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Housing Costs and Employment

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A partnership for community revitalization between the City of Morris and the University of Minnesota, Morris

Housing Costs and Employment

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This report is the result of the applied research component of the Morris COPC Partnership. Further information can be found at: www.morrispartnership.org or by contacting

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Center for Small Towns

"BELIEVING IN A BRIGHT, PROSPEROUS FUTURE FOR SMALL COMMUNITIES"

UNIVERSITY OF MINNESOTA

MORRIS

Housing Costs and Employment

Introduction

Morris, Minnesota is a small town in the West Central region of the state. While only having a population of approximately 5,000, it serves as a regional center, being the home to several banks, a county hospital, agricultural processing, manufacturing enterprises, and the University of Minnesota, Morris. Employers in Morris routinely employ individuals that reside either outside the city limits, in the smaller villages surrounding Morris, or in other counties in the West Central region. This report examines the relationship between employment in the city and the cost of housing in the city and in the villages nearby.

As reported below, the economic activity in Morris and its employment opportunities lead significant numbers of people from the greater region to commute to work in the city while remaining residents of one of the smaller, lower cost communities in the area. Moreover, as also reported below, Morris has a significant amount of older, relatively sub-standard housing. The availability of low cost housing in Morris and its surrounding communities represent an implicit subsidy to employers in Morris: the "real wage" paid to employees is higher, in terms of the housing a given wage will purchase. This may be particularly important in this region as the wage distribution is generally lower, with 44% of the region's jobs paying less than $10.00 per hour.[1] This study quantifies one aspect of the flow of commuters. Using a hedonic model to estimate the value of housing characteristics, this report identifies the factors that determine the price

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[1] Taken from the Minnesota Department of Employment and Economic Development's analysis of Region 4, West Central Minnesota, October, 2005.

of housing in Morris. From this data, the housing cost advantage of neighboring villages are determined and the dollars saved by an employee who chooses to live in a house with nearly identical characteristics as one in Morris is estimated.

The report is divided into six sections. In the first section, housing in Morris is described. In the second section, a model estimating the value of housing characteristics is described and statistical results for the City of Morris are presented. Section Three briefly describes the housing costs confronted by those living in villages surrounding Morris. Section Four details the prominence of commuting into the city of Morris to work. Section five looks at employment and wages earned by industry. Section Six discusses affordability. The final section concludes the paper.

Section I: Housing in Morris

To profile the housing stock available in Morris, the paper record for the over 1400 single family housing units in the city maintained by the Stevens County Assessors office for 2005 was examined and entered into an excel data base.[2] The data included assessed value, land value, age, a quality assessment, number of stories, main floor square footage, garage, lot size, and structural aspects of the home. Total square footage was calculated by multiplying the number of floors of the home by the main floor square footage.

The following figures are derived from the entire sample. As indicated in the first two figures, the average home in Morris was built in 1946 and is roughly 60 years old. Moreover, over 40% of the housing stock is 75 or more years old. Relatively few homes within the city are less than 20 years old.

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[2] This data was also provided to Community Partners Research, Inc. It was used extensively in their 2006 "Morris Housing Study".

