AN ABSTRACT OF THE THESIS OF

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Title: A Study of Single-Family Residences in Corvallis, Oregon: Identifying Predisposing Factors of Declining Residential Exterior Conditions

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Americans perceive renters as less interested and less vested in their residences than owner-occupants. These perceptions stem in part from historical and current day promotion of the homeownership tenure norm. Although this has achieved its main goal, that of reinforcing owner occupancy as the societal tenure norm, it has also encouraged bias against renters and non-owner occupied dwellings.

Maintenance of rental units is ultimately the responsibility of the owner. One might expect landlords to exert approximately the same amount of upkeep effort towards their rental property investments as they would towards their own residence. Maintaining the homes in good condition would protect their investment from devaluation.

The first objective was to determine what pre-established perception, if any, Corvallis residents have of non-owner occupied residences. The second was to identify relationships between the selected characteristics and the exterior condition

of single-family residences. The characteristics analyzed were: 1) *Tenure* (of the residents), 2) *Age of the structure*, 3) Condition of neighboring residences (*Neighborhood Condition*), 4) A *Maintenance Management Factor* and, 5) *Proximity of Owner* (to the residence). The final objective was to ascertain if renter occupied homes were more likely than owner occupied to possess those predisposing characteristics that make a dwelling more susceptible to decline.

Three residential dwelling characteristics were identified as having an influence on the exterior condition of single-family homes in Corvallis. These were *Tenure, Age of Structure* and *Neighborhood Condition.* Non-owner occupied residences, older dwellings, and units in poor condition neighborhoods tended to have poor quality exterior conditions themselves. Of the three the only characteristic predisposed to decline linked to rental residences was *Tenure*. Although the chi-square and ANOVA test results relate neighborhood condition and age to exterior conditions of dwellings, the results also suggest that a rental home is not more likely than an owner occupied home to be older or to be located in a poor condition neighborhood

Identification of residential characteristics that predispose a dwelling to decline could benefit renters and owners of rental properties. The outcomes could assist in the development of policies that provide financial support and/or education to owners of homes that possess those characteristics. Renters would benefit if the policies would encourage improved quality of rental dwellings.

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A Study of Single-Family Residences in Corvallis, Oregon: Identifying Predisposing Factors of Declining Residential Exterior Conditions

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INTRODUCTION

PROBLEM STATEMENT

Americans perceive renters as less interested and less vested in their residences than owner-occupants. The root of this belief lies in American and Western societies' favorable outlook on home and land ownership (Morris & Winter, 1994, p. 97). These perceptions also stem in part from historical and current day encouragement of the homeownership tenure norm. A compelling example of this was the following statement made by President Hoover regarding homeownership in the foreword of Gries and Taylor's book *How to Own Your Home* (as cited in Gries & Ford, 1932a):

> A family that owns its home takes pride in it, maintains it better, gets more pleasure out of it, and has a more wholesome, healthful, and happy atmosphere in which to bring up children. The home owner [*sic*] has a constructive aim in life. He works harder outside his home; he spends his leisure more profitably; and he and his family live a finer life and enjoy more of the comforts and cultivating influences of our modern civilization. A husband and wife who own their home are more apt to save. They have an interest in the advancement of a social system that permits the individual to store up the fruits of his labor. As direct taxpayers they take a more active part in local government. Above all, the love of home is one of the finest instincts and the greatest of inspirations of our people. (p. 1)

At issue are the implications of this statement. Although these perceptions have achieved their main goal, that of reinforcing owner occupancy as the societal

tenure norm, they have also, perhaps inadvertently, encouraged bias against renters and, in turn, against non-owner occupied dwellings. Since the belief is that renters do not maintain their residences, the homes where renters reside are then viewed as having an increased susceptibility to decline. These preconceptions regarding renters continue to prevail in society today as is evident in the following recent statement:

> Beyond shelter, owner-occupied housing is a symbol of the household's accumulation of wealth and success, a representation of middle-class values, a measure of status within the community, and a means of access to greater opportunities. (Koebel and Zappettini, 1993, p. 36)

Government has enacted incentive based policies enforcing the ownership tenure norm, such as the allowance of mortgage interest and property tax deductions, capital gains exclusions, and by making lower interest insured home mortgage loans available. According to Ozanne and Struyk, "The arguments most often heard on behalf of the federal income tax benefits to homeownership are (1) homeowners maintain their dwellings in superior condition, and (2) homeownership enhances neighborhood stability by increasing financial interest in the area" (1976, p. 23).

Our government and historic background are only two of many entities encouraging homeownership. Financial institutions also help support ownership as the tenure norm. Creditors view homeowners as stable and in possession of capital assets, and therefore have made loans and other types of credit more accessible to owners than to renters (Morris & Winter, 1994, p.100).

There are also provisions in place that promote ownership of residential rental properties. The owner of a rental residence is able to deduct the interest on the mortgage, and most maintenance and operating expenses related to the rental residence. The building could also be depreciated over a period of twenty-seven years translating into a substantial tax write off for the owner (Ficek, Henderson & Johnson, 1990, p. 487). These policies could directly and indirectly benefit renters by encouraging maintenance and rent reductions by the owner. However there is no guarantee that the savings from tax incentives will be passed on to the renter rather than increase the owners investment profit. Ozanne and Struyk observed that, "It is well known that these benefits represent a net pecuniary advantage to homeowners compared to renters..." (1976, p. 23).

It is important to remember that both homeowners and landlords have investments in the homes they own. It is because of this connection to the property that one might expect landlords to exert approximately the same amount of upkeep effort towards their rental property investments as they would towards their own residence. Maintaining the homes in good condition would protect their investment from devaluation. The decision to perform repairs is often influenced by different factors. For the owner of rental dwellings this may be strictly a business decision upon which opportunity costs might have an influence. Owners however, are generally accountable for the maintenance of their residences and investment dwellings, which led us to question two things:

(1) Are those units purchased as investment rental dwellings at a greater likelihood to exhibit declining conditions than those purchased for the owners place of residence; and

(2) What characteristics of the dwelling may be working in ways that contribute to the structure's susceptibility to deterioration?

Research on predisposing characteristics of a residence that make the dwelling more susceptible to decline is needed. Identification of these characteristics would benefit renters and owners of rental properties. The outcomes could assist in the development of policies that would provide financial support and/or education to owners of homes that possess those characteristics. Renters would also benefit through improved quality of rental residences.

RESEARCH APPROACH

There were three research questions investigated. The first was to determine what pre-established perception, if any, Corvallis residents have of non-owner occupied residences. The second was to identify relationships between the predisposing characteristics listed below and the exterior condition of single-family residences. The last was to assess if renter occupied homes are more likely than owner occupied to possess those predisposing characteristics that make a dwelling more susceptible to decline. The residential dwelling characteristics being analyzed are as follows:

1. Tenure status of the residents

2. Age of the structure
3. Condition of neighboring residences
4. A maintenance management factor and,
5. Proximity of the owner to the residence

OBJECTIVES

One objective was to learn if tenure status, the age of a residential structure, condition of neighboring residences, type of maintenance management employed, and the proximity of the owner to the residence impact the exterior condition of a residential unit. This will allow us to determine which of these variables may play a role in the deterioration of exterior residential conditions.

As stated previously, rental residences have been associated in the literature with poor residential conditions. Therefore, the second objective was to determine if there are other characteristics aside from the tenure of residents associated with the decline of the exterior condition of rental units.

OPERATIONAL DEFINITIONS

The following definitions were attained from the Merriam Webster's Collegiate Dictionary (1993).

Landlord: The owner of property that is leased or rented to another.

Maintenance: The act of maintaining or the upkeep of property or equipment. Maintenance and Upkeep (The act or cost of

maintaining in good condition) will be used interchangeably in this thesis.

Tenure: The act, right, manner, or term of holding something. (Morris and Winter defined Tenure as, "the mode of holding or possessing housing" (1993, p. 114))

The remaining definitions were established for the purpose of this research.

Homeowner: In this thesis, the term homeowner refers only to owner of owner-occupied residences.

Maintenance Management Factor: The person or company responsible for the exterior structural maintenance of the residence.

Neighboring residences: This refers to the six closest homes in distance to the home being researched. Preference of inclusion was given to those residences that were in view of the residential frontage

LITERATURE REVIEW

CONTRIBUTORS TO SOCIETY'S PERCEPTIONS OF OWNER AND NON-OWNER OCCUPIED RESIDENCES

Historical Landlord/Tenant Relations

> In American society the form of tenure - whether a household owns or rents its place of residence - is read as a primary social sign, used in categorizing and evaluating people, in much the same way that race, income, occupation and education are. (Ozanne & Struyk, 1976, p.32)

There are many variables that have contributed to social perception of renters and non-owner occupied homes. Throughout the review of literature two factors were repeatedly mentioned. The factors were; (1) the conflicts that existed between landlords and their tenants, and (2) the promotion of homeownership by various governments as an economic stimulator.

Landlords have been providers of what fulfills one of the most basic human needs, shelter. Because of this important role in the lives of so many, landlords have been ranked high in the social hierarchy. This endowed them with privileges to which their tenants were not entitled, such as the right to vote. The elevated social status and ability to vote also contributed to their great influence on our political system. Contrasting to the landlords' political influence the tenants' lack of real property banned their right to vote. This robbed tenants of the power to influence political decisions that would impact their lives. According to Ficek et al., "Land law was the first area of law to become established because the majority of

wealth and, consequently, litigation stemmed from land and its ownership" (1990, p.137).

