

**Examining Factors that Shape the Rate of Homeownership  
of Pella and Similarly Sized Municipalities  
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In May 2014, the Central College Social Science Working Group (SSWG), an interdisciplinary group of social science faculty members, finalized a three-phase approach to assessing the research question, “From an economic development perspective, what should Pella do over the next two decades to remain a vibrant and growing community?” Phase 1 included the completion of a comprehensive survey of the Pella community. During the summer months of 2014, the SSWG in collaboration with the Pella Area Development Corporation (PADCO) Board of Directors developed a mail questionnaire to be completed by residents of the Pella community. The goal of the survey was to provide local community decision makers with key information about the attitudes of Pella residents to use while making decisions about both the short- and long-term futures of Pella, and to inform future research completed by the SSWG in Phases 2 and 3 of the research collaboration. Phase 1 was completed in December 2014 with the delivery of the survey results to PADCO. Overall, residents of Pella viewed the community quite favorably. However, respondents did identify several areas they believed the community needed to focus on, including the perceived lack of openness and acceptance of diverse people and groups, providing more housing variety and what is perceived to be a lack of affordable housing, and providing more shopping and restaurant options for consumers in the community.

The goal for Phase 2 was to develop a project that would identify key predictors of the economic health of Pella and similarly sized municipalities in the upper Midwest. Utilizing the academic literature on community development, we chose a methodological approach which assessed the impact of environmental factors, employment diversity, human capital, and public policy on the residential economic health of a community. We found four significantly positive predictors of residential economic health for our 372 municipalities: (1) The percentage of educated professionals living in the community; (2) The percentage of home ownership within

the community; (3) The high school graduation rate for the municipality's school district; and (4) The economic health of the municipality in 2000.

While Pella's ranking on the economic health index, the number of educated professionals living in the community, and the high school graduation rate, Phase 3 revealed that Pella's rate of home ownership was below average for the 372 municipalities in the study population.<sup>1</sup> In fact, Pella's 2013 rate of homeownership, 65.9%, ranked 214<sup>th</sup> out of the 372 municipalities in the study. As a result, the SSWG chose to pursue a research question in Phase 3 which focused on the rate of homeownership and determination of factors which shape that rate. Utilizing the academic literature from economics, political science, public administration, and sociology; two surveys of local municipal administrators;<sup>2</sup> and secondary data collected from the 2015 American Community Survey (ACS), we methodologically approached Phase 3 by examining the role that development incentive programs and development regulations or restrictions play in shaping homeownership in a community. Consistent with the academic literature, we found that neither development incentives nor development regulations or restrictions play a significant role in explaining homeownership. However, we do find evidence of an interaction effect between incentive programs, specifically tax abatement and tax increment financing (TIF) programs, and distance from a city of 50,000 persons, indicating that incentive programs may be useful to a municipality depending upon how far the municipality is from a larger residential population.

The following report outlines the process the SSWG utilized in developing the final product of Phase 3. After providing a description of the project timeline and data collection

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<sup>1</sup> Pella ranked 31<sup>st</sup> out of the 372 municipalities and was the third highest ranked municipality in Iowa. Pella's ranking for educated professionals living in the community was in the 90<sup>th</sup> percentile and its ranking for high school graduation rate was in the 95<sup>th</sup> percentile of the study population.

<sup>2</sup> The text of the surveys is available from the authors upon request.

process, the statistical analyses are developed and presented. The report concludes with a discussion of the findings and recommendations for future work by the Pella Area Community & Economic Alliance (PACE) and the City of Pella.

### **Project Development Timeline**

The first step in the process was to assemble the SSWG for Phase 3. Due to the nature of the work, it was important to identify faculty members with expertise not only in working with economic development, but also some experience with planning. By August 2016, the SSWG was assembled and included:<sup>3</sup>

- Andrew Green, Professor of Political Science
- Jeremia Njeru, Assistant Professor of Anthropology/Sociology
- Brian Peterson, Professor of Economics
- Jessica Schuring, Associate Professor of Economics
- Trevor Schweinefus, Economics Major, Central College Class of 2017

After the SSWG assembled, the working group moved onto to conceptualizing and operationalizing the project. We used the fall semester to identify key factors of homeownership and develop the primary survey of municipal officials. Two Central College student research assistants assisted the SSWG by collecting the name and contact information for municipal officials employed by the 372 municipalities examined during Phase 2.<sup>4</sup> The survey and contact information collection was finalized in early November 2016. Per College research protocol, the survey was then sent to the Central College Institutional Research Board; approval was received on November 14, 2016. One week after mailing a hard copy letter notifying each point of contact that an electronic survey link would be arriving via email, we sent the first electronic invitation to participate in the survey was sent via Qualtrics on November 30, 2016.

