ٣ هادئ 3	Tolerable ٢ مقبول نوعا 2	High ١ — مرتفع 1	Noise Level مستوى الازعاج
Clean ٣ نظيف 3	Untidy ٢ غير منظم 2	Dirty ١ وسخ 1	Refuse accumulation in street نظافة الشارع
Low ٣ منخفض 3	Medium ٢ متوسط 2	Heavy ١ شديد 1	Crowds in street ازدحام الشارع

The recommended location of the Pilgrim accommodations الموقع المقترح لمساكن الحجاج

39 To get better accommodation, how many min utes travel time would you like to be from Haram? للحصول على مسكن مريح ماهي المدة التي تفضل أن تسيرها للوصول الى الحرم ؟

More than 2 hrs ٨ أكثر من ساعتين 8	90 min. ٧ ٩٠ د قيقة 7	75 min. ٦ ٧٥ د قيقة 6	60 min ٥ ٦٠ د قيقة 5	45 min. ٤ ٤٥ د قيقة 4	30 min. ٣ ٣٠ د قيقة 3	15 min. ٢ ١٥ د قيقة 2	Less than 15 min ١ أقل من ١٥ د قيقة 1

40 How would you like to travel to mosque? ماهي الوسيلة التي تفضل استخدامها للوصول الى الحرم؟

All جميعهم	Public trans. مواصلات عامة	Private Car. سيارة خاصة	By foot ماشيا	

41 How much are you willing to pay for transportation one way? ماهي القيمة التي يمكن أن تدفعها للمواصلات للحرم ؟ — S.R. ريال

42 How many times would you like to visit the Mosque daily?? كم عدد المرات التي ترغب أن تزور الحرم يوميا ؟ — No. عدد

43 Which prayers would you like to perform daily in the Mosque? ماهي الصلوات التي ترغب أن تؤديها يوميا في الحرم ؟

١ الفجر 1	٢ الظهر 2	٣ العصر 3	٤ المغرب 4	٥ العشاء 5

44 Number of persons that you are willing to share the room with? عدد الافراد التي ترغب أن يشاركوك في الغرفة ؟ — No. عدد

45 Nationalities that you are willing to share the room? الجنسيات التي ترغب أن يشاركوك في الغرفة؟

More than one nationality ٣ أكثر من جنسية 3	One other nationality ٢ جنسية واحدة أخرى 2	Same nationality ١ نفس جنسية الحاج 1

46 Size of the room you prefer compared to the one you are living in. مساحة الغرفة التي تفضل أن تسكن فيها

Triple ثلاث مرات	Twice الضعف	Same size نفس الحجم

47 How much are you willing to pay for this accommodation? ماهي القيمة الايجارية التي تعتقد أنها مناسبة لهذا السكن ؟ — S.R. ريال

48 Would you prefer a site located on a mountain close to the Mosque? هل تفضل أن يكون السكن في المستقبل في منطقة جبلية قريبا من الحرم ؟ — Yes نعم / No لا

49 Has the Pilgrim any general comments he would like to make concerning the conditions of the new accommodations? هل لدى الحاج ملاحظات يرغب أن يضيفها للسكن الجديد ؟

50 Write the comments here اكتب الملاحظات هنا :

51 Has the Pilgrim any general comments he would like to make concerning the conditions of the Hajj as a whole? Please insert below هل لدى الحاج ملاحظات عامة من حالة الحج بصورة عامة؟ لو سمحت اكتب ذلك في الفراغ التالي :

PILGRIM ACCOMMODATION SURVEY 1977
Established and Directed by GHAZY A. MAKKY
HAJJ RESEARCH CENTER