Figure 1

Average Age

Figure 2

Age Distribution
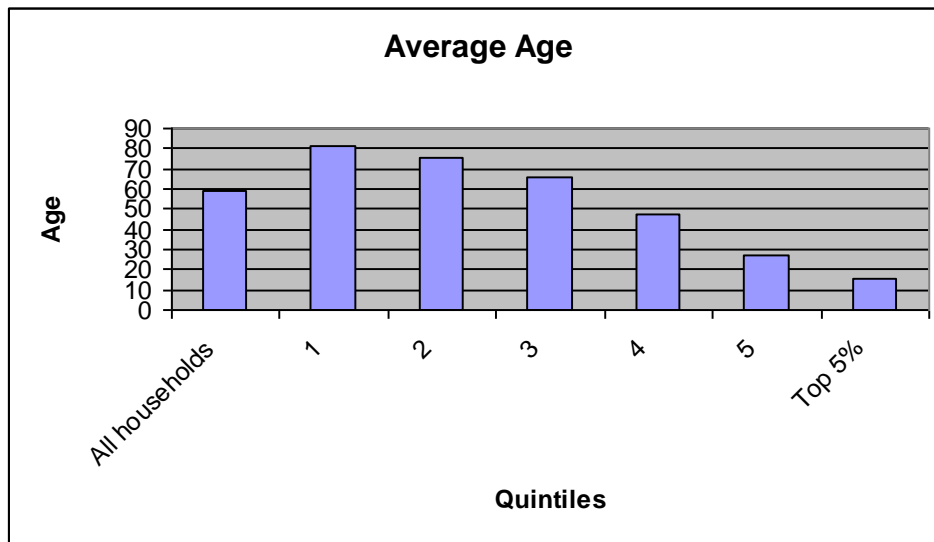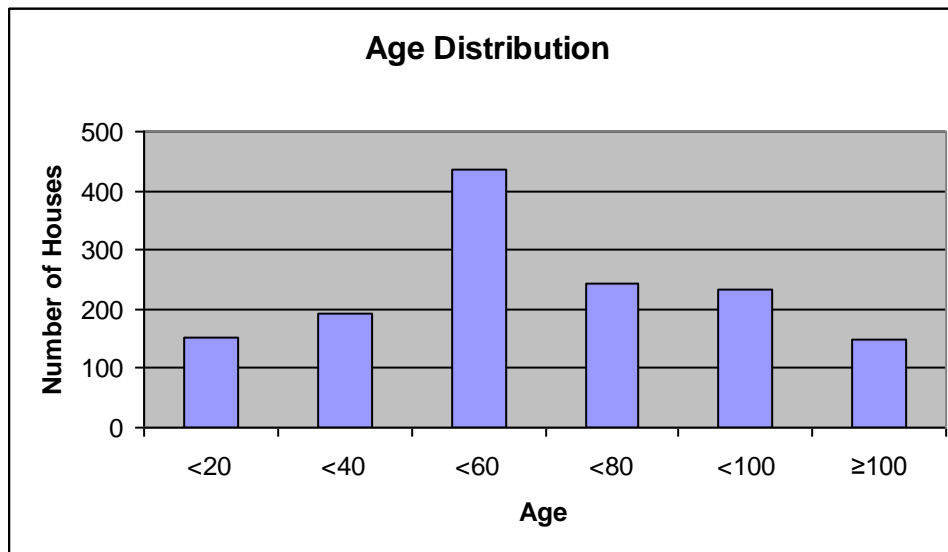
The assessed value of this housing stock is indicated in Figure 3. In 2005, the average home was assessed at slightly less than $80,000. As indicated in the figure, however, the variation around this amount is quite high, with the top 5% of homes having an assessed value of nearly $190,000 and nearly 75% of homes being below the mean.

Figure 3
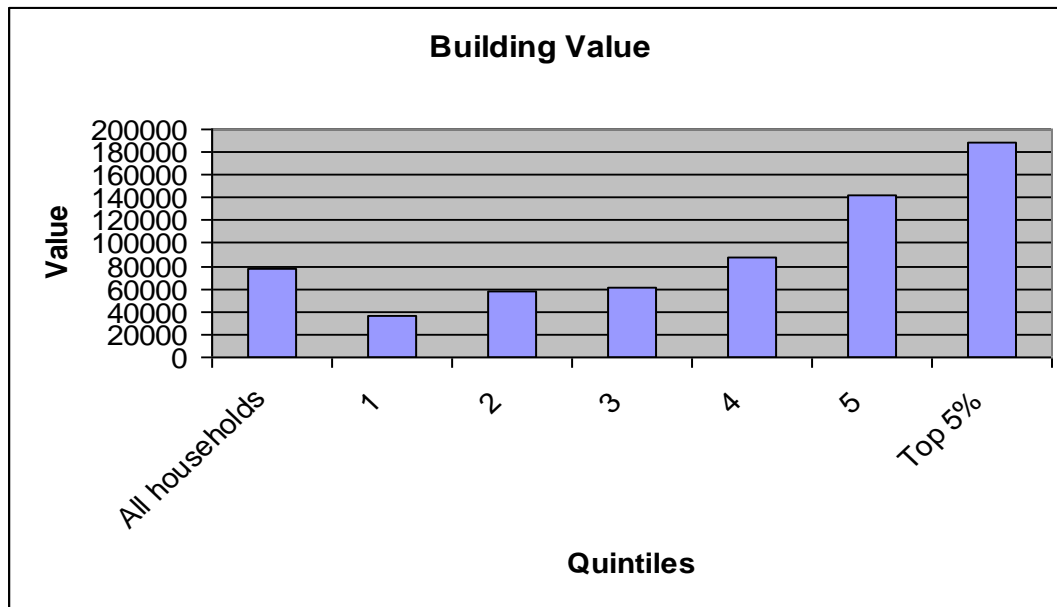
The assessor's office also maintains records of a homes assessed quality. This is done on a nine point scale by visual inspection of each home every three years. The average assessment for the entire sample is 6.17, although, as indicated in Figure 4, the distribution is skewed slightly toward less quality housing.