Another source of power for the landlord was the chronic indebtedness to him by his tenants. Landlords were not only suppliers of shelter but also of credit for their rental units. The credit, if awarded, was provided only after the prospective tenant had been strongly scrutinized. According to McCrone & Elliott (1989):

> Being a tenant was not simply an indicator of low income, but of social even moral inferiority, because all sorts of intimate details had to be disclosed in order to be worthy of credit. As a class, workers and their families were locked into a system which obviously acted as a powerful means of social control. (p. 29)

Links between those that had property interests and local politics were common. As McCrone and Elliott noted, "...cities have for centuries been governed by those who own land, commercial or industrial, capital or housing" (1989, p. 69).

The strength of the landlord's presence in the political system had a great role in establishing the negative perceptions of renters and rental residences. Landlords often blamed dwelling deterioration on the tenants. The result was the branding of rental units and renters as undesirable neighbors. Also, the tenants' exclusion from political activism was caused in part by the political influence of the landowners. This led to the belief that renters were less interested in their communal political arena.

Homeownership as an Economy Stimulator

The second factor contributing to negative perceptions of renters and rental property repeatedly mentioned in housing literature is the promotion of homeownership investment. As Perin (1977) stated:

> The function of long-term debt is, I suggest, to enhance predictability in the housing and banking industries, a kind of stability more usually couched, however, in personalistic [*sic*] terms: that the homebuyer has a long-term vested interest in the neighborhood, the community, and the maintenance of the household's own property and that of others- which indeed may all be the acted consequences of having put what are usually all of a household's savings into a down payment. Oppositely, the social system provides no such ties as would positively integrate the renter into it: by throwing doubts on or disallowing the right to be heard on local issue, when standing is dependent on being a property owner and/or taxpayer, and by discriminating in the Internal Revenue Code, such that tenure denies renters the same rights of citizenship. (p. 73)

Through the tax deductions and allowances provided by our tax code to both homeowners and owners of rental properties, long-term mortgage debt is being encouraged. The capital gains tax allowance mentioned previously is a strong example of legislation's promotion for retaining homeownership status. Perin suggested that both government and society in general value one form of tenure over the other, that of homeownership. Further, that although homeownership is usually accompanied by long term debt, government policies and society look more favorably upon an owner's mortgage indebtedness than a person free of that debt, such as a renter. (Perin, 1977, p. 73)

The long-term housing debt, which includes a mortgage with large amounts of interest, taxes, and expenses for upkeep, renovations, remodeling, furnishing,

and landscaping, is a constant source of monetary inflow to our market economy. Brito (2002) stated, "...real estate investment accounts for over 50% of total private investment in the United States, and real estate assets represent just under 60% of the nations wealth" (p. 247). In his research Brito (2002) found that the long-term "endogenous" growth rate for the economy depends critically on housing-related production parameters. He refers to housing as an investment and as an input to production.

Due to the level of housing expenses a homeowner is likely to incur economists and politicians promote homeownership as an economic stimulator. The endorsement of ownership, however, neglects to address the importance of quality rental housing on our economy. Availability of rental residences is important because as Ficek et al. (1990) state:

> The rental housing market satisfies the needs of: (1) Persons with less secure or lower incomes, including mobile or seasonal workers, (2) Newly married couples without sufficient assets or income to meet the down payment, closing costs, or monthly payments needed to buy a home, (3) Single persons, and (4) Some professionals or executives who prefer the luxury and convenience of urban centers.

IMPORTANCE OF EXTERIOR CONDITION OF RESIDENCES

The exterior condition of a structure has a great influence on the residence itself, its occupants, and on the neighborhood in which it is located. It is the first aspect of the home to which investors, buyers and surrounding residents are exposed. This first impression could influence an investment decision concerning

the property. If prospective investors or appraisers perceive the dwellings' exterior as poor or declining, the market value of the unit could be negatively effected, since exterior condition is an important factor that helps establish the appraisal price of the unit.

The external shell of a dwelling protects the interior from adverse weather and natural conditions. If this is not well maintained the dwelling could be compromised. Neglect could lead to the introduction of leaks, pests and drafts. A leak could promote an atmosphere ideal for wood rot or termites that could debilitate the framework of the residence.

Moisture introduces mold and mildew into a living space, which according to Kent Weiss, the Manager of the Housing Division for the City of Corvallis' Community Development Department, is an increasing concern in the northwestern United States. The molds and mildews caused by moisture could be detrimental to the residents' health. "Water damage in run-down housing may expose young residents to *stachybotroys atra, a* fungus whose toxin has been linked to fatal hemorrhage in the lungs of infants" (Sharfstein & Sandel, 1998, p. 17).

Declining exterior conditions could cause other interior problems such as the presence of drafts and pests in the home. For both owner-occupants and renters declining dwellings could lead to poor living conditions, health problems, high energy costs, and to an inclination to relocate.

The exterior condition of residential structures not only affects the dwelling and its residents, but may also impact upkeep behavior patterns of neighbors.

Neighbors, observing that the condition of other units in the neighborhood is declining, might refrain from investing in residential upkeep themselves. The exterior condition of a residence, observed Galster (1987) "...is in some respects, the most crucial measure of upkeep, because it is the presence of exterior defects that potentially produces negative externalities and subsequently altered housing upkeep behaviors for neighbors" (p. 179).

Research documents that a dwelling's exterior condition affects many aspects of a residence. The focus of this study was to identify residential factors that influence the exterior condition of single-family residential dwellings. Tenure, condition of neighboring residences, age of the structure, the maintenance management type, and the proximity of the owner to the residence were investigated as key factors influencing the exterior maintenance of dwellings.

INFLUENTIAL FACTORS ON THE EXTERIOR CONDITION OF A RESIDENCE

Tenure

It is believed that the tenure status of the residents greatly impacts the residences' exterior condition. Perin (1977), in her research on perceptions of renters and owners, found that her subjects believed that the tenure status of the residents was evident by the condition of the exterior of the dwelling. No empirical

data were found however, supporting the theory that owner occupied dwellings display better conditions (interior or exterior) than non-owner occupied units.

There is research however, that documents differences between behavior patterns of owner-occupants and renters. Rosenberry and Hartman (1989) found that when conditions of a structure start to decline, owner occupants are more apt to engage in maintenance and residential alterations, while renters tend to relocate. This is perhaps due to three things: (1) their different levels of control over maintenance decisions; (2) their different levels of assured tenure; and (3) the difference in the amount of invested capital in the residence. "Renters very seldom invest money in a dwelling owned by someone else. The crucial factor may not be ownership per se. Rather it is security in the continuity of tenure" (Morris & Winter, 1993, p. 177).

Therefore it is not the upkeep behavior of the residents that is crucial to dwellings' exterior condition but the behavior of the owner. Maintaining a rental structure in good condition would benefit both the owner and the occupants. The residents would benefit from the improved quality of the residence, while the owners' monetary investment would be protected from devaluation. "Even routine maintenance can be viewed as an investment activity, in that the quality of the dwelling, and hence the owner's equity, is maintained or improved" (Morris & Winter, 1993, p. 179).

Condition of Neighboring Residences

The influence the condition of other homes in the neighborhood has on the owners' level of upkeep to a residence should not be underestimated. The manner in which owners of rental residences perceive the surrounding environment of the rental dwelling may influence their behavior. If owners see that homes in that neighborhood are being well cared for, their inclination to maintain their dwelling in good condition may increase. In, *Homeowners and Neighborhood Reinvestment*, Galster examined how neighborhood characteristics shape home upkeep decisions. In his research he found that the upkeep decisions of the residents of owner-occupied units are influenced by the condition of surrounding dwellings. Investment in maintenance of dwellings increased when owners perceived an increase in maintenance investment on the part of their neighbors (Galster, 1987). Galster stated that, "...current neighborhood conditions shape homeowners' estimates of how the market will value their homes at time of sale" (1987, p.197). This perceived value of the dwelling by the owner greatly affects the level of exterior upkeep allocated to a unit.

Ioannides (2002) also explored the influence of neighborhoods on maintenance behavior of individuals. His was a social perspective of owners' propensity to upkeep their owner occupied dwellings. Ioannides' research results provide empirical support linking social interactions of neighbors to maintenance behavior. He found that "...the maintenance behavior of individual homeowners is influenced by those of their neighbors" (Ioannides, 2001, p. 160).

Age of Structure

The age of a building is important to consider when analyzing exterior condition of owner and non-owner occupied residences. An older home might have characteristics that would make it more vulnerable to deterioration. In fact the age of a structure is so important that housing surveys, such as the *Kansas Housing Template,* list age as a characteristic identifying a homes' vulnerability to dilapidation. Ficek et al. (1990) directly correlated repair and maintenance costs with, among other factors, the age of a building.

Contrary to Ficek et al., Galster, in his study of the effects of the age of a building on exterior upkeep, found that older homes did not necessarily display poorer exterior conditions (1987). Galster stated that, "Yet it is clear that older structures do not inevitably decay, and that many homeowners invest enough in them to deter visible defects" (1987, p. 222).

Maintenance Management Factor

The management factor in this research refers to the entity assigned the duty of maintaining the structural exterior of the residence. In most cases, upkeep of owner occupied homes is both performed and managed by the resident owners. The management of maintenance activities for non-owner occupied units can vary. Maintenance for some rental units is managed by the owner or is contracted out to a private rental agency. For others a tenant might be contracted to upkeep the property. Yet another scenario would be in cases where the owner lives in the

dwelling, rents out adjacent units, and maintains the residence himself, such as in a duplex or an apartment complex.