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<sup>3</sup> The SSWG was also assisted in data collection efforts by Keith Jones, Professor of Psychology, and Colin Jones, Political Science and Mathematics Double Major, Central College Class of 2019.

<sup>4</sup> Seven municipalities were dropped from the study population because email contact information was not available online, leaving the total study population at 365 municipalities.

Respondents were sent weekly reminders of the importance of the research and a request to complete the survey until the survey closed on January 4, 2017.

The SSWG used the first two months of the spring semester to analyze the survey data along with secondary data collected from the 2015 American Community Survey. In late February 2017, the SSWG was concerned about its ability to make effective recommendations to PACE without collecting additional data on housing regulations and restrictions used by municipalities, so a supplemental survey was developed and distributed electronically on March 10, 2017, via Qualtrics to the 164 municipal officials who completed the fall survey. Once again, weekly reminders were sent to respondents reminding them of the importance of the research and a request to complete the survey. The supplemental survey closed on April 9, 2017.

### **Data**

The SSWG chose to use a survey-based approach to collect data on the policies and programs used by municipalities to promote and regulate residential development. In developing the survey, we consulted two seminal surveys of local governments conducted in the late 1980s: The Glickfield/Levine Survey for the League of California Cities and the Wharton Urban Decentralization Project.<sup>5</sup> The first survey, distributed electronically in mid-November 2016, focused primarily on: (1) attitudes of the governing body toward residential growth; (2) development practices codified in municipal code or authorized regulations; (3) whether the municipality uses growth controls; and (4) whether the municipality uses incentive programs to stimulate housing growth and their perceived effectiveness. When the first survey was closed on January 4<sup>th</sup>, 2017, 182 municipal officials had responded for a response

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<sup>5</sup> For more information on the two surveys, see Quigley and Rosenthal (2005).

rate of 50.8%, although only 164 completed the whole survey.<sup>6</sup> The distribution of municipalities represented in the sample is representative by state.

The second survey, distributed in mid-March 2017, focused specifically on development restrictions that municipalities use to regulate residential development. The survey asked municipal officials to describe land use restrictions such as minimum lot sizes, structure height requirements, and setback requirements. It also contained items which focused on “characteristics zoning,” or regulations regarding landscaping, sidewalks, design features, etc. When this survey was closed on April 9, 2017, 88 municipal officials of the 164 original respondents had completed the survey in full for a response rate of 53.7%. We checked this sample for representativeness by state as well and found that municipal officials from Iowa were much more likely to respond than officials from other states, which led to a significant over-sampling of Iowa municipalities.

In addition to the survey data collected during Phase 3, the SSWG aggregated data from other data sources to use during data analysis for the municipalities in the sample. We collected median housing value, median family income, poverty rate, and employment rate from the 2015 American Community Survey (ACS) 5-Year Estimates. We also calculated the distance to the nearest city of 50,000 persons using City-Data and Google Maps.

### **Housing Incentives**

In May 2016, the Marion County Housing Study was released (Maxfield Research 2016). One of the major takeaways from the study was that Marion County, including the City of Pella, faced significant housing challenges over the next two decades. The report also included a portfolio of policy choices that local governments in Marion County could pursue in addressing

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<sup>6</sup> The informed consent statement informed respondents that their participation was voluntary and they could skip any question. As a result, not every descriptive table or model included all 164 respondents.

the housing challenges detailed in the report. The SSWG began its work here, and in consultation with PADCO, focused on four incentive options: Tax Abatement, Tax Increment Financing (TIF), Waiver or Reduction of Development Fees, and developing public/private partnerships to provide bank guarantees to developers. This section of the report begins with a brief description of what scholars know about housing incentive programs and their effectiveness. Following the brief literature review, descriptive data regarding the use and perceived effectiveness of housing incentives is presented. The section ends with the presentation of a series of regression models which evaluate whether housing incentive programs shape the rate of home ownership in communities.

*Brief Literature Review: Housing Incentives*

What is clear from the literature is that while ample scholarship has been completed regarding the use of local economic development incentives to stimulate economic growth and promote firm location within a municipality, very little work has been done which gauges the effectiveness of housing incentives. It is clear, however, that municipalities, including municipalities in Iowa, are willing to provide incentives to developers and potential homebuyers. For example, Dalehite, Mikesell, and Zorn (2005) found that of the 35 states which allow for stand-alone property tax abatement programs, 20 states allow tax abatements to be used for residential development. Iowa, one of the states which allows local governments to use tax abatement programs for residential growth, has seen multiple communities around the Des Moines metropolitan area adopt tax abatement or other incentive programs, including the City of Adel in 2011, the City of Newton in 2014, and the City of Perry in 2016 (Norvell 2016).