Figure 4
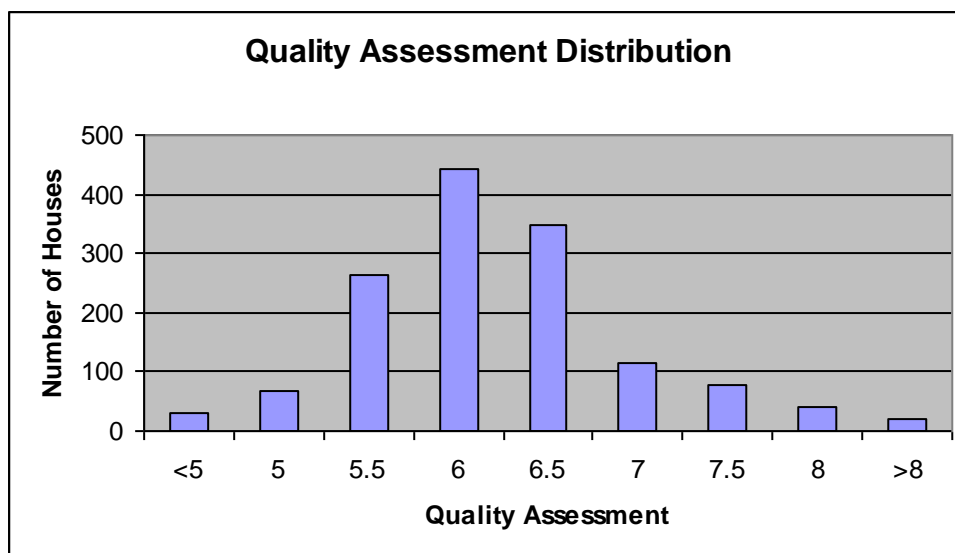
From the total sample, we also derived an estimate of the total living space above grade for each home. This information is presented in Figure 5. Although the average total living space is slightly more than 1700 square feet, 75% of homes have less space than the mean and 20% have only 1000 square feet or less.

Figure 5
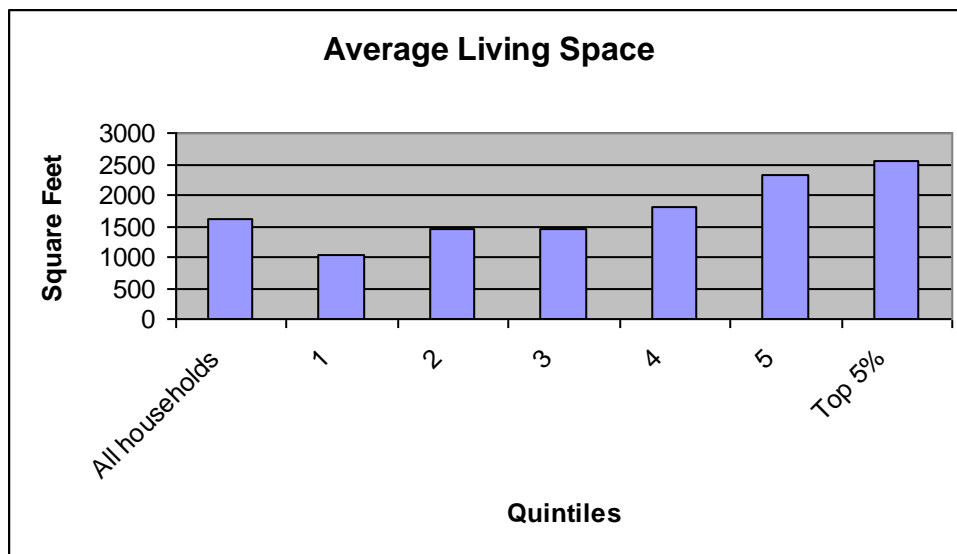
The characteristics above differ markedly depending on whether a home is a "homestead" or whether it is a rented "non-homestead". In Table 1, the results for the entire housing stock of Morris are presented. Note that non-homestead houses are older, smaller, of lower quality, and less valuable.