The maintenance management factor may vary. The owner however is ultimately responsible for the condition of the residence by either making repairs himself or by authorizing and financing maintenance expenditures. As Ficek et al. (1990) stated in the following quote,

> Until recently, the state of caveat emptor (let the buyer beware) prevailed in the relationship of the landlord and tenant, and the landlord was under no obligation to repair the leased premises. Today, however, many states have statutory laws requiring the landlord to keep any building leased for dwelling purposes in condition fit for habitation. (p. 126)

There are many variables that may influence the owners' decision of whether to contract out the maintenance. These include the difference in cost, the amount of time the repair would take, the effort needed and the quality of the work performed. Research comparing the displayed quality of upkeep provided by different contracted entities to that of the owners would assist the landlords in their maintenance decisions. No research was located studying effects of the various types of maintenance management styles on dwelling conditions. Perhaps this is due to the difficulty in separating the maintenance responsibility of the management entity from that of the owner. For this research the focus was the relationship between the maintenance management type employed by the owner and the exterior condition of the dwelling. This allowed us to determine if residential conditions differ based on the type of maintenance management

employed and to identify the managerial styles that are associated with declining conditions.

Proximity of Owner to the Residence

Although society perceives the tenant as responsible for day-to-day maintenance of the rented property, most improvements and upkeep are the responsibility of the landlord. Repairs to rental units could be difficult for owners who have put geographic distance between themselves and those properties. "Peterson and Sternlieb observed better care of rental units by both the owner and the tenants when the owner was regularly present" (as cited in Ozanne & Struyk, 1976, p. 54).

McCrone and Elliot (1989) also acknowledged proximity of the owner to the dwelling unit, as an influential factor on residential conditions. In their research of British homes they found that rental units tend to be better maintained and are less likely to suffer disrepair if the owner maintains personal contact with the residents (1989). As stated in the following quote from their book, *Property and Power in the City*,

> There is, then, a clear connection between profitability and personal involvement. Careful management of the property meant that it was easier to spot trouble sooner, and there was no better manager than oneself, many believed. Those who put distance between themselves and their tenants fared less well. It is a moot point whether the unprofitability [*sic*] of much rented property derives from its form and condition, or from the landlord's orientation to it. (1989, p. 157)

Research studies document the improved conditions of rental dwellings when the owner is in close proximity to the residence. We can now pose the question, does a relationship exist between (a) the amount of spatial distance placed between the owner and the residence, and (b) the exterior condition of that residence.

The need for research analyzing factors that may influence dwelling conditions is evident. This research identifies residential characteristics that may contribute to the deterioration of residential units, and assists in determining if rental single-family homes are more prone to possessing those characteristics. The findings could then be employed to address housing, residential development and neighborhood rehabilitation need. An aim of this research was to contribute to the body of knowledge used to address housing needs of non-owner occupied residences.

THEORETICAL FRAMEWORK

A widely based theory exists, linking poor residential conditions to rental occupancy. Literature supports this theory yet empirical data are scarce and often inconclusive. Research is needed to determine if rental residences are more likely to be in poor condition than owner-occupied residences and if so, to identify causes. We need to ask what influences owners' level of upkeep provided to their residences? This could then be followed by analysis of variables that contribute to the condition of dwellings. The relationship between the variables within the following categories and residential conditions should be researched:

1. The tenure status of the residents
    a) Owner occupied versus renter occupied
    b) Duration of occupancy
2. The characteristics of the residence
    a) Number of units
    b) Assessed/Market value of the residence
    c) Age of structure
    d) Lot size
    e) The parcels' designated zoning
    f) Location
3. The maintenance managerial style used
    a) Maintenance by owner versus another entity (Maintenance Management factor)
    b) Proximity (in distance) of owner to residence
    c) Profit based
    d) Sentimental value based
4. Neighborhood characteristics
    a) Tenure status of neighbors
    b) Condition of neighboring residences
    c) Role of Neighborhood Associations
    d) Location

e) Designated zoning within neighborhood (density and classification mix)

f) Assessed/Market value of neighboring residences

5. An owners' perception of the rental residence
   a) Investment
   b) Sentimental value
   c) Burden versus asset
6. Demographic and other characteristics of the owner
   a) Education
   b) Marital status
   c) Age
   d) Yearly income
   e) Connections to city and neighborhood
7. Demographic and other characteristics of the renters
   a) Education
   b) Marital Status
   c) Employment status
   d) Age
   e) Income
   f) Assistance recipient status (including housing assistance)
   g) Connections to city and neighborhood
8. Demographic and other characteristics of neighbors

a) Education

b) Marital Status

c) Employment status

d) Income

e) Assistance recipient status (including housing assistance)

f) Connections to city and neighborhood

This list includes only some of many variables that could be related to a residential dwellings' condition. By analyzing the influence of these variables on a structures condition, and identifying those that are characteristic of rental residences we could better predict owners' maintenance behavior under various conditions.

This thesis begins to develop a model that would help identify the impacts of variables on the exterior maintenance of rental units. Although frameworks have been established predicting a residents' propensity to perform repairs, (Morris and Winter, 1993) one does not exist for owners of rental residences.

The variables selected for this study were chosen due to the availability of the data and to the researcher's time constraints. The variables analyzed in this research fall within four of the categories mentioned previously. They are 1) Tenure (The tenure status of the residents), 2) The characteristics of the residence (Age of structure), 3) Maintenance managerial style used (Maintenance Management Factor, and Proximity of Owner to the residence), and 4) Neighborhood characteristics (Condition of neighboring residences).

METHODOLOGY

CORVALLIS HOUSING CONDITION/INFRASTRUCTURE SURVEY

Two surveys were used to address the research objectives of this study. They were the *Corvallis Housing Condition/Infrastructure Survey (CHCI)* (Appendix A) and the *Home Rental and Ownership Survey (HRO)*. The first survey was conducted for the city of Corvallis, Oregon upon its request. The CHCI survey was designed by Kent Weiss, the Director of the Corvallis Housing Department. This survey was commissioned to assist the Corvallis Housing Department to identify those neighborhoods that are in need of maintenance and will facilitate allocation of Corvallis' Community Development Block Grants. A quick exterior inspection of all residences in the community was made to identify concentrated residential areas in need of rehabilitation.

The inspection took no more than two minutes per structure. Focus was placed on structural attributes of units in residential zones. The condition of other exterior features, such as landscaping, sheds and non-attached garages were not evaluated. The (R) roof, (F) foundation, (S) siding, (W) windows, (D) doors, (P) paint and (O) other features such as porches, and overall condition of the residence were assessed and the structure was then assigned a numeric rate of 1, 2, 3, or 4.

An assessment of "1" would put the structure in the "poor" category, meaning that the exterior is in need of multiple repairs. A "1" would need to have at least two letter assignments identifying features on the dwelling in need of repair; for

example, an R would identify the roof as needing repair. A "declining" structure would only have one feature in need of repair and was assigned a "2". A "2" rating has one letter assigned to it identifying the feature on the structure in need of repair. The "good" condition residences, those that were not in any current need of repair, were rated "3". A rating of "4" was reserved for "new or like new" units. The survey data were recorded on area maps printed by the Corvallis Housing Department. They were then entered into a database housed at the city offices. The second survey used was the *Home Rental and Ownership Survey.*

HOME RENTAL AND OWNERSHIP SURVEY

The *Home Rental and Ownership Survey* (Appendix B) consisted of seven questions. The first question asked the respondents if they would describe their dwelling as a single-family home (not a duplex or part of a multi unit complex, such as a townhouse, condominium, or apartment building). The responses available for this question were yes or no. The second question identified the residents' tenure status. If the residence was owner occupied the respondent was asked to skip questions 2a and 2b and to continue with question three. The residents that specified renting as their tenure status were asked to proceed with questions 2a and 2b. Question 2a's aim was to distinguish those units that are normally owner-occupied but are being rented out on a short-term basis (less than one year) from those that are rented continuously. Question 2b identified the proximity of the owners' residence to the rental residential dwelling. The options were: 1) within a

mile of the residence, 2) outside a mile of the residence but within Corvallis, 3) outside Corvallis but within Oregon, 4) outside of Oregon, and 5) I don't know.

Question 3 identified the length of time the resident has occupied the dwelling. This led us to question 4 where the resident was asked to identify who was responsible for doing the maintenance on the exterior of the residence. The following were the choices available: 1) the owner of the residence, 2) a resident (not the owner), 3) a rental agency or management group, 4) exterior maintenance is shared by the owner and renter, and 5) "other" (Specify_____). Question 5 attempts to ascertain Corvallis residents' perceptions regarding non-owner occupied residences. Those surveyed were asked how they perceived the exterior quality of rental residences in general. The choices given were; 1) in worse condition than those occupied by their owners, 2) in as good condition as those occupied by their owners, or 3) in better condition than those occupied by their owners. A "comments" line was also supplied for this question.

Questions 1, 2a, and 3 were used as control questions. These questions assisted in identifying those residences that should not be included in the statistical analysis due to the occupants' unique tenure situation.

The HRO survey was approved by Oregon State University's Institutional Review Board to be employed in this research both as a mail and a phone survey. A cover letter was sent to the recipients along with the survey (Appendix C). That letter also fulfilled the informed consent process guidelines. For the phone survey

consent or denial to proceed with the phone surveys was obtained verbally prior to administering the survey.

VARIABLES

The CHCI survey attributes used for this research were the *Improvement Year* attribute and the *CHCI Survey Rate* attribute. The *Improvement Year* attribute was used to calculate the *Age of Structure* variable. The *CHCI* survey rating was used as its *Condition* variable. The *Neighborhood Condition* variable was the average CHCI rate for the six closest dwellings to the residence in the sample. The remaining variables, *Tenure*, *Proximity of Owner to Residence*, and *Maintenance Management Factor,* were obtained from the *Home Rental and Ownership Survey.*

Question two of the HRO survey provided the *Tenure* variable information. Question 2b provided the *Proximity of Owner* information. The *Maintenance Management Factor* data was furnished by question four of this survey.