So are such programs effective? The evidence is mixed at best and varies based upon the unit of analysis. For example, in 1998 economists at Iowa State University conducted a study of

48 municipalities in Iowa to evaluate the effectiveness of tax abatement programs (Swenson and Eathington 1998). Their findings revealed that while housing growth rates may have increased slightly after property tax ordinances were put in place, the ordinance itself was not responsible for the growth. In fact, Swenson and Eathington's multivariate modeling finds that location (suburban vs. non-suburban), not the presence of a tax abatement ordinance, explained the variation in growth rates most effectively. In fact, their modeling indicates that cities with tax abatement ordinances had lower rates of growth overall.

Research, however, indicates that incentives can potentially shape the individual-level decisions of homebuyers. Varady's (1990) study of housing incentives in Cincinnati, Ohio, found that homebuyers were very interested in the incentive programs the city offered to promote housing development and almost 50% of homebuyers indicated that "they would have considered comparable housing in another locality had it offered one of the two market incentives" (72). Furthermore, Varady's analysis indicates that while the city's program did indeed have the potential to attract homebuyers to central Cincinnati, it did not effectively attract "upwardly mobile" homebuyers, indicating that incentives alone will not drive behavior. Koven and Koven's (1993) evaluation of housing incentive programs in Des Moines, Iowa, also reveals that housing incentives may change behaviors of potential homebuyers. Their evaluation indicates that higher-income households seeking above-average priced homes were most likely to purchase their home using the tax abatement program. When asked whether the tax abatement program was related to their decision to buy, over 87% of respondents indicated that the abatement program was indeed related to their decision and 54% said they would have purchased a home outside of Des Moines but yet within Polk County if the city had not offered the abatement program. Similarly, research done on property tax abatement programs in Cleveland,



Ohio, by Rosentraub, Mikelbank, and Post (2005) shows that the incentive program can lead to housing growth, but more importantly, can shape the decisions of homebuyers to purchase in the city. In fact, 60% of the respondents to their survey indicated that, but for the abatement program, they would have purchased elsewhere.

### *Use and Perceived Effectiveness of Housing Incentives*

Municipal officials who responded to the Phase 3 survey were asked a series of questions about housing incentives used in their communities. Each respondent was first asked a general question regarding whether their municipality provided incentives to stimulate low to moderate income housing followed by specific questions regarding the municipality's ability to use property tax abatements, provide tax increment financing, cost share or rebate infrastructure costs, or engage in public-private partnerships to provide bank guarantees on construction loans to developers. If the official indicated that the municipality engaged in any of these incentive options, open-ended follow-up questions were asked regarding the specifics of the program and whether the official perceives it to be effective. The responses to the effectiveness question were not incredibly detailed across the board, so the SSWG recoded the open-ended responses into a new three-category variable coded "Yes," "Somewhat," "No."

On average, municipalities in the sample have one or two ( $\mu=1.77$ ) of these housing incentive options available to them. While 27% of municipalities have no more than two available, 13.5% have three of the five available, 12.1% have four of the five available, and two municipalities indicated that all five options are available to spur housing growth in the community. The use of each individual housing incentive is described in Table 1 below. These findings reveal that the most widely available option for municipalities is tax increment financing, which is available to over two-thirds of the municipalities in the sample. About 38%

of municipalities engaged in incentivizing low- to moderate-income housing, nearly a third cost-share or rebate the infrastructure costs associated with residential development, and around 28% utilize property tax abatement programs. The least widely utilized option is working with private banks to guarantee construction loans.

**Table 1: Use of Housing Incentives by Municipalities**

	Incentives for Low to Moderate Income Housing	Property Tax Abatement	Tax Increment Financing	Cost-Share/ Rebate of Infrastructure Costs	Bank Guarantees for Construction Loans
Yes	37.6%	27.7%	67.8%	33.6%	11.8%
No	62.4%	72.3%	32.2%	66.4%	88.2%
N =	149	148	149	146	144

SOURCE: Phase 3 Survey

**Table 2: Perceived Effectiveness of Housing Incentives**

	Incentives for Low to Moderate Income Housing	Property Tax Abatement	Tax Increment Financing	Cost-Share/ Rebate of Infrastructure Costs	Bank Guarantees for Construction Loans
Yes	56.9%	47.2%	49.4%	64.1%	42.9%
Somewhat	19.6%	22.2%	11.1%	17.9%	21.4%
No	23.5%	30.6%	39.5%	17.9%	35.7%
N =	51	36	81	39	14