مسح مساكن الحجاج بمكة عام ١٣٩٧
اعداد واشراف غازي مكي
مركز الحج للابحاث

		Date / /1977	التاريخ / / ١٣٩٧ هـ	
		Name and Number of Surveyors — No. الرقم	اسم الباحث ورقمه	1
		House Reference Number (see map) — No. الرقم	رقم المنزل (انظر الخارطة)	2
		Name of Neighbourhood	اسم الحي	3
		Kind of Accomodation Check Only One: Hotel (6) فندق; Villa (5) فيلا; Flat (4) شقه; House (3) منزل; Shanty (2) صفيح; Tent (1) خيمه	نوع السكن اختر واحد فقط	4
	No. الرقم	Floor Level of Acramodation Surveyed	رقم الطابق	5
		From Whom Did You Rent This Room? Check Only One: Occupier (4) المستأجر; Owner (3) المالك; Pilgrim Leader (2) المطوف; Pilgrim Agent (1) الوكيل	من الذي استأجرتم منه الغرفة ؟ (اختر واحد فقط)	6
		Why did You Rent the Room From The Above? Check Only One: No Choice (4) ليس له خيار; With the Same Nat. (3) مع نفس الجنسية; Comfortable (2) السكن مريح; Reasonable Rent (1) الاجرة مناسبه	لماذا استأجرتم الغرفة من الشخص المذكور أعلاه ؟ (اختر واحد فقط)	7
	No. الرقم	Number of Persons Sharing Selected Room/Tent	عدد الافراد الذين يسكنون هذه الغرفة ؟	8
	No لا / Yes نعم	Are You Satisfied With The Present Number in One Room?	هل أنت راض بهذا العدد من الاشخاص بالغرفة الواحدة ؟	9
	No. الرقم	If not, What is the Preferred Number for This Room?	اذا لم تكن راضيا فما هو العدد المناسب لهذه الغرفة ؟	10
	No. عدد	For How Long Has the Room Been Rented?	ما هي مدة ايجار الغرفة ؟	11
	S.R. ريال	What is The Price of This Room for The Period Rented?	ما هي قيمة ايجار هذه الغرفة للفترة المذكورة ؟	12
	S.R. ريال	If item 12 is not Applicable, What is The Price Per Person For The Specified Period?	اذا لم تكن الفقرة (١٢) ممكنة ، فكم يدفع الشخص الواحد لنفس الفترة ؟	13
	No لا / Yes نعم	Are You Satisfied With The Rent Charged?	هل انت راض بهذه القيمة ؟	14
		If not, What Do You Consider To Be a Satisfactory Amount of Rent Per? — Person الشخص S.R. ريال — Room الغرفة S.R. ريال	اذا لم تكن راض فما هي القيمة التي تعتقد أنها مناسبة لكل من :	15
		What Kind of Facilities Does The Accommodation Have?	ما هي المرافق المتوفرة في السكن ؟	
		Bathroom: WHB (3) مغسلة أيدي; Shower or Bath (2) دش او مغطس; W.C. (1) كرسي تواليت	الحمام	16
	No. عدد	How Many Persons Are Using This Bathroom?	كم عدد الاشخاص الذين يستخدمون هذا الحمام ؟	17
		Kitchen: Fridge (3) ثلاجة; Sink (2) حوض غسيل; Cooker (1) جهاز طبخ	المطبخ	18
	No. عدد	How Many Persons Are Using This Kitchen?	كم عدد الاشخاص الذين يستخدمون هذا المطبخ ؟	19
		Services: Drainage (3) شبكة مجاري; Piped Water (2) ماء جاري; Electricity (1) كهرباء	الخدمات	20
		Ambience: Health الصحة العامة — Clean (8) نظيفه; Dirty (7) قذره. Noise الضوضاء — High (6) شديده; Low (5) قليلة. Ventilation التهوية — Good (4) جيده; Bad (3) رديئه. Daylight ضوء النهار — Good (2) جيد; Bad (1) رديء	الحالة العامة	21
	No لا / Yes نعم	Are You Satisfied With The Quality of Accommodation in General?	هل أنت راض عن حالة السكن بصورة عامة ؟	22
		If not, Which of The Following Need Improvement? Ambience الحالة العامة (4); Services الخدمات (3); Kitchen المطبخ (2); Bath الحمام (1)	اذا لم تكن راض ، فما هي الاشياء الاتية التي تحتاج الى تحسين ؟	23
		Size of Selected Room: Height الارتفاع; Width العرض; Length الطول	مساحة الغرفة المختارة	24
	No لا / Yes نعم	Are You Satisfied With Size of The Room?	هل أنت راض بمساحة الغرفة ؟	25
		If not, What Size is Sufficient? Height الارتفاع; Width العرض; Length الطول	اذا لم تكن راض ماذا تقترح أن تكون ؟	26
		List The Number of Different Nationalities Sharing This Room?	عدد الجنسيات التي تسكن هذه الغرفة ؟	27
		4 ; 5 ; 6		1 ; 2 ; 3
		How Many Are of Each Type? No. 3 رقم ٣ ; No. 2 رقم ٢ ; No. 1 رقم ١ ; No. 6 رقم ٦ ; No. 5 رقم ٥ ; No. 4 رقم ٤	ما هو العدد من كل جنسية ؟	28
		List at Maximum Three Major Nationalities In This Neighbourhood (3) . (2) (1)	عدد الجنسيات الغالبة في المنطقة ط أن لا تزيد عن ثلاث جنسيات .	29
	No. عدد	How Often A Day Do You Visit The Mosque?	كم عدد المرات التي تزور فيها الحرم يوميا ؟	30
		How Do You Travel To The Mosque? Check Only One: Public Transport (3) مواصلات عامة; Private Car (2) سيارة خاصة; By Foot (1) ماشيا	ما هي الوسيلة التي تستخدمها للوصول الى الحرم (اختر واحد فقط)	31
		How Long Does It Take You To Travel To The Mosque? Check Only One: More Than 60 Min. (5) أكثر من ٦٠ دقيقة; 46 up to 60 Min. (4) من ٤٦ الى ٦٠ دقيقة; 31 up to 45 Min. (3) من ٣١ الى ٤٥ دقيقة; 16 up to 30 Min. (2) من ١٦ الى ٣٠ دقيقة; From 1 up to 15 Min. (1) من ١ الى ١٥ دقيقة	ما هي المدة التي تستغرقها للوصول الى الحرم ؟	32
	ريال	How Much Are You Paying For One Way Transportation?	ما هي تكاليف المواصلات الى الحرم ذهابا أو ايابا فقط ؟	33