LIMITATIONS

The data were limited to the City of Corvallis. Corvallis is a small, rural, white collar, university town. Home to Oregon State University Corvallis had a population of 49,322 as of November of 2000. Corvallis differs from other small rural towns on the ratio of renter versus owner occupied housing units. There are 20,909 total housing units in Corvallis. Of those, 52% are renter occupied versus

42% that are owner occupied and the remaining 6% were vacant (U.S. Census, 2000).

The second limitation of this research was that only the exterior condition of the residences was surveyed. It is difficult to assess, without further research, if the exterior condition of a unit is representative of interior and overall dwelling conditions.

STATISTICAL ANALYSIS

Nine hundred and twenty-eight single-family dwellings from the city of Corvallis, Oregon were randomly selected using a computer random number generator. The residences were selected from the CHCI survey to be sent the Home Rental and Ownership Survey (HRO survey). The residences are located within the Corvallis City limit boundaries. All forms of multi-unit dwellings, manufactured homes in manufactured home parks, homes zoned anything other than residential, and those used for solely business purposes but zoned residential were excluded from the study. This dropped the population size from 11,902 (the number of single-family homes according to Kent Weiss, at the City of Corvallis Housing Division) to 9,887.

Multi-unit dwellings include duplexes, triplexes, condominiums, zero lot line dwellings, and apartment buildings. In order to represent Corvallis' 9,887 homes that fall within this study's single-family dwelling classification, with a 95% confidence level, the final minimum sample size was calculated to be 370. There is

a need to state that, after much analysis, the calculated 9,887 residences is only an extremely close approximation of those residences that are single-family dwellings. The occupancy status of some homes was difficult to assess due to their conversion from a single unit to a multi-unit without any exterior change. Also, some homes that appear to be single-family residences and zoned as such are actually being used solely for business purposes. These two scenarios did arise. However the number of these cases was minimal and the data analysis was controlled to exclude those residences that were in the sample but did not fit the category of single-family dwellings.

A desired 40% response rate was used to calculate the number of Corvallis residences that would be sent the HRO survey. The 928 surveyed units were selected using an equal allocation stratified random sample based on the exterior condition numeric rating assigned to them in the Corvallis Housing Condition/Infrastructure survey. This ensured that an equal number of residences in each of the four strata would be chosen for the HRO survey. This statistical technique was selected due to the comparatively smaller number of Condition "1" homes to that of Condition "3". Of the 9,887 single-family residences that qualified for this study, there were 296 (2.99%) Condition "1", 947 (9.58%) Condition "2", 7,077 (71.58%) Condition "3", and 1,567 (15.85%) Condition "4". The total number of surveys sent (928) was equally distributed among the four condition categories. Therefore 232 residences from each of the four strata were randomly selected for the HRO survey.

Phase I: Mailed HRO Survey

The Home Rental and Ownership survey was mailed out on December 19, 2001. The majority of responses, representing the first wave, were received within two weeks of the date the survey was sent with a few trickling in during the month of February 2002. The total response rate for the mail survey was 34%. Each of the four strata however had varied response rates. The Mail Survey Disposition table (Table 1) summarizes the responses for the mailed HRO survey.

Table 1 **Mail Survey Disposition**

Strata	Participants	Response Rate n = 232/strata	No Response	Returned by Post Office
Condition I	59	25%	160	13
Condition II	74	32%	150	8
Condition III	91	39%	136	5
Condition IV	89	38%	141	2
Total	313	34%	587	28

The mail survey response rate for each condition strata did not meet the 40% needed for this research. Under other circumstances the appropriate follow-up action would have been to send reminders to the non-respondents. However, due to the time of year this research took place (during the Holiday season), and in order to expedite attainment of the required response rate, it seemed more appropriate to follow up with a phone survey.

Phase II: Follow-up Telephone Survey

A follow-up telephone survey, aimed at surveying the non-respondents of the mailed HRO survey, was conducted. The phone numbers of the mailed HRO survey non-respondents were retrieved between the dates of January 15, and January 25, 2002. Three sources were used to attain the telephone numbers. Two Internet web pages were used, *Whitepages.com* at http://www.whitepages.com/find_person.pl?fid=a, and *Info space White Pages* at http://www.infospace.com/info/revaddr.htm?&actnav=org. The third source was the *Hill Donnelly Business & Consumer Guide for Albany-Corvallis, Oregon (2001).* Although many of the residences' phone numbers were unlisted the telephone survey was successful in helping to reach (in some cases exceed) the 40% response rate in three of the four Condition strata. Table 2 summarizes the results of the follow-up telephone HRO survey.

Table 2 **Telephone Survey Disposition**

Strata	Participants	Non Participant	No Answer	Not Listed	No Longer in Service	Wrong Number	Other*
Condition I	32	16	8	72	28	2	2
Condition II	41	14	19	54	14	6	2
Condition III	39	24	14	47	7	3	2
Condition IV	50	20	11	51	6	3	0
TOTAL	162	74	52	224	55	14	6

* The unit was identified as either non-residential or as a non-single family unit

As shown in Table 2, the minimum sample size was exceeded for three of the four strata. However after the phone surveys were completed the minimum sample size was not met for the Condition One strata. Table 3 summarizes the response rate for both the mail and telephone surveys. The overall response rate was 51%.

Table 3 **HRO Survey Response Rates**

Strata	Mail	Phone	Total Response Rate n = 232/strata
Condition I	25%	14%	39%
Condition II	32%	18%	50%
Condition III	39%	17%	56%
Condition IV	38%	22%	60%
Combined response rate for both surveys			51%

Before the statistical tests could be performed, the data were reviewed based on criteria for inclusion. The total response rate listed in Table 3 reflects all of the respondents that participated. However, some of the participant responses had to be excluded from the data analysis due to the type of structure they identified or the occupancy status of the residents. Only single-family homes zoned residential and used primarily for residential purposes were included.

The number of single-family homes in Corvallis as of October 2001 was 11,902. During the data collection stages of the CHCI survey an analysis was made identifying the residential status of each unit. This was based on a visual inspection

of the structure and of the structures' lot on zoning maps provided by the Corvallis Housing Department. Based on visual inspection of the exterior of the residence and maps we could determine if the unit was, (1) something other than a single-family structure, such as a duplex or multiplex, (2) a manufactured home in a manufactured home park or (3) in a parcel zoned non-residential. Dwellings that fit any of the three categories were then eliminated from the population being investigated. This dropped the population size for this research from 11,902 to 9,887.

As mentioned previously, some residences appeared to be single-family units from the exterior but have been converted into multi-unit dwellings. Others are being used primarily for business purposes but have the outer appearance of being residential. Question 1 of the HRO survey was designed to assist in extracting the units that were included in the survey sample but that fit one of the categories mentioned here.

Question 2a and 3 of the HRO survey were also control questions. These questions disclosed dwellings that were not continuously rented, but that were temporarily leased due to a short-term (one year or less) absence of the resident owner. The responses of the residents that identified the status of their residence as a short-term rental, non single-family home, or nonresidential were excluded from the statistical analysis. As shown in The Participant Response table (Table 4), the actual number of participants for the mail and telephone surveys was 475.

Table 4 **Participant Response Table**

Strata	Mail	Phone	Total Participants
Condition I	32	59	91
Condition II	41	74	115
Condition III	39	91	130
Condition IV	50	89	139
Total	162	313	475

The number of usable responses for each test varied depending on number of responses to the corresponding HRO survey question or on the data available for that variable in the CHCI data set. For the tests that employed the, Maintenance Management Factor or Neighborhood variables the sample size was 439. The sample size for the Tenure variable was 441, and 440 observations were used for the Age of Structure variable. The sample size for Proximity of Owner was 94 since only renter occupied residences were employed for this analysis.

Due to the type of sample used (stratified equal allocation) the responses were weighted for some of the tests in order to represent the population. To attain the weight used for each individual test, the population size from the CHCI survey for each condition was divided by the number of responses to the HRO survey for that strata and variable.

Hypotheses

This research attempts to determine if non-owner occupied single-family residences are more likely to possess predisposing characteristics that relate to declining exterior conditions of the dwellings. To do this we must first determine which of the characteristics being analyzed are related to declining exterior conditions in both owner and non-owner occupied dwellings.

Null hypotheses one through five were designed to test for a relationship between an explanatory variable and the exterior condition of residences. If a relationship was established then null hypothesis 2a, 3a, and 4a were tested for likelihood of increased incidence of that characteristic among non-owner occupied single-family homes.

The statistical analysis was computed using the SAS and WesVar statistical programs. The first question was descriptively analyzed while a chi square test was employed for the results to two.

Q1 How do residents of single-family homes in Corvallis perceive the exterior quality of non-owner occupied residences?

-Question #5 of the HRO survey was used for this analysis.

Q2 Do the perceptions of owner occupants and renters differ in regards to the condition of rental residences?

-The tenure variable from the CHCI survey and question #5 of the HRO survey were used for this analysis.

Chi Square, ANOVA and t tests were used to test for relationships between the variables of the following null hypotheses:

1) Ho The exterior condition of a single-family residence is independent of the tenure status of its residents.

-The *Condition* variable from the CHCI survey and the *Tenure* variable from question two of the HRO survey were employed for this analysis. A chi square test was first performed to test for a relationship between the two variables. A Spearman rank correlation was used if a relationship did exist to identify the direction of the relationship.

2) Ho The structures' age is the same for all exterior conditions of single-family residences.

-First an ANOVA and a Tukey's Studentized *Range* test were performed on the *Condition* and the *Age of Structure* variables from the CHCI survey. The *Age of Structure* variable was calculated from the *Improvement Year* field of the CHCI survey. A Spearman rank correlation was employed, if a relationship was determined, to identify the direction of that relationship.