SOURCE: Phase 3 Survey

So do municipal officials perceive these policies to be effective in promoting residential growth in their communities? Table 2 contains the descriptive findings for the recode of the effectiveness question. The perceived effectiveness of housing incentive programs, at least in the eyes of the municipal officials surveyed, is mixed. While it is true that a plurality of respondents believe that these programs are indeed effective, the perceived effectiveness of only two of the options exceed 50% (Incentives for Low to Moderate Income Housing and Cost-Share/Rebate of Infrastructure Costs). What this suggests, consistent with the literature reviewed, is that incentive programs are not necessarily a universal panacea for stimulating housing growth in smaller, Midwestern cities.

### *Do Housing Incentives Shape a Municipality's Rate of Homeownership?*

A series of multivariate regression models were developed to assess whether housing incentive programs shape a municipality's rate of homeownership. The dependent variable in the analysis is the municipality's 2015 percentage of owner-occupied homes, taken from the 2015 ACS 5-year estimates. Four models were run in all. Each model contained the same series of control variables, but each model included only one of the incentive programs discussed above. In other words, separate models were run for tax abatement, TIF, cost-sharing/rebating of infrastructure costs, and public-private partnerships to provide bank guarantees. The housing incentive variables are dichotomous dummy variables coded "1" for city had incentive available and "0" for city did not have incentive available. While the literature, as described above, does not definitely conclude that incentives promote homeownership and growth, we expect a positive relationship between housing incentive programs and rate of homeownership.

We were also interested in assessing the result from Swenson and Eathington (1998) that location was the primary factor which shaped residential housing growth in the 48 Iowa cities they studied. While most of our municipalities are not classified as suburbs, we are able to assess whether the distance between a municipality and the closest city of 50,000 persons or more is related to homeownership. Theoretically, it is plausible that homeownership may decline the further a municipality is away from a larger, urban city. Larger cities generally provide more employment, cultural, and recreational opportunities than do smaller, more rural communities. As a result, being more geographically proximate to a larger city may provide for more opportunities for people to live in a smaller, rural community while still allowing them to reap the benefits of being near a more urban area. To assess this relationship, we calculated the

distance by road from the municipality to the closest city over 50,000 persons. We expect, all else being equal, that as the distance increases, rate of homeownership should decrease.

The remaining predictors in the models are for control purposes only. They include:

- Underemployment as a Problem: Underemployment is defined as working in an occupation for which an individual is overqualified, and theoretically could influence rate of homeownership. To control for the problem of underemployment, we utilize a survey question which asked the respondent how serious the problem of underemployment was in their community. The variable is coded “1” if the respondent indicated that underemployment was somewhat of a problem or a serious problem, and “0” if the respondent indicated that underemployment was not a problem at all.
- Economic Health Index: The economic health index measures the relative health of the residents of a municipality based upon family income, employment, and poverty.<sup>7</sup> In the economic development literature, the economic health index is used as an outcome variable and scholars attempt to predict the economic health of communities (e.g., Reese and Ye 2011). Controlling for the economic health of the community permits controlling for the effects of income, employment, and poverty on homeownership in one measure.
- Median Housing Value: Utilizing the 2015 median housing value from the 2015 ACS 5-year estimates for each municipality in the model, we control for the effect of housing prices on opportunities to buy a home. As prices increase in a community, the opportunity to purchase a home goes down as residents with fewer resources are gradually priced out of the market. Research also indicates that housing value is causally linked to the rate of foreclosure in a community (e.g., Glasgow, Lewis, and Neiman 2012).
- Relationship between the Municipality and Developers: Research indicates that a good working relationship between the development community and a municipality can aid in the development process. In their analysis of the perception of downtown quality, Bias, Leyden, and Zimmerman (2015) found that cooperation among stakeholders is an important predictor of perceived downtown quality. The same may be true for residential development. A good working relationship between a city and developers, one that builds trust and reciprocity, could ultimately lead to enhanced residential growth. To control for the relationship, we utilize a survey question which asked the respondent about the working relationship between the municipality and the

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<sup>7</sup> Methodologically, the index is created by standardizing each measure of family income, employment, and poverty, and aggregating the values together. Standardizing each measure removes the units and creates standard measurements that can be added together to create an economic health index. By doing so, a single index of economic health is created which takes into account wages, level of employment, and rate of poverty. A positive score on the index indicates above average indicators of income, employment, or poverty for the city. A negative score on the index indicates below average indicators of income, employment, or poverty for the city.

development community. The variable is coded “1” for good or very good, and “0” for not good or not very good.