(Please Turn Over To Side 2)
اقلب الصفحة من فضلك

PILGRIM ACCOMMODATION SURVEY — مسح مساكن الحجاج بمكة ١٣٠٧ هـ

34	Are You Satisfied With Transportation Cost?	هل أنت راض بتكاليف المواصلات ؟					Yes نعم	No لا	
35	Which Prayer Do You Perform Daily In The Mosque?	ما هي الصلوات التي تؤديها يوميا في الحرم	Fajar الفجر (1)	Zuhr الظهر (2)	A'sr العصر (3)	Maghrib المغرب (4)	I'sha العشاء (5)		
36	What Is The Nationality, Age and Sex Of The Pilgrim?	ما هو جنس وعمر وجنسية الحاج	Female انثى	Male ذكر	Age العمر	Nationality الجنسية			
37	How Did You Arrive To The Kingdom? Check Only One	ما هي وسيلة القدوم للمملكة ؟	By Foot ماشيا	By Auto. بالسيارة	By Plane بالطائرة (3)	By Ship بالباخرة (4)			
	The Recommended Location Of The Pilgrim Accommodation	الموقع المقترح لمساكن الحجاج							
38	To Get Better And Cheaper Accommodation Would You Like Living At A Greater Distance From The Mosque Relative To The Present Location?	لكي تحصل على سكن مريح ورخيص نسبيا هل تفضل السكن بعيدا عن الحرم بالنسبة لموقع السكن الحالي ؟					Yes نعم	No لا	
39	To Get Better Accommodation How Many Minutes Travel Time Would You Be Willing To Live From The HARAM? Check Only One	ما هي المدة المناسبة التي تفضل السكن بعيدا عن الحرم للوصول اليه (اختر واحد فقط)	1-15 Min. من ١ الى ١٥ دقيقة (1)	16-30 Min. من ١٦ الى ٣٠ دقيقة (2)	31-45 Min. من ٣١ الى ٤٥ دقيقة (3)	46-60 Min. من ٤٦ الى ٦٠ دقيقة (4)	More Than 60 Min. اكثر من ٦٠ دقيقة (5)		
40	How Would You Like To Travel To The HARAM? Check Only One	ما هي الوسيلة التي تفضل استخدامها للوصول للحرم ؟ (اختر واحد فقط)	By Foot ماشيا (1)	Private Car سيارة خاصة (2)	Public Transp. مواصلات عامة (3)				
41	How Much Are You Willing To Pay For Transportation One Way To The Mosque?	ما هي القيمة التي يمكن أن تدفعها للذهاب الى الحرم فقط ؟							ريال S.R.
42	How Many Persons Do You Recommend Per Room?	ما هو عدد الافراد الذي تقترح أن يسكنوا في الغرفة الواحدة ؟							عدد No.
43	What Size Room Would You Prefer Compared To The One You Are Living In? Check Only One	ما هي مساحة الغرفة التي تفضل أن تسكن فيها مقارنة بالغرفة الحالية (اختر)	Same Size نفس الحجم (1)	Twice الضعف (2)	Triple ثلاث مرات (3)				
44	What Do You Consider To Be A Satisfactory Amount Of Rent For Each	ما هو الايجار الذي تقترح أن يكون مناسبا لكل من :	Room الغرفة ريال S.R.	Person الشخص ريال S.R.					
45	What Ethnic Groups Do You Prefer To Share The Room With? Why?	ما هي الاجناس التي تفضل أن تسكن معهم في الغرفة وليماذا ؟ اختر (١)	The Same Ethnicity نفس الجنس الحاج (1)	One Other Ethnic Group جنس واحد آخر (2)	More Than One Ethnic Group اكثر من جنس واحد (3)				
	Because 1-Speak The Same Language 2-Has The Same Habits And Traditions 3-To Learn New Language 4-To Experience New Habits, Tradition 5- Others Check Only One Of The Above.	السبب يعود الى : ١) لغة مشتركة ٢) عادات وتقاليد متشابهة ٣) لتعلم لغة جديدة ٤) للتعرف على عادات وتقاليد جديدة ٥) أسباب أخرى .							
46	How Many Times Would You Like To Visit The Mosque Daily?	كم عدد المرات التي ترغب أن تزور فيها الحرم يوميا ؟							عدد No.
47	Which Prayers Would You Like To Perform Daily In The Mosque?	ما هي الصلوات التي ترغب أن تؤديها في الحرم يوميا ؟	Fajar الفجر (1)	Zuhr الظهر (2)	A'sr العصر (3)	Maghrib المغرب (4)	I'sha العشاء (5)		
48	If You Decide To Perform The Pilgrimage Again, How Long Will You Stay In Mecca? Check Only One	اذا أردت أداء الفريضة مستقبلا ما هي المدة التي تنصحها في مكة ؟ اختر (١)	Less Than This Time أقل من المدة الحالية (1)	The Same As This Time نفس المدة الحالية (2)	More Than This Time اكثر من المدة الحالية (3)				
49	What Is The Attitude Of The Pilgrim Towards The Following? Choose Only One From Each Item.	ما هو انطباع الحاج نحو الاتي ؟ : (اختر واحد فقط من كل فقرة)							
	Water In Mecca	المياه في مكة المكرمة	V. Expensive غالية جدا (1)	Expensive غالية (2)	Not Exp. ليست غالية (3)	Free مجانا (4)			
50	Food Material	المواد الغذائية في مكة	V. Expensive غالية جدا (1)	Expensive غالية (2)	Not Exp. ليست غالية (3)	Cheap رخيصة (4)			
51	Cost Of Transportation In Mecca	أجور المواصلات في مكة المكرمة	V. Expensive غالية جدا (1)	Expensive غالية (2)	Not Exp. ليست غالية (3)	Cheap رخيصة (4)			
52	Bathroom In The Accommodation	الحمامات في السكن	Available & Clean متوفرة ونظيفة (1)	Crowded & Dirty مزدحمة ووسخة (2)	Not Available غير متوفرة (3)				
53	Public Bathrooms	الحمامات العامة في الشارع	Available & Clean متوفرة ونظيفة (1)	Crowded & Dirty مزدحمة ووسخة (2)	Not Available غير متوفرة (3)				
54	System Of Dividing The Pilgrims Is Presently Good	نظام توزيع الحجاج حاليا في المطوفين جيدا .	S. Agree أوافق بشدة (1)	Agree أوافق (2)	No Opinion لا أحبذ (3)	Disagree معارض (4)	S. Disagree معارض بشدة (5)		
55	Pilgrim Agent Treatment Is Presently Satisfactory	معاملة المطوف للحجاج حاليا مرضية	S. Agree أوافق بشدة (1)	Agree أوافق (2)	No Opinion لا أحبذ (3)	Disagree معارض (4)	S. Disagree معارض بشدة (5)		
56	Pilgrim Leader Treatment Is Presently Satisfactory	معاملة الحملدار للحجاج حاليا مرضية	S. Agree أوافق بشدة (1)	Agree أوافق (2)	No Opinion لا أحبذ (3)	Disagree معارض (4)	S. Disagree معارض بشدة (5)		
	The General Quality Of The Present Accommodation Classified By The Surveyor: Choose Only One From Each Item.	معلومات تتعلق بالباحث تصنيفا لمسكنه في الحالة العامة للسكن الحالي : (اختر واحد فقط من كل فقرة) .							
57	Noise Level	مستوى الازعاج	High مرتفع (1)	Tolerable مقبول نوعا (2)	Quiet هادئ (3)				
58	Refuse Accumulation In Street	نظافة الشارع	Dirty وسخ (1)	Untidy غير منظم (2)	Clean نظيف (3)				
59	Crowds In Street	ازدحام الشارع	Heavy شديد (1)	Medium متوسط (2)	Low منخفض (3)				
	ملاحظات الباحث :								