Table 1: Homestead and Non-Homestead Houses

	Homestead Property	**Non-homestead Property**
Average Assessed Value	$ 85,355	$ 43,464
Average Quality Assessment	6.4	5.6
Average Year Built	1951	1926
Average Total Living Space	1,711.5 Sq. Feet	1,229.6 Sq. Feet

To supplement this information, the number of bedrooms, baths, and selling prices for 147 homes sold in Morris from 2003-early 2006 were taken from the real estate listings records of Hoffman Realty. This allowed for the creation of a data sample that allowed us to determine how various housing characteristics influence the price of a home in Morris. The full list of list of our variables is in Table Two.

Table 2: Variables in the Housing Study

Variables	Explanation
Price	Selling price
Bed	Number of bedrooms
Bath	Number of bathrooms
Homestead	1 for house; 0 for rental house
Lot sq. ft.	Total square footage of city lot
Qual	Quality assessment (0-9.5, higher = better)
Year	Year built/renovated
Floor	Number of floors
Base	1 for basement, 0 for not
LGarSq	Log of square footage of garage
GPorch	1 for Glazed Porch; 0 for not
OPorch	1 for Open Porch; 0 for not
Deck	1 for Deck; 0 for not
SPorch	1 for Screen porch; 0 for not

The data is summarized in Table Three.

Section II: The Value of Housing Characteristics

Using a model adapted from Kain and Quigley (1970) and Li and Brown (1982), we develop a hedonic model that uses linear regression to determine the relationship between the price of a house and the various characteristics above. The final regression equation is as follows:

Selling Price = - 836,239 + 2,920.75 **Bed** + 13,871 **Bath** + 9,172.08 **Homestead** + 3.02 **Lot sq.ft.** + 20,518 **Qual** + 358.25 **Year** + 12,716 **Floor** + 590.68 **Base** + **LGarSq** 1,287.85 + 6,729.63 **GPorch** + 5,007.01 **OPorch** + 12,702 **Deck** + 16,730 **SPorch** + error term

Table 3: Housing Characteristics of Morris

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
Maximum Price	147	92143	52682	13544986	25000	286000
Bed	147	3.51020	1.05576	516.00000	1.000	7.00
Bath	147	1.73469	0.68573	255.00000	0.7500	4.00
Homestead	147	0.81633	0.38854	120.00000	0	1.00000
Lot Sq. Ft	147	10665	5362	1567770	5500	38275
Qual	147	6.16667	0.80310	906.50000	4.000	8.50
Year	147	1948	28.25438	286327	1880	2004
Floor	147	1.33762	0.35481	196.63000	1.000	2.25000
Base	147	0.87413	0.33287	125.00000	0	1.00000
LGarSq	147	440.97959	183.8034	64824	0	1008
GPorch	147	0.12925	0.33663	19.00	0	1.00
OPorch	147	0.30612	0.46246	45.00	0	1.00
Deck	147	0.14966	0.35796	22.00	0	1.00
SPorch	147	0.04082	0.19854	6.00	0	1.00

The overall regression was significant at the 5% level and fully 81% of the variance in the selling price is explained. The number of bathrooms, total square footage, house quality, year built, decks, screened porches, and number of floors are all significant at conventional levels.