2a) Ho Non-owner occupied single-family dwellings do not differ in age of structure from owner-occupied single-family dwellings.

A t test was performed testing null hypothesis 2a. The *Age of Structure* variable, from the CHCI survey, and the *Tenure* variable from question two of the HRO survey were used for this analysis.

3) Ho The exterior condition of the assessed residence is the same regardless of the exterior condition of other residences in the neighborhood.

-An ANOVA and a Tukey's Studentized Range test were performed on the *Condition* and the *Neighborhood Condition* variables calculated from the CHCI survey. If a relationship was discovered then a Spearman rank correlation was employed to determine the direction of the relationship.

3a) Ho Non-owner occupied single-family dwellings do not tend to be located in poor condition neighborhoods at a higher frequency than owner-occupied dwellings.

A t test was performed to test this null hypothesis. The *Neighborhood Condition* variable and the *Tenure* variable from question two of the HRO survey were used for this analysis.

4) Ho The exterior condition of a residence is independent of the type of maintenance management style employed.

-First a chi square test was performed on the *Condition* variable from the CHCI survey and the *Maintenance Management* variable from question four of the HRO survey. If a relationship was evident then a Spearman rank correlation was employed to determine the direction of the relationship.

4a) Ho The frequency in which non-owner occupied single-family residences use the maintenance management factor linked to poor exterior conditions is the same as that of owner occupied residences.

A chi square test was performed to test this null hypothesis. The *Maintenance Management* variable from the CHCI survey and the *Tenure* variable from question two of the HRO survey were used for this analysis. A Spearman rank correlation was also performed to determine the direction of the relationship.

5) Ho The exterior condition of a residence is independent of the proximity in distance of the owner to the residence.

-A chi square test was performed on the *Condition* variable from the CHCI survey and the *Proximity of Owner* variable from question 2b of the HRO survey. If a relationship existed between the variables then a Spearman rank correlation was employed to determine the direction of the relationship.

RESULTS

The following characteristics of single-family residences in Corvallis, Oregon are based on the data from the Corvallis Housing Condition/Infrastructure Survey (2001), and the Home Rental and Ownership Survey (2001-02). The mean condition of the single-family residences in this study is 3 (on average in good condition with no impending need of repair). The median age of these structures is 35 years, and 87.13% are owner-occupied 12.78% are rental units. Means tables for the descriptive analyses are available in Appendix D.

When posed the question regarding their perception of the exterior quality of single-family rental residences in Corvallis, the participants overwhelmingly (78%) responded that they perceived rental unit exterior conditions to be inferior to owner occupied residences. A weighted chi square test was used to test for a relationship between the perceptions of owner occupants and renters regarding rental residences (x^2_8 =4.9889 with a p-value=0.7588). There was no significant difference in perception of owner occupants and renters regarding the exterior inferiority of rental conditions (78% and 80% respectively, see Appendix E). Both groups perceive the exterior conditions of rental units as worse than the exterior conditions of owner occupied units.

NULL HYPTOTHESES FINDINGS

Tenure

1) Ho: The exterior condition of a single-family residence is independent of the tenure status of its residents.

Based on the chi square test analyzing relationships between the *Condition* and *Tenure* variables this null hypothesis was rejected (see Appendix E). The results strongly suggest that the exterior condition of a single-family residence is dependent on the tenure status of its residents (x^2_3 =90.75 with a p-value=0.001). The percentage of observations for the owner-occupied units was greater when the *Condition* variable was higher. Inversely the percentage of observations for rental units was lower when the *Condition* variable was higher (Table 5).

Table 5 **Chi Square Results for Tenure and Condition Variables**

N = 441			
Condition	**Own**	**Rent**	**Total**
1 (*f*)	33	45	78
(%)*	9.54%	47.37%	
2 (*f*)	71	28	99
(%)*	20.52%	29.47%	
3 (*f*)	114	13	127
(%)*	32.95%	13.68%	
4 (*f*)	128	9	137
(%)*	36.99%	9.47%	

* Column Percentage

A Spearman rank correlation coefficient of -0.41235 suggests that there is an inverse medium relationship between the two variables. The inference is that Corvallis owner occupants of single-family homes, on average, have better exterior home conditions than that of renters.

Age of Structure

2) Ho: The structure age is the same for all exterior conditions of single-family residences.

An Analysis of variance (ANOVA) test was employed. The *Age of the Structure* was calculated based on the *Year Built* data from the CHCI survey. The ANOVA test results (Table 6) show that age of single-family residences in Corvallis does have an influence on the exterior condition of dwellings. Ho_2 was thereby rejected. Null hypothesis two was tested at .05 alpha level of significance, $F_{3,434}=267.05, p<.0001$.

Table 6 **Analysis of Variance of Mean Exterior Condition for a Residential Units Age**

Source of Variation	Sum of Squares	*df*	Mean Squares	*F*	*p*
Between Conditions	214035.08	3	71345	267.05	<.0001
Within Conditions	115948.88	434	267.163		
Total	329983.96	437			

A Spearman rank correlation was then used. The result was a coefficient of -0.82036. This implies a strong inverse relationship between the age and the exterior condition of Corvallis' single-family residences. The results show that older single-family residences in this study are more likely to display declining exterior conditions than newer homes.

The ANOVA and the Spearman rank correlation coefficient disclosed an inverse relationship between the age of single-family residences in Corvallis and their exterior condition.

2a) Ho: Non-owner occupied single-family dwellings do not differ in age of structure from owner occupied single-family dwellings.

No significant relationship was found between the *Tenure* and *Age of Structure* variables (t=1.82, p=0.1429). Therefore the conclusion is that, although older homes are more apt to have declining exterior conditions, older units are distributed proportionally as owner and renter occupied dwellings. Null hypothesis 2a was not rejected.

Condition of Neighboring Residences

3) Ho: The exterior condition of the assessed residence is the same regardless of the exterior condition of the other residences in the neighborhood.

An ANOVA test was completed to test Ho_3 with an alpha level of .05. The results led the researcher to reject the null hypothesis. The affect of the exterior

condition of other homes in the neighborhood on the exterior condition of a residence was statistically significant, $F_{3,405}$=284.80, p<.0001 (see Table 7). This suggests that the exterior condition of a residence is not independent of the exterior condition of other residences in the neighborhood. In other words the exterior condition of other homes in the neighborhood does influence residential exterior conditions.

Table 7 **Analysis of Variance of Mean Exterior Dwelling Condition and Neighborhood Condition**

Source of Variation	Sum of Squares	*df*	Mean Squares	*F*	*p*
Between Conditions	103.75	3	34.58	284.8	<.0001
Within Conditions	49.18	405	0.12		
Total	152.92	408			

The Spearman rank correlation coefficient for this hypothesis was 0.77839 (p=<.0001). A direct relationship between a home's exterior condition and the exterior condition of other homes in the neighborhood was established.

3a) Ho: Non-owner occupied single-family dwellings do not tend to be located in poor condition neighborhoods at a higher frequency than owner occupied dwellings.

Although a significant relationship between dwelling and neighborhood exterior conditions was found, the test results show that the number of rented

single-family homes in lower condition neighborhoods is not significantly different than the number of owner occupied homes in those neighborhoods. Based on the t test results (t=-1.23, p=.2873), null hypothesis 3a was not rejected.

Maintenance Management Factor

4) Ho: The exterior condition of a residence is independent of the type of maintenance management style employed.

A chi square test for independence of the two variables, *Maintenance Management Factor* and *Condition* was not possible due to the absence of observations, or the small number of responses in some cells of the cross-tabulation. The cross-tabulation results of *Condition* and *Maintenance Management Type* are summarized in Table 8.

Table 8 **Chi Square Table for Condition and Maintenance Management Factor**

N = 439						
Condition	**Owner**	**Resident**	**Agency**	**Shared**	**Other**	**Total**
1 (*f*)	60	2	6	7	3	78
(%)	13.67%	0.46%	1.37%	1.59%	0.68%	17.77%
2 (*f*)	91	0	3	6	0	100
(%)	20.73%	0.00%	0.68%	1.37%	0.00%	22.78%
3 (*f*)	123	1	0	0	1	125
(%)	28.02%	0.23%	0.00%	0.00%	0.23%	28.48%
4 (*f*)	131	2	1	1	1	136
(%)	29.84%	0.46%	0.23%	0.23%	0.23%	30.99%

The sample size used was 439. Of those, 405 reported that the owner of the residence was responsible for the exterior maintenance. Only ten identified a rental agency or management group as the responsible entity, six of the ten from *Condition One* residences.

A weak inverse relationship was evident, however, in the results of the Spearman rank correlation coefficient, r_s=-0.22952 (p<.001). This indicated that when the exterior quality was greater so was the percent share of owners that were responsible for the exterior maintenance of the dwellings. The results suggested that if the exterior condition was poor the percent share of dwellings whose exterior was cared for by someone other than the owner was greater. The relationship was very weak since the majority of participants indicated the owner as the responsible agent for their residences' exterior upkeep (92% see Appendix E). Thus the sample size for units managed by someone other than the owner was very small (8%).

4a) Ho: The frequency in which non-owner occupied single-family residences employ the maintenance management factors linked to poor exterior conditions is the same as that of owner occupied residences.

Null hypothesis 4a could not be tested due to the absence of observations for some the responses available. By glancing at the chi square table for independence of the *Tenure* and *Maintenance Management Factor* variables (Table 9), the observation is that owners of rental units were more likely to employ rental

agencies, or someone other than the owner, as the exterior maintenance management entity than owner occupants.