- Infrastructure Costs Paid for by City: In addition to the cost-sharing/rebating question described above, we also asked respondents who paid for the infrastructure costs associated with residential development. In the modeling, we control for whether the municipality itself paid for the infrastructure costs. Doing so could provide additional incentive for developers to build and potential homeowners to buy as it would potential drive down price. The variable is coded “1” for city pays infrastructure costs and “0” for city does not pay infrastructure costs.
- Availability of Developable Land: The availability of developable land for residential development could also play a role in shaping the rate of homeownership in a community. Communities which are “built out” have fewer (or no) opportunities for residential growth outside of infill lots in the community, which can have an effect on price or rate of homeownership. To control for the availability of developable land available for residential development, we utilize a survey question which asked respondents to identify the availability of developable land. The variable is coded “1” for considerable vacant land and “0” for limited, little, or no vacant land available.
- Project Approval Process: Lengthy project approval processes can drive up costs for developers which must be relayed to homebuyers. Shortening the process and minimizing costly delays therefore could have help make home more affordable for consumers, and indirectly, it is theoretically plausible that shortening the project approval process in a community could influence the community’s rate of home ownership. To control for the shortening of the project approval process, we utilize a survey question which asked respondents to assess the change in the project approval process for residential development over the last ten years. The variable is coded “1” for shortened and “0” for no change or increased.
- Attitudes about Growth: Research indicates that attitudes held by the city council regarding growth in a community can shape housing outcomes. For example, Glasgow, Lewis, and Neiman (2012) found that cities in California were more resistant to the foreclosure crisis when the city council was generally opposed to growth. Elected officials who support growth may be willing to use public policy options to promote residential more so than those who oppose growth, thus leading to higher rates of homeownership. To control for growth attitudes, we utilize a survey question which asked respondents to assess the city council’s attitude about residential growth. The variable is coded “1” for strongly favors growth and “0” for all else.
- Growth Demand: The demand for residential growth could also be linked to the rate of homeownership. Communities which possess no growth demand could theoretically experience lower rates of homeownership or higher rate of vacant dwellings. Conversely, communities with growth demand may experience higher rates of homeownership as new residents are drawn to the community. To control for

growth demand, we utilize a survey question which asked respondents to assess the market demand for residential, commercial, and industrial growth. The variable used in the modeling is coded “1” for residential growth demand and “0” for no residential growth demand.

- State: We also include a dummy variable for the state in which the municipality is located. Including the dummy variables allows us to control for any idiosyncratic factors unique to the state which shape the rate of homeownership in the community, including differences in policy authority, taxation, regulation, etc.

As the dependent variable, rate of homeownership, is continuous in nature, we use ordinary least squares (OLS) regression to evaluate the linkage between housing incentive programs and rate of homeownership. The results are presented in Table 3 below.

Overall, the models do a fairly good job of explaining the variance in rate of homeownership as the  $R^2$  statistic for each model is somewhere between .616 and .628, indicating that the models are robust and explain nearly two-thirds of the variance in rate of homeownership. In turning to the variables of interest, the housing incentive program predictors and distance to a city of 50,000 persons, it is clear from the modeling that they explain little of the variance in homeownership. Consistent with our expectation, the coefficient for each of the four incentive programs is positive, indicating that cities with housing incentive programs do have relatively higher rates of homeownership. However, only one of the four variables, tax increment financing, is statistically significant, and it is only marginally significant ( $p=.071$ ). Furthermore, the coefficients for the distance to a city of 50,000 persons variable are positive, which runs counter to our expectation. None of the coefficients, however, reach acceptable levels of statistical significance.

So what drives the rate of homeownership in the modeling? The most powerful predictor of homeownership in the modeling is the residential economic health variable. As the results in Table 3 indicate, as a city increases its economic health score by one point, the city’s rate of

homeownership increases on average by approximately 3.4%. What this suggests is that cities with residents who earn above average incomes, with above average employment rates, and with few households living in poverty can expect to have higher rates of homeownership.

Additionally, one control variable in the modeling confounds: City Pays Infrastructure. The coefficient for the control variable is negative and statistically significant in all four models, indicating that cities that pay infrastructure costs actually have lower rates of homeownership, counter to what most would expect.