The interpretation of the above is as follows: As number of bedrooms increases by one, the selling price of a house increases $2,920.75, other things being equal. As

number of bathrooms increases by one, the selling price of a house increases $13,871. If the building was a regular house, as opposed to a non-homesteaded rental, the selling price of the house increases $9,172.08. If the building total square footage increased by one square foot, the selling price of the house increases $3.02. If the housing quality rating increased by one level, the selling price of the house increases $20,518, CP. One less year of age adds $358.25 of value to a home. As the number of floors increases by one, because of the effect it has on square footage, the selling price of the house increases by $12,716.

These results are plausible, but the magnitude of the effect on home prices of some of these housing characteristics suggests the results need to be interpreted cautiously. The relatively low value of an additional bedroom and its lack of statistical significance is surprising. Also, the relatively high value placed on certain amenities, such as screened porches, suggests that there may be important omitted variables.

Regardless, because of the over-all significance of the equation in explaining housing prices, we may use it to identify housing price differentials by housing characteristics between Morris and its surrounding communities. Evaluating housing prices in Morris using the mean characteristics, the mean price of $92,143 can be decomposed into the value, the "hedonic" worth, of each of the characteristics of the house.[3] We can use these valuations to infer what the value of houses in the neighboring villages would be if they were located in Morris.

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[3] When evaluated at the mean of the housing price and each housing characteristic, the average value of a home in Morris can be stated as:
$92,143 = - 836,239 + 2,920.75 (3.5102) + 13,871 (1.73469) + 9,172.08 (.81633) + 3.02 (10665) + 20,518 (6.16667) + 358.25 (1948) + 12,716 (1.33762) + 590.68 (.87413) +1,287.85 (6.089)+ 6,729.63 (.12925) + 5,007.01 (.30612) + 12,702 (.14966) + 16,730(.04082) + -379 (error term)

Section III: Housing Costs in Villages surrounding Morris

  We do not have comparable tax assessment data for the neighboring communities,

but do have 26 representative properties from Alberta, Chokio, Cyrus, Donnelly,

Hancock, Herman, and Starbuck from Hoffman Reality's sales data and real estate

listings. We include only houses in the villages, to control for lifestyle choices for

greater acreage. The variables we have, the number of bedrooms, bathrooms, floors, year

built, and sales price, are summarized in Table Four. These homes are very close to the

same age as those in Morris, but have fewer bedrooms and baths, and are much less

expensive.

Table 4: Housing Characteristics of Villages

Characteristic	Mean
Bedrooms	3.076923
Bathrooms	1.480769
Floors	1.586923
Value	58,802.54
Year Built	1948.208

  To determine how much less expensive they are than identical homes in Morris,

for the missing data, we assume that houses in the surrounding communities are similar

in all respects to those in Morris, except for those characteristics for which we have data.

Evaluated at the mean for these variables, houses in the surrounding villages would, if

located in Morris, have an average value of \$90, 981.[4] These homes, on average, cost

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[4] As before, but replacing the average characteristics for Morris homes with the average characteristics of
homes in the villages, we have the following:
Price of \$90,981 = - 836,239 + 2,920.75 (3.076923) + 13,871 (1.480769) + 9,172.08 (.81633) +
3.02(10665) + 20,518 (6.16667) + 358.25 (1948.2) + 12,716 (1.586923) + 590.68 (.87413) +1,287.85
(6.089) + 6,729.63 (.12925) + 5,007.01 (.30612) + 12,702 (.14966) + 16,730(.04082) + -379 (error term)

only $58,802. Individuals that choose to work in Morris, but live in a surrounding village

save $32,179 on the purchase of a home.

It is likely that this number underestimates the true cost savings of living in one of

the smaller communities around Morris.   The number is valid if and only if, the housing

characteristics for which we don't have data are the same between Morris and the

villages. Lot sizes, for one, tend to be larger in the villages. Yet larger lots are clearly

valued more highly than small lots. Moreover, there is likely to be substantially more

rental or non-homesteaded properties in Morris. Taxes, too, are likely to be higher in

Morris. All of these suggest the estimated price differential is too small.