Distance المسافة

Elevation الارتفاع

RESIDENT ACCOMMODATION SURVEY 1977
Established and Directed by GHAZY A. MAKKY
HAJJ RESEARCH CENTER

مسح مساكن السكان بمكة المكرمة ١٣٩٧ هـ
اعداد واشراف غازي مكي
مركز الحج للابحاث

Date / /1977

1	Name And Number Of Surveyors	No. الرقم	اسم الباحث ورقمه
2	House Reference Number (See Map)		رقم المنزل (انظر الخارطة)
3	Name Of Neighbourhood		اسم الحي
4	Kind Of Accommodation Check Only One	Flat شقه (4) / House منزل (3) / Shant صنداقه (2) / Tent خيمه (1)	نوع السكن
5	How Many Of Each Of The Following Do You Have?	Bathrooms الحمامات / Rooms الغرف / Floors الادوار	ماهو عدد كل من ؟
6	Who Lives In The House? Check Only One	Owner المالك (2) / Renter المستأجر (1)	من هو الساكن ؟
7	What Is His Nationality?		ماهي جنسيته ؟
8	Yes / No — Have You Ever Rented Your House Or Part Of It To Pilgrims?		هل سبق وأن اجرت منزلك او جزء منه الى حجاج ؟ اخر سنة اجرتها .
9	When Was That?	Date التاريخ	متى كان ذلك ؟ اخر سنة .
10	What Was The Nationality?	Nationality	ماهي جنسية الحجاج الذين كانوا يسكنون منزلك ؟ اكتب جنسية واحدة فقط
11	Is The Reason Not To Have Pilgrims In Your House This Year Related To? Check Only One. 1. I Don't Want To Rent It. 2. Far Away From The Mosque. 3. Rent Offered Too Low 4. Others.		هل السبب في عدم وجود حجاج في منزلك هذه السنة يعود الى ؟ اختر واحدة فقط ☐ لا أريد تأجيره على الحجاج ☐ بعيدا عن الحرم ☐ الايجار قليل ☐ ٤- اسباب اخرى
12	Yes / No — Would You Like To Rent It In The Future?		هل ترغب تأجيره في المستقبل ؟
13	What Nationality Would You Like To Rent The Accommodation To?		ماهي الجنسية التي تفضل ان تأجرلها منزلك ؟ اكتب جنسية واحده فقط .
14	What Do You Consider To Be A Satisfactory Rent Or A Good Value For Each Of The Following?	Room الغرفه S.R. ريال / Accommodation جميع السكن S.R. ريال	ماهي قيمة الاجار التي تعتقد انها مناسبة لكل من :-
15	Do You Have Any General Comments About The Present System Of Accommodating The Pilgrims?		هل لديك ملاحظات بخصوص الطريقة الحالية لاسكان الحجاج ؟

Write The Comments Here:

اكتب الملاحظات هنا :-

APPENDIX B

DEFINITIONS OF VARIABLES

APPENDIX B

The variables listed below were included in questionnaires given to pilgrims in the accommodation surveys of 1976 and 1977 and to permanent residents in 1977. Accommodations included tents, shanties, houses, apartments, villas, and hotels and were divided as follows:

1. Whether the pilgrim rented or subleased directly from the mutawif, who was from Mecca and licensed;

2. Whether the pilgrim subleased from the hamladár, who was usually of the same nationality as the pilgrim and led a group of his own countrymen;

3. Whether the pilgrim rented directly from the owner; and

4. Whether the pilgrim subleased from the permanent resident (renters).

Accessibility: Whether the site of the accommodation was inaccessible, least accessible, more accessible, or most accessible.

Accommodation quality: A composite evaluation of a number of amenities such as bathroom or kitchen; services such as electricity, piped water, and drainage; and ambiance such as daylight, ventilation, quiet, and sanitation.