**Table 3: Factors which Shape the Rate of Home Ownership of Municipalities**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Constant</b>	70.370***	68.955***	70.958***	68.797***
<b>Property Tax Abatement</b>	.456	—	—	—
<b>Tax Increment Financing</b>	—	2.453 <sup>†</sup>	—	—
<b>Cost-Sharing/Rebating</b>	—	—	.044	—
<b>Loan Guarantees</b>	—	—	—	2.557
<b>Distance to City of 50K (in mi)</b>	.009	.001	.009	.021
<b>Underemployment</b>	-.751	-.710	-.526	-.731
<b>Economic Health</b>	3.446***	3.473***	3.443***	3.380***
<b>Median Housing Value (in \$10,000s)</b>	-.359	-.320	-.400	-.208
<b>City-Dev. Relationship</b>	-.983	-1.552	-1.209	-1.780
<b>City Pays Infrastructure</b>	-2.900*	-3.241*	-3.372*	-2.917*
<b>Developable Land</b>	.210	.475	.025	.038
<b>Length of Permit Process</b>	.148	.175	.495	-.539
<b>Council Attitude about Growth</b>	.843	.947	1.253	.524
<b>Growth Demand</b>	-1.821	-2.339 <sup>†</sup>	-1.486	-1.200
<b>Illinois</b>	6.526***	6.784***	6.393***	6.557***
<b>Michigan</b>	3.279	4.359 <sup>†</sup>	2.238	3.886 <sup>†</sup>
<b>Minnesota</b>	-1.013	-1.076	-1.061	-1.508
<b>Missouri</b>	-1.159	-.770	-1.545	-.817
<b>Wisconsin</b>	-5.694**	-6.009**	-6.095**	-5.938**
<b>N =</b>	118	118	115	114
<b>R<sup>2</sup> =</b>	.616	.628	.625	.623

<sup>†</sup>p < .1 \*p < .05 \*\*p < .01 \*\*\*p < .001

What Table 3 makes clear is that the incentive programs we tested have a marginal impact on the rate of homeownership in a community. However, could the presence of an incentive program have a differential effect on the rate of homeownership based upon how far the municipality is away from a major city of over 50,000 persons? To answer this question, we

ran four additional models. In this second set of modeling, we included an interaction term between the presence of an incentive program and distance from a city of 50,000 persons or more. By including the interaction term, we are able to assess whether the effect of the incentive program differs as the distance between the municipality and the larger urban area increases. The results for the tax abatement and tax increment financing models are presented in Table 4.<sup>8</sup> The predicted rate of homeownership by distance from a city of 50,000 persons or more is also plotted for both incentive programs in Figures 1 and 2 below.<sup>9</sup>

**Table 4: Factors which Shape the Rate of Home Ownership of Municipalities with Interaction Terms**

	Model 1	Model 2
<b>Property Tax Abatement</b>	-3.354	—
<b>Tax Increment Financing</b>	—	6.933**
<b>Distance to City of 50K (in mi)</b>	-.012	.074*
<b>Tax Abatement * Distance</b>	.083 <sup>†</sup>	—
<b>TIF * Distance</b>	—	-.102*
<b>N =</b>	118	118
<b>R<sup>2</sup> =</b>	.629	.651

<sup>†</sup>p < .1 \*p < .05 \*\*p < .01 \*\*\*p < .001

The findings in Table 4 suggest that the impact of an incentive program on homeownership does vary based upon how far the municipality is located away from a larger urban area with 50,000 persons or more. Interestingly, while the interaction effect in the tax abatement model (Model 1) is positive, the interaction effect for TIF (Model 2) is negative. The positive coefficient for the interaction effect in Model 1, although only marginally significant (p=.065), indicates that homeownership rates increase for cities with tax abatement programs as