Section IV: Employment and place of residence

Substantial numbers of employees in Morris take advantage of the lower housing

costs in the surrounding communities. Over 74% of construction workers, 67% of

manufacturing workers, and nearly 59% of education and health service workers choose

to work in Morris and live elsewhere. Over-all, only 46% of people employed in Morris

live in Morris. About 25% of Morris employees live in the rural countryside, but nearly

12% live in nearby villages.[5] The major employers in Morris and the percentage of their

employees who live outside of Morris are listed in Table 5. Note that the employers with

the largest numbers of employees that live in Morris; McDonalds, The Prairie Inn, and

Willies Super Valu all employ large numbers of part-time employees.

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[5] The author has made these calculations from a Labor Force Survey conducted by the Stevens County
Economic Improvement Commission (SCEIC) in 1997. These are the most comprehensive numbers
available.

Table 5: Employment and Residence

Employer	Number of Employees	% that live in Morris[6]
University of Minnesota, Morris	449	41
Prairie Community Services	238	Not Available
Stevens Community Medical Center	221	32
Superior Industries	195	23
Morris Public Schools	181	38
West Wind Village	162	40
Riley Brothers Paving Inc.	140	14
Stevens County	140	45
Riley Brothers Construction	130	25
WestMor Industries	116	36
Willie's Super Valu	100	53
Prairie Inn	63	56
McDonald's	50	86

Source: mnpro community profiles, SCEIC.

Section V: Employment and Wages by Industry

Table 6 shows the average weekly wages by major employment sector in 2005, the last full year of data. It is important to note that the major employment sectors listed do not represent all employment in the County.

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[6] Employment data from 2006. Place of residence data is from 1997.

County Average Weekly Wages by Industry		
Industry	**Employment**	**Average Weekly Wage**
Total All Industry	4,745	$572
Natural Resources	227	$561
Construction	241	$785
Manufacturing	560	$794
Trade, Trans, Utilities	899	$468
Information	71	$568
Financial Activities	181	$748
Professional and Business Services	260	$580
Education and Health Services	1,477	$631
Leisure and Hospitality	478	$141
Other Services	102	$276
Public Administration	248	$725

Source: Minnesota Department of Employment and Economic Development

The average weekly wage for all industry in 2005 was $572. At full-time employment, this equates to an annual wage of $29,744. The highest paying wage sectors were Manufacturing and Construction, with average weekly wages of $794 and $785, respectively. At full-time employment, the average annual wage for Manufacturing would be $41,288. The lowest paying wage sector was Leisure and Hospitality, with an average weekly wage of only $141. At full-time employment in this sector, the average worker would earn $7,332 annually.

Section 6: Housing Affordability

As noted above, by living in a neighboring community, the average employee in Morris can save at least $32, 179 on the purchase of an average home. This represents an annual savings of roughly $2,435 per year on a thirty year mortgage.[7] An employee earning an average wage in Stevens County of $29,744 can, by working in Morris and living in a neighboring village, free 8 percent of their income for other uses. The availability of this low cost housing increases the real wage of those working in Morris.

Of course, commuting costs need to also be considered. If the average commute is 20 miles per day and driven 200 days a year, then at current cost of roughly 50 cents per mile, those choosing to live in neighboring communities shoulder about $2,000 in commuting costs per year. This nearly offsets the $2,435 mortgage advantage, although, as noted above, there are strong reasons to believe the cost difference between Morris and the villages is understated.

Conclusion

This study has examined the housing market and, to a lesser extent, the relationship between it and the choice of residence by those working in Morris, Minnesota. Neighboring communities are significantly less expensive even after controlling for many important housing characteristics. Depending on commuting costs, this represents as much as an 8% increase in the "real" wages paid to individuals working in Morris. It is important to note that this analysis relies on data that was collected prior to the dramatic increase in fuel costs that occurred in 2008. If commuting costs continue to rise, the relative advantage of living in villages surrounding Morris lessens. This will

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[7] Assuming a 7% rate of interest,

either decrease the real wage of those residing outside of Morris, or be reflected in a growing price differential between homes in Morris and those in the neighboring communities. It may also be reflected in a gradual turnover in some housing stock in Morris that is currently non-homestead to homestead as workers seek to maximize the value of the dollars they earn in Morris. Which of the results occurs will be the subject for future research.

References

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