Table 9 **Weighted* Chi Square Table for Tenure and Maintenance Management Factor**

N = 439

Tenure	Owner	Resident	Agency	Shared	Other	Total
Own (*f*)	8632	0	0	0	12	8644
(%)	87.02%	0.00%	0.00%	0.00%	0.12%	87.14%
Rent (*f*)	950	87	75	96	68	1276
(%)	9.58%	0.88%	0.76%	0.97%	0.68%	12.86%

*Weighted to represent the population of single-family homes in Corvallis.

Proximity of Owner to Residence

5) Ho: The exterior condition of a residence is independent of the proximity in distance of the owner the residence.

A chi square test for independence of the variables *Condition* and *Proximity of Owner* could not be run. This was due, as in the test of Ho_4 and Ho_{4a}, to the absence of observations for some of the chi square test fields (See Table 10). No conclusions could be drawn from the chi square table for Condition and Proximity of Owner.

The sample size used for testing independence between the *Condition* and the *Proximity of Owner* variables was 94. The owner occupants were not included in this analysis since it was the relationship between the proximity of the owner to the rental residence and the units' condition that was being evaluated.

Table 10 **Chi Square Table for Condition and Proximity of Owner to the Residence**

N = 94							
Condition	**Within a Mile**	**Outside Mile Within City**	**Outside City Within State**	**Outside of State**	**Do not Know**	**No Response**	**Total**
1 (*f*)	5	22	10	0	8	0	45
(%)	5.32%	23.40%	10.64%	0.00%	8.51%	0.00%	47.87%
2 (*f*)	5	9	6	2	4	2	28
(%)	5.32%	9.57%	6.38%	2.13%	4.26%	2.13%	29.79%
3 (*f*)	2	9	1	0	1	0	13
(%)	2.13%	9.57%	1.06%	0.00%	1.06%	0.00%	13.83%
4 (*f*)	3	3	1	0	1	0	8
(%)	3.19%	3.19%	1.06%	0.00%	1.06%	0.00%	8.51%

The Spearman correlation, r_s=-0.13167 (p=.2059), did not identify any linear relationship between the variables. According to our data a relationship does not exist between the proximity of the owner to the residence and the condition of the residence.

CONCLUSION

SUMMARY

It is clear that Corvallis residents agree with the underlying theory so prevalent among Americans regarding rental home conditions. The objective data mirrored the subjective perceptions regarding rental residences. The majority (78%, see Appendix E) of the participants perceived the exterior quality of rental residences as worse than those occupied by their owner. The data indicated that 77% of rental dwellings displayed poor or declining conditions compared to 30% of owner occupied residences. Inversely, 70% of owner occupied homes had good or like new exterior conditions versus 23% of rental homes (see Table 5).

The first step of the model in the Theoretical Framework is to determine if rental units tend to display worse exterior conditions than those that are owner occupied. With this research we found that rental, single-family dwelling's, in Corvallis, are significantly more likely to display poor exterior conditions than owner occupied homes. In this thesis it's assumed that owners of rental residences are responsible for the maintenance of those dwellings. We do not suggest that renters cause the conditions, only that the homes that renters occupy are more likely to have declining conditions than owner-occupied dwellings.

Four additional predisposing characteristics were chosen and tested to determine if homes with these characteristics tended to display declining exterior conditions, they were: 1) *Age of Structure*, 2) *Neighborhood Condition*, 4) *A*

Maintenance Management Factor, and 4) *Proximity of Owner*. A structure's age was one characteristic of a single-family residence upon which the exterior condition was dependent. Older residences are more likely to be in poor condition than newer residences. Contrary to Galster's research, where he found that older homes did not display worse exterior conditions than newer homes, the results of this research evidenced a strong inverse relationship between the two variables. That is younger dwellings displayed better exterior conditions than older units. Based on this it is safe to state that older residences in Corvallis are at a greater likelihood to be in poor or declining condition than newer units.

A relationship was also established between the exterior condition of other homes in the neighborhood and the exterior condition of single-family residences. When the dwellings' exterior was in poor condition so was the condition of other homes in the neighborhood. The findings of this research enforce the relationship established by Galster where he found that neighborhood characteristics do influence home upkeep decisions.

After determining that age and neighborhood conditions were factors influencing the exterior conditions of homes, an analysis was done to see if rental homes tend to possess the characteristics prone to deterioration. The data showed that rental homes were not more likely to be older or to be located in poor condition neighborhoods than owner-occupied homes.

The results of the tests for relationships between *Maintenance Management Factor* and *Tenure*, and *Proximity of Owner* and *Tenure* were not as clear. In fact

three of the tests could not be conducted. The test for independence between the *Maintenance Management Factor* (the person in charge of doing the exterior maintenance) and the exterior condition of the residential dwelling did suggest that there was a weak inverse relationship. This infers that dwellings that are maintained by the owner display better exterior conditions than those where the responsibility of exterior maintenance is contracted to a resident, or a management or rental agency. Based on the data in this research however, this relationship is very weak. As stated earlier, 405 out of the 439 participants specified that the owner was responsible for the exterior maintenance, while only 43 identified someone other than the owner as the responsible entity.

No relationship was established between the *Proximity of the Owner* and the exterior condition of single-family residences. There was no significant linear relationship in the data to suggest that the proximity of the owner to the residence affects the exterior condition of single-family non-owner occupied dwellings.

Three predisposing residential dwelling characteristics were identified to have an influence on the exterior condition of single-family homes in Corvallis. These are *Tenure, Age of Structure* and *Neighborhood Condition*. Rental homes, older homes, and homes in poor condition neighborhoods tend to display declining exterior conditions. Inversely, the exterior quality of owner occupied, newer homes, and homes in well-maintained neighborhoods, is generally good.

Of the three characteristics, the only one predisposed to decline that is linked to rental housing is *Tenure*. The tenure status of the occupants of a residence is

related to the exterior conditions of single-family dwellings. Although neighborhood condition and the age of a dwelling did have an influence on the exterior condition of homes, this research suggests that a rental home is not more likely than an owner occupied home to be older or to be located in a poor condition neighborhood. Table 11 is a brief synopsis of the test results for the hypotheses.

Table 11 **Summary Table: Factors Affecting Exterior Conditions of Single-Family Homes in Corvallis, Oregon**

Variables	*Ho*	All Homes	Owner Occupied	Non-Owner Occupied
Tenure Status/Condition	1	Significant Inverse Relation	Better	Worse
Age of Structure/Condition	2	Significant Inverse Relation		
Age of Structure/Tenure	2a	No significant Relation	Same	Same
Neighborhood Condition/Condition	3	Significant Inverse Relation		
Neighborhood Condition/Tenure	3a	No significant Relation	Same	Same
Management Factor/Condition	4	Weak Inverse Relation		
Management Factor/Tenure	4a	Could not test	N/A	N/A
Owners Proximity/Condition	5	Could not test	N/A	N/A

IMPLICATIONS AND RECCOMENDATIONS

Listed in the Theoretical Framework are various variables that may influence the condition of a residential structure. The five variables that were researched in this study fall within the eight categories in the model. As stated in the Summary, based on the test results three of the five variables (*Tenure*, *Age of structure*, and

Neighborhood Condition) influence the exterior condition of residential dwellings in Corvallis.

The relationship of the variables *Proximity of Owner* and *Maintenance Management Factor* to the exterior condition of a residence could not be tested in this study. For future research tests for this variable might include revising the options for proximity of the owner. Instead of offering the choices given in the HRO survey of this study, shorter distance spans could be offered. Some distance spans could be 1) within the dwelling, 2) next door, and 3) within the neighborhood.

Due to the limitation of studying only single family residences the data for the *Maintenance Management Factor* variable were insufficient. The influence this variable may have on conditions of dwellings could be tested when other structure types are included in the sample. Owners of apartment buildings, manufactured homes in manufactured home parks, and condominiums may be more inclined to employ a separate maintenance management entity for repairs and upkeep than owners of single-family homes. The data for a sample that includes these dwelling types might yield different results than the results yielded for this research.

Variables within the model could be researched in different combinations. For instance if the interest is on the relation between the quality of the tenants and the condition of a residences variables within categories 3) Demographic and other characteristics of the renters, and 4) The maintenance managerial style used could be employed.

Further research to identify variables that both discourage and motivate owner maintenance of rental residences is essential. Based on the research results, policies may then be developed to assist landlords in addressing rental maintenance issues.

Well-maintained housing is extremely important for the well being of individuals as well as for the community in general. Therefore both would benefit from policies encouraging maintenance of the existing housing stock. This thesis provides empirical data linking declining exterior dwelling conditions to non-owner occupied dwellings in Corvallis, Oregon. This implies that current incentive based policies encouraging owner maintenance of rental residences (such as the tax deduction of the mortgage interest and maintenance expenses) might not be achieving one of their intended purposes, that of improving the quality of rental units.

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APPENDICES

Corvallis Housing Condition/Infrastructure Survey Appendix A

Ratings To Be Used for Housing Condition Assessment:*

Numeric Rating	Description	Characteristics of Housing
4	Excellent	All exterior features in new or like-new condition, no current or impending need for repair.
3	Good	All exterior features in good condition, no current need for repair.
2	Declining	One exterior feature in need of repair; others may look to have impending need.
1	Poor	Multiple exterior features in need of repair.

In addition to the numeric rating "2" or "1", a letter will designate the exterior feature(s) in need of repair:

R The structure's roof needs repair or replacement (include shingles, eaves, gutters loose/crumbling chimneys).

P The structure has peeling/failing paint, needs immediate repainting.

S The structure's siding looks to have rotting/curling siding, loose or missing boards, holes.

F The structure's foundation is in need of repair - it is showing cracks, one portion of the structure is obviously higher/lower than the others, or the foundation shows signs of buckling or other decay.

O Other exterior features are in need of repair, e.g., porch sagging/separating, missing or damaged siding, broken/missing windows or doors, other miscellaneous items.