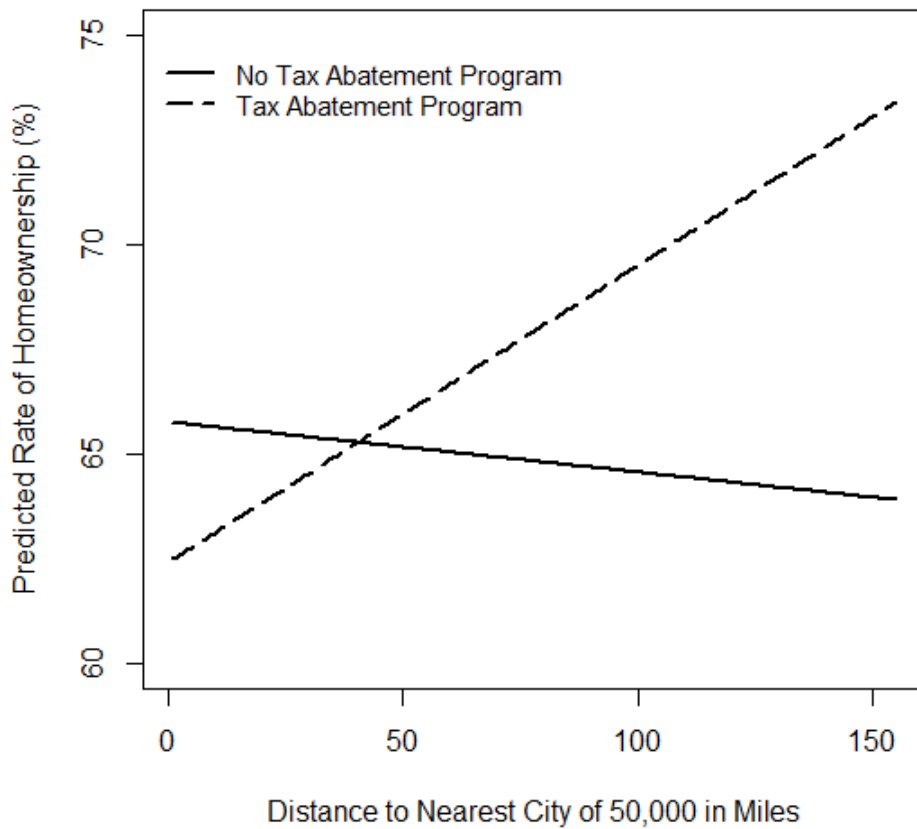
<sup>8</sup> We ran a model for each incentive program once again including all the control variables presented in Table 3. For simplicity of display, we only include the coefficients for the key explanatory variables. Additionally, adding the interaction term into the cost-sharing/rebating of infrastructure costs and the loan guarantees models had little effect on the total variance explained and all three coefficients, including the interaction terms, were not statistically significant, so we do not report the results of those models in Table 4. The full results of the models are available from the authors upon request.

<sup>9</sup> Figures 1 and 2 have a range of 1 mile to 155 miles on the x-axis based upon the range of the variable.

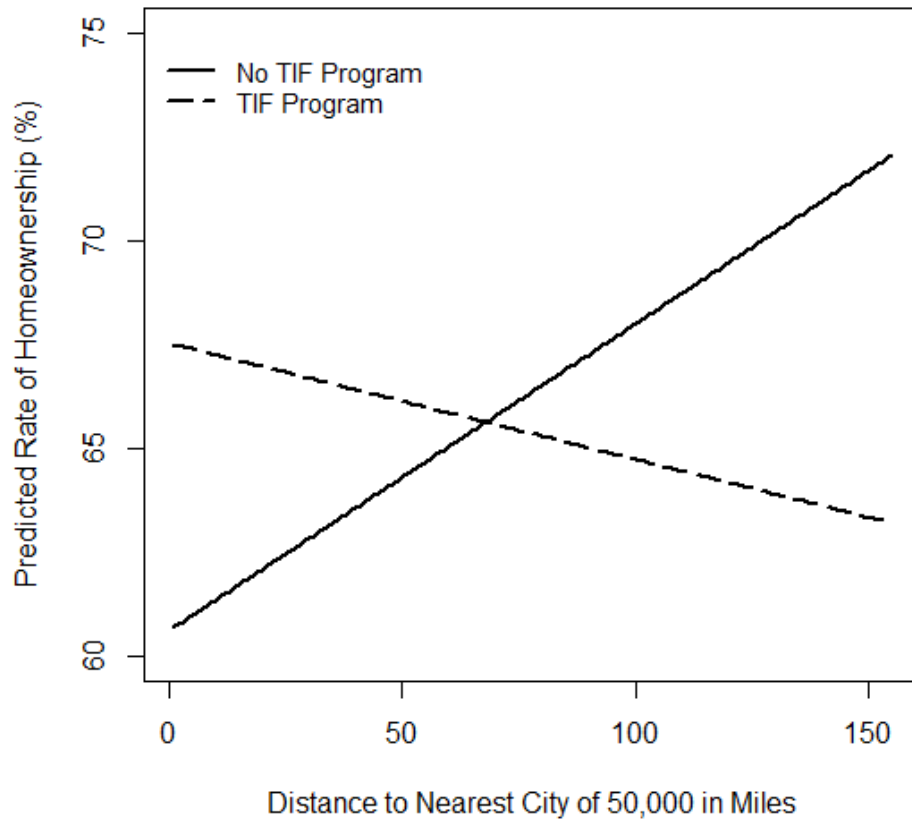


the distance to a major city of over 50,000 persons increases. Figure 1 depicts this relationship graphically. While distance has a marginal effect on cities without tax abatement programs, distance has a dramatic effect on cities with tax abatement programs. In fact, the predicted homeownership rate for a municipality located one mile from a city of over 50,000 persons is 62.47%. The predicted homeownership rate for a municipality located 155 miles from a city of over 50,000 persons is 73.40%, an increase of over 11%. This may suggest that the incentive program may have the allure of drawing homeowners to a community located further from an urban area or also could indicate that the incentive program may have the ability to keep homeowners in the community.