Age: Age of pilgrim.

Bathrooms: Number of bathrooms in a particular housing unit.

Bath users: Number of persons using a particular bathroom in the accommodation.

Occupant density: Number of persons living in each room.

Distance: Linear distance in meters of the accommodation from the Holy Mosque.

Duration of stay: Length of time pilgrim remained in Mecca.

Elevation: Vertical distance in meters of accommodation above sea level.

Floors: Number of floors in a particular housing unit.

Future dwelling cost: The amount of rent the permanent resident preferred to get in the future from the pilgrims for the entire dwelling unit.

Future nationality: The nationality to which the permanent resident was willing to rent his house in the future.

Future rental: The willingness of the permanent resident to rent his house or part of it to pilgrims in the future.

Kitchen users: Number of persons using a particular kitchen in the accommodation.

Mode of travel: Manner in which pilgrim traveled to the Holy Mosque, whether on foot, in private car, by public transportation, or all of the above.

Mode of travel to the Kingdom: Manner in which the pilgrim traveled to Mecca, whether by foot, car, bus, plane, or ship.

Nationalities in a room: Number of pilgrims from each nationality living in a particular room.

Nationality in a neighborhood: The dominant nationality in a particular neighborhood.

Prayers: The five daily required prayers (Fajr, Dhur, A'sr, Maghrib, and I'sha) a pilgrim might perform in the Holy Mosque.

Preferred bath users: The maximum number of persons preferred by pilgrim to use the present bathroom.

Preferred kitchen users: The maximum number of persons preferred by pilgrim to use the present kitchen.

Preferred present occupant density: The number of persons preferred by pilgrim to occupy the present room.

Preferred present rent: The amount of rent pilgrim preferred to pay for the entire period of his stay in Mecca for his present accommodations.

Preferred size: The size room (in cubic meters: length x height x width) the pilgrim preferred to live in.

Recommended density: Recommendations by pilgrim as to the number of future occupants of each room.

Recommended duration: Recommendations by pilgrim for the length of future stays.

Recommended location: Recommendations by pilgrim as to future location choice, whether close to or far from the Holy Mosque, based on whether pilgrim could find cheaper accommodations of better quality than those presently occupied.

Recommended mode of travel: Recommendations by pilgrim for mode of future travel within Mecca, whether by foot, private car, or public transport.

Recommended Mosque visits: Recommendations by pilgrim for frequency of future visits to the Holy Mosque.

Recommended nationality: Recommendations by pilgrim for which nationalities might share a room in the future.

Recommended prayers: Recommendations by pilgrim as to which of the five required prayers should be performed in the future in the Holy Mosque.

Recommended rent costs: Recommendations by pilgrim as to rent of future accommodations based on what he was willing to pay for each room.

Recommended site location: Recommendations by pilgrim as to future sites, either on a mountain close to the Holy Mosque or farther away from the Holy Mosque.

Recommended size: Recommendations by pilgrim as to future size of a room, either the same size or double or triple the present size.

Recommended transportation costs: Recommendations by pilgrim for transportation costs of single trips between his accommodation and the Holy Mosque.

Recommended travel time: Recommendations by pilgrim for future travel time to reach the Holy Mosque from his accommodation.

Rental agent: Whether the pilgrim rented or subleased directly from the mutawif, hamladár, owner, or resident.

Rent cost: Rent paid by pilgrim for the entire period of the hajj, which is usually about 19 days for the majority of pilgrims but which might encompass three months for pilgrims from far-away locations such as Southeast Asia.

Resident: Whether the owner or a renter lived in a particular house.

Resident's nationality: The nationality of the premanent resident.

Room rent: Amount of rent the permanent residents charged the pilgrims per single room in each housing unit.

Rooms: Number of rooms in a particular housing unit.

Size of accommodation: Measurement of room in cubic meters.

Travel costs: Cost of transportation for the pilgrim for each journey from the accommodation to the Holy Mosque.

Travel time: Length of time needed by pilgrim to reach the Holy Mosque from his accommodation.

Type of accommodation: Six types of accommodations used for accommodating the pilgrims: tent, shanty, house, apartment, villa, and hotel. The last was eliminated from the residents' survey.

Visit frequency: Number of daily visits to the Holy Mosque.

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

Alhakail, Ibrahim Abdul Kareem. Municipal Service. Riyadh: Ministry of Municipality and Rural Affairs, 1976-1977.

Almakky, Mohammed Tahir al-Kordi. Al-Tarīkh Al-Gawīm Li Makkah Wa Bait Allah Alkarīm (Authentic History of Mecca and Holy House of God). 1st ed. Vol. 3. Mecca: Al-Nahddah Library, 1385 (1965).

Amin, Mohammed. Pilgrimage to Mecca. London: Macdonald and Jane's Publishers, Ltd., 1978.

Aronovici, Carol. Housing the Masses. New York: John Wiley & Sons, Inc., 1939.

Baltimore Association for the Improvement of the Condition of the Poor. Housing Conditions in Baltimore. New York: Arno Press, 1974.

Bhardwaj, Surinder Mohan. Hindu Places of Pilgrimage in India. Berkeley: University of California Press, 1973.

Blalock, Hubert M., Jr. Social Statistics. New York: McGraw-Hill Book Company, 1972.

Case, Frederick E., ed. Inner-City Housing Enterprise, Based on Studies in Nine Cities. New York: Praeger Publishers, Inc., 1972.