* Only exterior features of the structure should be evaluated. Conditions of the yard/landscaping are not to be included. Garage condition should be included if attached to the residential structure, but not included if detached. Other detached structures (sheds, shops, etc.) should not be included in the evaluation.

Home Rental and Ownership Survey

Appendix B

This survey should be filled out by the residents at:
All answers should pertain to the residence at the above address.
Please check the box to the left of your answer.

1. Would you describe this dwelling as a single-family home? *(Not a duplex or part of a multi unit complex, such as a townhouse, condominium, or apartment building)*
   - ☐ YES
   - ☐ NO *If no, please describe this dwelling:*_____

2. Do you own or rent/lease this residence?
   - ☐ OWN *(If this is your answer please skip question 2a & 2b, answer questions 3 through 5)*
   - ☐ RENT/LEASE *(If this is your answer please answer questions 2a through 5)*

   2a. If you rent how, would you describe the rental status of your house?
   - ☐ THIS HOUSE IS A CONTINUOUSLY RENTED UNIT.
   - ☐ THIS HOUSE IS A SHORT-TERM RENTAL, USUALLY OCCUPIED BY THE OWNER. *(short-term would usually be less than one or two years)*
   - ☐ I DON'T KNOW

   2b. Where does the owner of this residence live?
   - ☐ WITHIN A MILE OF THE RESIDENCE.
   - ☐ OUTSIDE A MILE OF THE RESIDENCE BUT WITHIN CORVALLIS
   - ☐ OUTSIDE CORVALLIS BUT WITHIN OREGON
   - ☐ OUTSIDE OF OREGON
   - ☐ I DON'T KNOW

3. How long have you lived at this residence?
   - ☐ LESS THAN ONE YEAR
   - ☐ 1 - 5 YEARS
   - ☐ 6 - 10 YEARS
   - ☐ 11 - 15 YEARS
   - ☐ LONGER THAN 15 YEARS

4. Who is responsible for doing the maintenance on the exterior of this residence? *(Maintenance includes upkeep on the roof, paint, siding, foundation, and windows. It does **NOT** include yard care and landscaping.)*
   - ☐ THE OWNER OF THE RESIDENCE
   - ☐ A RESIDENT (NOT THE OWNER)
   - ☐ A RENTAL AGENCY OR MANAGEMENT GROUP
   - ☐ EXTERIOR MAINTENANCE IS SHARED BY THE OWNER AND RENTER
   - ☐ OTHER (SPECIFY_____)

5. People have different ideas about the exterior maintenance of owned and rented houses. In general, how do you perceive the exterior quality of rental residences?
   - ☐ IN WORSE CONDITION THAN THOSE OCCUPIED BY THEIR OWNERS.
   - ☐ IN AS GOOD A CONDITION AS THOSE OCCUPIED BY THEIR OWNERS.
   - ☐ IN BETTER CONDITION THAN THOSE OCCUPIED BY THEIR OWNERS.
   - ☐ COMMENTS:_____

If you have questions about this survey please call (541) 758-6168. Please return survey in envelope provided to: Attn: Maria Davila-Ash, 400 Snell Hall, Oregon State University - Corvallis, OR 97331-1641.

Appendix C

family resource management graduate program

College of Home Economics and Education
Oregon State University
322 Milam Hall
Corvallis, OR 97331-5102 USA

(541) 737-1070/737-4992
FAX: (541) 737-1076
e-mail: olsong@orst.edu

Date: November 27, 2001

Dear Resident:

As a homeowner and an OSU graduate student, I am greatly interested in the housing situation in Corvallis. For my thesis research I have elected to study factors that may relate to the exterior condition of houses that are owned and those that are rented by their residents. I also hope to find how exterior maintenance of single-family homes is accomplished in Corvallis.

I am asking for your assistance in this research. Please have someone over the age of 18 living at this residence respond to the enclosed survey and return it in the envelope provided. I would also appreciate it if the survey could be returned within a week of receipt. The answers you provide are strictly confidential. Special precautions have been established to protect the confidentiality of your responses. No names are used and the address on your survey will be removed once the responses have been tallied.

Only a small sample of Corvallis residents will receive this survey, so your participation is vital to the study. Your responses will be combined with those of other selected residents for statistical analysis. Your participation in this study is voluntary and you may refuse to answer any questions.

If you have any questions regarding the survey you may contact me at (541) 758-6168. If you have questions about your rights as a research subject, please contact the IRB Coordinator, OSU Research Office, (541) 737-3437.

Thank you for your participation.

Sincerely,

Maria I. Davila-Ash
Family Resource Management
Graduate Student

Appendix D

Descriptive Analysis Mean Tables

Descriptive statistics

The MEANS Procedure

Variable	N
Condition rating (four categories, 1,2,3,4) for the exterior of homes assigned on the CHCI survey.	442
The average condition of the six closest homes to the dwelling being analyzed.	439
Age of building	440

Variable	Mean	Std Dev	Median
Condition	3.0031034	2.9123397	3.0000000
neicond	3.0199617	2.1644543	3.0000000
year	37.5384124	102.5217499	35.0000000

Analysis Variable : year Age of building

Condition rating (four categories, 1,2,3,4) for the exterior of homes assigned on the CHCI survey.	N Obs	N	Mean	Std Dev	Median
1	78	77	69.6883117	41.0651571	74.0000000
2	100	100	54.7900000	62.2316798	53.0000000
3	127	126	40.0793651	131.8224591	37.5000000
4	137	137	9.8394161	23.4998981	8.0000000

2. Do you own or rent/lease this residence?

Q2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
OWN	8700.071	87.13	8700.071	87.13
RENT/LEASE	1275.974	12.78	9976.045	99.90
NO RESPONSE	9.663265	0.10	9985.708	100.00

2a. If you rent how, would you describe the rental status of your house?

Q2a	Frequency	Percent
THIS HOUSE IS A CONTINUOUSLY RENTED UNIT	1249.131	12.51
THIS HOUSE IS A SHORT-TERM RENTAL, USUALLY OCCUPIED BY THE OWNER	21.27067	0.21
DO NOT KNOW	38.61709	0.39
NO RESPONSE	8676.689	86.89

2a. If you rent how, would you describe the rental status of your house?

Q2a	Cumulative Frequency	Cumulative Percent
THIS HOUSE IS A CONTINUOUSLY RENTED UNIT	1249.131	12.51
THIS HOUSE IS A SHORT-TERM RENTAL, USUALLY OCCUPIED BY THE OWNER	1270.402	12.72
DO NOT KNOW	1309.019	13.11
NO RESPONSE	9985.708	100.00

2b. Where does the owner of this residence live?

Q2b	Frequency	Percent
WITHIN A MILE OF THE RESIDENCE	326.7796	3.27
OUTSIDE A MILE OF THE RESIDENCE BUT WITHIN CORVALLIS	776.6087	7.78
OUTSIDE CORVALLIS BUT WITHIN OREGON	163.7024	1.64
OUTSIDE OF OREGON	19.32653	0.19
DO NOT KNOW	148.3935	1.49
NO RESPONSE	8550.897	85.63

2b. Where does the owner of this residence live?

Q2b	Cumulative Frequency	Cumulative Percent
WITHIN A MILE OF THE RESIDENCE	326.7796	3.27
OUTSIDE A MILE OF THE RESIDENCE BUT WITHIN CORVALLIS	1103.388	11.05
OUTSIDE CORVALLIS BUT WITHIN OREGON	1267.091	12.69
OUTSIDE OF OREGON	1286.417	12.88
DO NOT KNOW	1434.811	14.37
NO RESPONSE	9985.708	100.00

3. How long have you lived at this residence?

Q3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
LESS THAN ONE YEAR	886.9816	8.93	886.9816	8.93
1 - 5 YEARS	2980.773	30.02	3867.755	38.95
6 - 10 YEARS	1859.924	18.73	5727.679	57.68
11 - 15 YEARS	1480.699	14.91	7208.379	72.60
LONGER THAN 15 YEARS	2720.963	27.40	9929.541	100.00

4. Who is responsible for doing the maintenance on the exterior of this residence?

Q4	Frequency	Percent
THE OWNER OF THE RESIDENCE	9592.286	96.60
A RESIDENT (NOT THE OWNER)	86.97123	0.88
A RENTAL AGENCY OR MANAGEMENT GROUP	74.97384	0.76
EXTERIOR MAINTENANCE IS SHARED BY THE OWNER AND RENTER	96.1511	0.97
OTHER	79.15869	0.80

4. Who is responsible for doing the maintenance on the exterior of this residence?

Q4	Cumulative Frequency	Cumulative Percent
THE OWNER OF THE RESIDENCE	9592.286	96.60
A RESIDENT (NOT THE OWNER)	9679.258	97.48
A RENTAL AGENCY OR MANAGEMENT GROUP	9754.232	98.23
EXTERIOR MAINTENANCE IS SHARED BY THE OWNER AND RENTER	9850.383	99.20
OTHER	9929.541	100.00

5. How do you perceive the exterior quality of rental residence?

Q5	Frequency	Percent
IN WORSE CONDITION THAN THOSE OCCUPIED BY THEIR OWNERS	7009.807	70.60
IN AS GOOD A CONDITION AS THOSE OCCUPIED BY THEIR OWNERS	1808.658	18.21
IN BETTER CONDITION THAN THOSE OCCUPIED BY THEIR OWNERS	150.9504	1.52
COMMENTS	9.663265	0.10
NO RESPONSE	950.4631	9.57

5. How do you perceive the exterior quality of rental residence?

Q5	Cumulative Frequency	Cumulative Percent
IN WORSE CONDITION THAN THOSE OCCUPIED BY THEIR OWNERS	7009.807	70.60
IN AS GOOD A CONDITION AS THOSE OCCUPIED BY THEIR OWNERS	8818.465	88.81
IN BETTER CONDITION THAN THOSE OCCUPIED BY THEIR OWNERS	8969.415	90.33
COMMENTS	8979.078	90.43
NO RESPONSE	9929.541	100.00

Q1 How do residents of single-family homes in Corvallis perceive the exterior quality of non-owner occupied residences?

Question 5.

Q5	Percent
IN WORSE CONDITION THAN THOSE OCCUPIED BY THEIR OWNERS	70.6
IN AS GOOD A CONDITION AS THOSE OCCUPIED BY THEIR OWNERS	18.2
IN BETTER CONDITION THAN THOSE OCCUPIED BY THEIR OWNERS	1.5
COMMENTS	0.1
NO RESPONSE	9.6

Appendix E

Hypotheses Test Result Tables

1) Ho The exterior condition of a single-family residence is independent of the tenure status of its residents.

COND(Condition rating.)
Q2(2. Own or rent/lease this residence?)

Frequency Percent Row Pct Col Pct	OWN	RENT/LEASE	Total
1	33	45	78
	7.48	10.20	17.69
	42.31	57.69	
	9.54	47.37	
2	71	28	99
	16.10	6.35	22.45
	71.72	28.28	
	20.52	29.47	
3	114	13	127
	25.85	2.95	28.80
	89.76	10.24	
	32.95	13.68	
4	128	9	137
	29.02	2.04	31.07
	93.43	6.57	
	36.99	9.47	
Total	346	95	441
	78.46	21.54	100.00

Statistic	DF	Value	Prob
Chi-Square	3	90.749	0.001

Sample Size = 441

Significant relationship.

Spearman correlation -0.41235 (inverse medium relationship)

People who own have better home conditions than the ones who rent.

2) Ho The exterior condition of a single-family residence is independent of the structures age.

Dependent Variable: year Age of building

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	214035.0813	71345.0271	267.05	<.0001
Error	434	115948.8753	267.1633		
Corrected Total	437	329983.9566			

R-Square	Coeff Var	Root MSE	year Mean
0.648623	41.79559	16.34513	39.10731

Tukey's Studentized Range (HSD) Test for year

NOTE: This test controls the Type I experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	434
Error Mean Square	267.1633
Critical Value of Studentized Range	3.64733

Comparisons significant at the 0.05 level are indicated by ***.

Condition Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
1 - 2	14.898	8.507	21.290	***
1 - 3	30.000	23.893	36.107	***
1 - 4	59.960	53.948	65.972	***
2 - 1	-14.898	-21.290	-8.507	***
2 - 3	15.102	9.446	20.758	***
2 - 4	45.062	39.509	50.615	***
3 - 1	-30.000	-36.107	-23.893	***
3 - 2	-15.102	-20.758	-9.446	***
3 - 4	29.960	24.737	35.183	***
4 - 1	-59.960	-65.972	-53.948	***
4 - 2	-45.062	-50.615	-39.509	***
4 - 3	-29.960	-35.183	-24.737	***

Spearman correlation -0.82036 Strong inverse relationship
Older residence have worse conditions.

2a) Ho Non-Owner occupied single-family dwellings do not tend to be older than owner-occupied single-family dwellings.

t-stat=1.82 (p-value=0.1429) no significant relationship

3) Ho The exterior condition of a residence is independent of the exterior condition of other residences in the neighborhood.

Dependent Variable: neicond The average condition of the six closest homes to the dwelling being analyzed.

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	103.7457506	34.5819169	284.80	<.0001
Error	405	49.1780249	0.1214272		
Corrected Total	408	152.9237756			

R-Square	Coeff Var	Root MSE	neicond Mean
0.678415	11.31467	0.348464	3.079756

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Condition	3	103.7457506	34.5819169	284.80	<.0001

Tukey's Studentized Range (HSD) Test for neicond

NOTE: This test controls the Type I experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	405
Error Mean Square	0.121427
Critical Value of Studentized Range	3.64834

Comparisons significant at the 0.05 level are indicated by ***.

Condition Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
4 - 3	0.86008	0.74768	0.97248	***
4 - 2	1.05792	0.93485	1.18100	***
4 - 1	1.32770	1.18987	1.46553	***
3 - 4	-0.86008	-0.97248	-0.74768	***
3 - 2	0.19784	0.07357	0.32211	***
3 - 1	0.46762	0.32872	0.60651	***
2 - 4	-1.05792	-1.18100	-0.93485	***
2 - 3	-0.19784	-0.32211	-0.07357	***
2 - 1	0.26978	0.12211	0.41745	***
1 - 4	-1.32770	-1.46553	-1.18987	***
1 - 3	-0.46762	-0.60651	-0.32872	***
1 - 2	-0.26978	-0.41745	-0.12211	***

Spearman correlation 0.77839 (p-value<0.0001)The exterior condition of a residence is not independent of the exterior condition of other residences in the neighborhood. Strong evidence that residences with good exterior conditions is located within similar quality residences.

3a) Ho Non-Owner occupied single-family dwellings do not tend to be located in poor condition neighborhoods at a higher frequency than owner-occupied dwellings.

t-stat=-1.23 (p-value=0.2873) no significant relationship

4) Ho The exterior condition of a residence is independent of the type of maintenance management employed.

Condition(Condition rating (four categories, 1,2,3,4) for the exterior of homes assigned on the CHCI survey.)
Q4(4. Who is responsible for doing the maintenance on the exterior of this residence?)

Frequency Percent Row Pct Col Pct	THE OWNER OF THE RESIDENCE	A RESIDENT (NOT THE OWNER)	A RENTAL AGENCY OR MANAGEMENT GROUP	EXTERIOR MAINTENANCE IS SHARED BY THE OWNER AND RENTER	OTHER	Total
1	60 13.67 76.92 14.81	2 0.46 2.56 40.00	6 1.37 7.69 60.00	7 1.59 8.97 50.00	3 0.68 3.85 60.00	78 17.77
2	91 20.73 91.00 22.47	0 0.00 0.00 0.00	3 0.68 3.00 30.00	6 1.37 6.00 42.86	0 0.00 0.00 0.00	100 22.78
3	123 28.02 93.40 30.37	1 0.23 0.80 20.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.23 0.80 20.00	125 28.47
4	131 29.84 96.32 32.35	2 0.46 1.47 40.00	1 0.23 0.74 10.00	1 0.23 0.74 7.14	1 0.23 0.74 20.00	136 30.98
Total	405 92.26	5 1.14	10 2.28	14 3.19	5 1.14	439 100.00

Frequency Missing = 1

Spearman correlation –0.22952 (p-value<0.001) , weak inverse relationship. (Note from cross table, it is obvious that mostly owners are the ones who take care of the maintenance)

4a) Ho Non-Owner occupied single-family dwellings do not tend to employ the maintenance management factors that are linked to poor exterior conditions at a higher frequency than owner-occupied dwellings.

Q2(2. Do you own or rent/lease this residence?)
Q4(4. Who is responsible for doing the maintenance on the exterior of this residence?)

Frequency Percent Row Pct Col Pct	THE OWNER OF THE RESIDENCE	A RESIDENT (NOT THE OWNER)	A RENTAL AGENCY OR MANAGEMENT GROUP	EXTERIOR MAINTENANCE IS SHARED BY THE OWNER AND RENTER	OTHER	Total
OWN	8632.3 87.02 99.87 90.08	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	11.607 0.12 0.13 14.66	8643.9 87.14
RENT/LEASE	950.33 9.58 74.48 9.92	86.971 0.88 6.82 100.00	74.974 0.76 5.88 100.00	96.151 0.97 7.54 100.00	67.551 0.68 5.29 85.34	1276 12.86
Total	9582.62 96.60	86.9712 0.88	74.9738 0.76	96.1511 0.97	79.1587 0.80	9919.88 100.00

Note (chi-square test not valid here because of cells with zero observations)

~~Spearman correlation 0.41664 (p-value<0.001)~~

Ho5 The exterior condition of a residence is independent of proximity in distance of the owner to the residence.

Condition(Condition rating (four categories, 1,2,3,4) for the exterior of homes assigned on the CHCI survey.)
Q2b(2b. Where does the owner of this residence live?)

Frequency Percent Row Pct Col Pct	WITHIN A MILE OF THE RESIDENCE	OUTSIDE A MILE OF THE RESIDENCE BUT WITHIN CORVALLIS	OUTSIDE CORVALLIS BUT WITHIN OREGON	OUTSIDE OF OREGON	DO NOT KNOW	NO RESPONSE	Total
1	5 5.32 11.11 33.33	22 23.40 48.89 51.16	10 10.64 22.22 55.56	0 0.00 0.00 0.00	8 8.51 17.78 57.14	0 0.00 0.00 0.00	45 47.87
2	5 5.32 17.86 33.33	9 9.57 32.14 20.93	6 6.38 21.43 33.33	2 2.13 7.14 100.00	4 4.28 14.29 28.57	2 2.13 7.14 100.00	28 29.79
3	2 2.13 15.38 13.33	9 9.57 69.23 20.93	1 1.06 7.69 5.56	0 0.00 0.00 0.00	1 1.06 7.69 7.14	0 0.00 0.00 0.00	13 13.83
4	3 3.19 37.50 20.00	3 3.19 37.50 6.98	1 1.06 12.50 5.56	0 0.00 0.00 0.00	1 1.06 12.50 7.14	0 0.00 0.00 0.00	8 8.51
Total	15 15.96	43 45.74	18 19.15	2 2.13	14 14.89	2 2.13	94 100.00

Spearman correlation –0.13167 (p-value=0.2059) no linear relationship.