Chapin, F. Stuart, Jr. Urban Land Use Planning. Urbana, Ill.: University of Illinois Press, 1965.

Darden, Joe T. Afro-Americans in Pittsburgh, The Residential Segregation of People. Lexington, Mass.: D. C. Heath & Company, 1973.

Herbert, David. Urban Geography: A Social Perspective. New York: Praeger Publishers, 1973.

Hughes, James W. Method of Housing Analysis. New Brunswick, N.J.: Center for Urban Policy Research, The State University of New Jersey, 1977.

Kamal, Ahmed. The Sacred Journey. London: George Allen and Unwin, Ltd., 1961.

Kantrowitz, Nathan. Ethnic and Racial Segregation in the New York Metropolis: Residential Patterns Among White Ethnic Groups, Blacks, and Puerto Ricans. New York: Praeger Publishers, Inc., 1973.

Kilbridge, Maurice D.; O'Block, Robert P.; and Teplitz, Paul V. Urban Analysis. Boston: Division of Research, Graduate School of Business, Harvard University, 1970.

Lansing, John B., and Morgan, James N. Economic Survey Methods. Ann Arbor: Survey Research Center of the Institute for Social Research, The University of Michigan, 1971.

Laurenti, Luigi. Property Values and Race. Berkeley: University of California Press, 1960.

Makky, Ghazy. Mecca, The Pilgrimage City. London: Groom Helm Publishers, 1978.

Mandelker, Daniel R., and Montgomery, Roger. Housing in America: Problems and Perspectives. Indianapolis: The Bobbs-Merrill Company, Inc., 1973.

Matthew, Robert, and Johnson, Marshall. Alternative Urban Strategies. A report for the Kingdom of Saudi Arabia. Riyadh: Ministry of Interior, Municipal Affairs, Regional and Town Planning Department, August 1972.

_____. Master Plan Report: Mecca, Western Region Plan. A report for the Kingdom of Saudi Arabia. Riyadh: Ministry of Interior, Municipal Affairs, Regional and Town Planning Department, 1973.

Monahan, J. H. Mekka in the Latter Part of the Nineteenth Century. London: Luzac & Company, 1931.

Muth, Richard F. Cities and Housing: The Spatial Pattern of Urban Residential Land Use. Chicago: University of Chicago Press, 1969.

Park, R. E.; Burgess, E. W.; and McKenzie, R. E., eds. The City. Chicago: The University of Chicago Press, 1960.

Reid, Margaret G. Housing and Income. Chicago: The University of Chicago Press, 1962.

Richardson, Harry W., et al. Housing and Urban Spatial Structure: A Case Study. Westmead, England: D. C. Heath, Ltd., Saxon House, 1975.

Rugg, Dean S. Spatial Foundations of Urbanism. Dubuque, Iowa: Wm. C. Borwn, 1972.

Seidel, Stephen R. Housing Costs and Government Regulations. New Brunswick, N.J.: Center for Urban Policy Research, The State University of New Jersey, 1978.

Stengel, Mitchell. Racial Rent Differential. East Lansing: Michigan State University, Business Studies, 1976.

_____. Racial Rent Differentials: Market Separation and the Ghetto Housing Market. East Lansing: Division of Research, Graduate School of Business Administration, Michigan State University, 1976.

Straszheim, Mahlon R. An Econometric Analysis of the Urban Housing Market. New York: Columbia University Press, National Bureau of Economic Research, 1975.

West, D. J. Eleven Lourdes Miracles. London: Duckworth & Company, Ltd., 1957.

Wijayatilake, S. R. Buddhist India, The Pilgrim Path. Columbo: The Columbo Apothecaries Company, Ltd., 1969.

Wirth, Louis. The Ghetto. Chicago: University of Chicago Press, 1928. (Also in paperback by same publisher, Phoenix Books, 1965.)

Wolman, Harold L. Housing and Housing Policy in the U.S. and U.K. Lexington, Mass.: D. C. Heath & Company, 1975.

Articles

Abir, M. "The 'Arab Rebellion' of Amir Ghālib of Mecca (1788-1813)." Middle Eastern Studies 7 (May 1971): 185-200.

ad'Din, Abu Bakr Siraj. "Pilgrimage to Mecca." Studies in Comparative Religion 1 (Winter 1967): 172.

Bailey, Martin J. "Effects of Race and Other Demographic Factors on the Values of Single-Family Homes." In Urban Analysis. Edited by Alfred N. Page and Warren R. Seygried. Glenview, Ill.: Scott, Foresman & Company, 1970.

Birks, J. S. "Overland Pilgrimage From West Africa to Mecca: Anachronism or Fashion?" Geography 62 (1977): 216-17.

_____. "Review of Pilgrims in a Strange Land: Hausa Communities in Chad, by John A. Works, Jr." Journal of African History 19 (1978): 291-93.

Blake, Gerald. "A Rising Tide in Mecca." Middle East International 58 (April 1976): 16-18.

Boxhall, Peter. "The Hard Way to Mecca." Middle East International 62 (August 1976): 23-28.

Clothey, Fred W. "Pilgrimage Centers in the Tamil Culture of Murukan." Journal of the American Academy of Religion 40 (1972): 79-95.

Cobbold, Evelyn, Lady. "Pilgrim to Mecca." The Geographical Magazine 1 (May-October 1935): 107-16.

Darden, Joe T. "Residential Segregation of Blacks in the Suburbs: The Michigan Example." Geographic Survey 5 (July 1976): 7-16.

Dunbar, G. S. "West African Pilgrims to Mecca." Geographical Review 67 (1977): 483-84.

Eickelman, Dale F. "Is There an Islamic City? The Making of a Quarter in Moroccan Town." International Journal of Middle East Studies 5 (1974): 274-97.

Ghafur, Abdul, Sheikh. "From America to Mecca on Airborne Pilgrimage." The National Geographic Magazine 104 (July 1953): 1-60.

Gould, Donald. "Despite Skeptics, Lourdes Is Still a Source of Solace." Smithsonian 6 (October 1975): 118-25.

Hamidullah, M. "The City State of Mecca." Islamic Culture: The Hyderabad Quarterly Review 12 (July 1938): 255-75.

Harris, C. D., and Ulman, E. L. "The Nature of Cities." Annals of the American Academy of Political and Social Science, November 1945, pp. 7-17.

Hartman, George W., and Hook, John C. "Substandard Urban Housing in the United States: A Quantitative Analysis." Readings in Urban Geography, pp. 511-29. Chicago: University of Chicago Press, 1960.

Higgs, Gary K.; Armink, Ludwig; Winton, David W.; and Moss, Thomas C. "Accessibility." Proceedings of the Association of American Geographers 8 (1976): 89-95.

Hoyt, Charles K. "Housing the Aging." Architectural Record, May 1977, pp. 123-25.

Hurgrorjf, Snouk. "Some of My Experiences With the Muftis of Mecca." Journal of the R.S.A.A. 7 (February 1977): 25-37.

Ibrahim, Saad E. M. "Over-urbanization and Under-urbanism: The Case of the Arab World." International Journal of Middle East Studies 6 (1975): 29-45.

Isaac, Erich. "The Pilgrimage to Mecca." Geographical Review 63 (1973): 405-409.

Jeffrey, Arthur. "Christians at Mecca." The Moslem World 19 (July 1929): 221-35.

Kayyastha, S. L., and Singh, S. N. "A Study of Preferences and Behaviour Patterns of Tourism in Varanasi." The National Geographical Journal of India 23 (September-December 1977): 144.

King, Russell. "The Pilgrimage to Mecca: Some Geographical and Historical Aspects." Erdkunde 26 (1972): 61-75.

Kister, M. J. "Mecca and Tamīm; Aspects of Their Relations." Journal of the Economic and Social History of the Orient 8 (November 1965): 113-63.

_____. "Some Reports Concerning Mecca, From Hāhiliyya to Islam." Journal of Economic and Social History 15 (June 1972): 61-93.

Laurenti, Luigi. "Theories of Race and Property Values." In Urban Analysis. Edited by Alfred N. Page and Warren R. Seyfried. Glenview, Ill.: Scott, Foresman & Company, 1970.

Lawless, Paul. "Arab Chic." Architecture Design 46 (Summer 1976): 564-69.

McQuade, Walter. "The Arabian Building Boom Is Making Construction History." Fortune, September 1976, pp. 112-15.

Maeda, Narifumi. "The After Effects of Hajj and Kaan Buat." Journal of Southeast Asian Studies 6 (1975): 178-89.

Matley, Ian M. "The Geography of International Tourism." Association of American Geographers, Resource Paper No. 76-1, 1976, pp. 1-40.

Mayer, D. R. "Inter-Urban Differences in Black Housing Quality." Annals of the Association of American Geographers 63 (1974): 347-52.

Mitchell, Nora. "Review of Hindu Places of Pilgrimage in India, by Surinder Mohan Bhardwaj." Geographical Reviews 65 (1975).

Mittal, Ved Prakash. "Low Cost Housing System--The Urban Poor." In Housing Problems in Developing Countries, Proceedings of the IAHS International Conference 1978. Vol. 2. Edited by Fahd H. Dakhil, Oktay Ural, and Moneer F. Tewfik. Dahran, Saudi Arabia: University of Petroleum and Minerals; New York: John Wiley and Sons, 1978.

Pleeter, Saul. "Residential Location Theory: Some Modifications." Geographical Analysis 6 (October 1974): 369-75.

Reeder, Leo G. "Social Differentials in Mode of Travel, Time, and Cost in the Journey to Work." American Sociological Review 21 (February 1956): 56-63.

Reid, Donald. "Review of The Hejaz Railway and the Muslim Pilgrimage: A Case of Ottman Political Propaganda, by Jacob M. Landau." International Journal of Middle East Studies 5 (1974): 503-505.

Richardson, H. W. "A Generalization of Residential Location Theory." Regional Science and Urban Economics 7 (1977): 251-66.

Rutter, Eldon. "The Muslim Pilgrimage." The Geographical Journal 74 (September 1929): 270-73.

Scherer, Jacqueline. "A Case Study of Students Living in Flats and at Home." In Residence and Student Life. Edited by Joan Brothers and W. R. Niblett. London: Tavistock Publications, 1971.

Senior, M. L. "Approaches to Residential Location Modeling." Parts I and II. In Environment and Planning Analysis, 1974.

Siddigi, Amir Hassan. "Makkah." Cultural Centers of Islam. Karachi: Jamiyat-al-Falah Publications, 1970.

Stegman, Michael A. "Accessibility Models and Residential Location." Journal of American Institute of Planners 35 (1969): 22-29.

Tanka, H. "Geographic Expression of Buddhist Pilgrim Places on Shikoku Island, Japan." The Canadian Geographer 21 (Summer 1977): 111-32.

Wittebort, Suzanne. "Petr Spurney's Olympian." Fortune, 14 January 1980, pp. 82-85.

Wolf, Eric R. "The Social Organization of Mecca and the Origin of Islam." Southwestern Journal of Anthropology 7 (Winter 1951): 329-57.

Zwemer, Samuel M. "Al Haramain: Mecca and Medina." The Moslem World 37 (January 1947): 7-15.

_____. "Mecca the Mystic: A New Kingdom Within Arabia." The National Geographic Magazine 32 (August 1977): 157-72.

Theses and Dissertations

Angawi, Sami Mohsin. "Al Hajj." Master's thesis, University of Texas, Austin, 1975.

Bushnak, Adil Ahmed. "Planning and Evaluation of Special Event Transportation Systems With Application to the Hajj." Ph.D. dissertation, University of Michigan, 1977.

El-Hamdan, Soliman Aquil Soliman. "The Pilgrimage to Mecca: A Study of the Physical Planning Problems With Special Reference to the Increasing Numbers of Pilgrims and Changing Modes of Travel." Ph.D. dissertation, University of Sheffield, 1976.

Ipcar, Charles. "The Rental Housing Market of a University Town: An Analysis of Rent Discrimination and Landlord Oligopoly in East Lansing." Ph.D. dissertation, Michigan State University, 1974.

Long, David Edwin. "The Hajj Today: A Survey of the Contemporary Pilgrimage to Makkah." Ph.D. dissertation, George Washington University, 1973.

Medugbon, Andrew Kayod. "Geographical Aspects of the Hajj, With Emphasis on Northern Nigeria." Master's thesis, University of California, Los Angeles, 1973.

Shair, Issa Musa. "Spatial Pattern of Muslim Pilgrim Circulation." Ph.S. dissertation, University of Kentucky, 1977.

Miscellaneous

Al-Otaibi, Ghazi Sahal. "Urban Dwelling Environment in Rapidly Growing Cities. Mecca, Saudi Arabia." Education/Research Program: Urban Settlement Design in Developing Countries. Cambridge, Mass.: School of Architecture and Planning, Massachusetts Institute of Technology, May 1980.

Burgis, Abdullah, Vice-Minister of the Hajj. "Project of Proposed Rules for Pilgrim Establishments." Unofficial report written in Arabic. Saudi Arabia: Ministry of the Hajj, 1979.

El-Shawaf, Salama A., Advisor to the United Nations Physical Planning Project in Saudi Arabia. "Personal and Family Housing Autonomy Versus Public Housing Systems" (available from the author).

Hajj Research Center. "Pilgrims' Movements, 1977 (1937 AH)." Unpublished data, Hajj Research Center, King Abdul Aziz University, Jeddah, Saudi Arabia.

McIntoch, Robert W. Tourism and Your Community. Extension Bulletin #-729. Recreation and Tourism Series. East Lansing: Michigan State University, Cooperative Extension Service, November 1971.

Makky, Ghazy A. "The Spatial Structure of Off-Campus Housing Among MSU Foreign Students." Paper presented to Ph.D. Committee, Department of Geography, Michigan State University, June 1978.

Michigan State University. SPSS 6000 Supplement. East Lansing: Computer Laboratory, Michigan State University, 1978.

Saudi Arabia. Ministry of the Hajj. "Official Document No. 140, 13/5/1385 (1975)."

_____. Ministry of the Hajj and Awgāf. Ministry of the Hajj and Awgāf's Work Strategy in the Holy Places and Mutawifs' Names and Addresses. Jedda: Dar Al-Asfhani Press, 1977 (1397).

_____. Ministry of the Hajj and Awgāf, Office of the Minister. "Hajj Instructions, 1399 (1979)." Riyadh: Shemrakh Printing Press, 1979.

_____. Ministry of Interior. Department of Passport and Civil Affairs, Statistical Section. Pilgrim Statistics for 1971-1979 (1390-1399 AH).

Stephenson, David E., and Makky, Ghazy A. "Spatial Structure of a Cultural Microcosm: The Example of Mecca." Paper presented at the annual meeting of the Association of American Geographers, Special Session, New York, 12 April 1976.

United Nations. 1978 Report on the World Social Situation. Number ST/ESA/87. New York: United Nations, 1979.

_____. Department of International Economic and Social Affairs, Statistical Office. Compendium of Housing Statistics, 1975-1977. 3rd issue. New York: United Nations, 1980.

_____. World Housing Survey 1974: An Overview of the States of Housing, Building and Planning Within Human Settlements. Number ST/ESA/30. New York: United Nations, 1976.

Villa, Luis Casanova. "Planning and Tourism." Conference Paper #4, presented at the 30th World Congress of International Federation for Housing and Planning. The Hague, Netherlands, 1971.

Yefremov, Y. U. K. "Geography and Tourism." Cited by Ian M. Matley, "The Geography of International Tourism." Association of American Geographers Resource Paper No. 76-1, 1976.

Zachinyayeu, P. N., and Fal'Kovich, N. S. Geography of International Tourism. Cited by Ian M. Matley, "The Geography of International Tourism." Association of American Geographers Resource Paper No. 76-1, 1976.

Interviews

Angawi, Sami M. Hajj Research Center, King Abdul Aziz University. Jeddah, Saudi Arabia. Interview.

bin-Zafir, Ghazy. Chairman of Saudi Arabian Properties and Land Value Estimation, Mecca. Interview, October 1979.

Vice-Minister of Accommodation Ministry. Jedda, Saudi Arabia. Interview, September 1979.