**Figure 1: Rate of Homeownership by Distance to a City of 50,000 or More and Presence of a Residential Tax Abatement Program**



**Figure 2: Rate of Homeownership by Distance to a City of 50,000 or More and Presence of a Residential Tax Increment Financing Program**



The negative coefficient for the interaction term in Model 2 indicates that homeownership rates for municipalities with TIF programs decrease as the distance to a major city increases. Figure 2 depicts this relationship graphically. What Figure 2 reveals is that municipalities without TIF programs have lower rates of homeownership when they are located closer to a city with a population of 50,000 or more. However, cities with TIF programs have higher rates of homeownership when they are geographically proximate to a larger city. In fact, a city located 155 miles from a city with a population of 50,000 or more has predicted rate of homeownership of 63.19% while a city located only one mile from a larger city has a predicted rate of homeownership of 67.50%. This suggests that TIF programs may be more effective closer to major cities, similar to what Swenson and Eathington (1998) found in their study of tax abatement programs.

## *Discussion*

It is important to remember that the modeling presented above should not be used to infer causality, namely that the presence of an incentive program *leads to* increases in the rate of homeownership. What we can conclude from the modeling is that the presence of an incentive program is statistically related to a municipality having a higher rate of homeownership. The relationship is conditioned by the distance to a major city of over 50,000 persons. We cannot, however, conclude that the behaviors of developers or the behaviors of homebuyers changed as a result of a residential incentive program. Additional data would need to be collected at the individual-level to develop such an inference.

The academic research and modeling suggests that incentive programs are not a universal panacea for stimulating the homeownership rate in a community. The results presented above indicate that while there is a weak statistical relationship between the incentive program variables and the rate of homeownership; other factors, e.g., distance to a major city, can influence the relationship. Other community-level factors may influence the relationship as well, including community amenities, employment opportunities, etc. We return to this point at the end of the report.

### **Regulations and Restrictions on Housing Development**

Another factor which has the potential to shape homeownership is the regulatory burden established by state and local governments. In September 2016, the Obama White House issued a report which outlined some of the major concerns related to the relationship between regulation and housing supply, and called upon state and local governments to “promote healthy, responsive, high-opportunity housing markets” through the use of incentive programs and innovation in regulatory policy (14). This section of the Phase 3 report focuses on the impact

that local development regulations and restrictions have on housing development. We start with a brief review of the literature on housing regulations. After discussing the literature, we turn to the data collected in the supplemental survey to draw descriptive inferences regarding the impact of such regulations on housing in the sampled communities.

*Brief Literature Review: Regulations and Restrictions*

A significant body of scholarship exists which evaluates the impacts of growth controls, land use regulation, and what scholars call “characteristics zoning:” design or architectural regulations placed into public code. What is generally accepted in the literature is that an increased regulatory environment can lead to increased housing prices. As Ihlanfeldt (2004) argues, regulations put pressure on the supply of housing, thus driving price up, by: directly restricting development (e.g., growth controls such as limitations on the quantity of permits issued), driving up construction costs through the use of restrictive building or zoning codes, and driving up costs as a result of onerous permit processes.

Some communities in the United States have chosen to impose regulations on development in the form of growth controls which limit the amount of growth that occurs within the community. As Diaz and Green (2001) found in their study of municipalities in Wisconsin, there is significant variation in growth management priorities and in how communities approach growth management from a policymaking perspective. Research indicates that growth management policies do have impacts on housing development. For example, Quigley, Raphael, and Rosenthal (2009) found that increased growth controls are related increased construction costs, project delays, and “greater uncertainty about the elapsed time to completion of residential developments” (296) in the San Francisco Bay area. The result, according to their study, was increased housing prices and rents. Additionally, O’Keefe (2012), in her study of municipalities

in the Sacramento, CA, region found that the price of housing and the stability of housing prices are shaped by whether the municipality had adopted growth management policies. Specifically, she found that slow-growth communities with the most restrictive policies had the highest median home prices in the region. Additionally, price stability was much higher for slow-growth communities versus other municipalities which were more “mid” or “fast” growth.

Finally, Glasgow, Lewis, and Neiman (2012) examine whether local growth management policies were related to the foreclosure crisis of 2008 and 2009 in California. The authors find that cities with strong opposition to growth at the city council level were more resistant to foreclosures within their city limits.

Regulations within zoning codes can also impact housing supply and price.

Theoretically, the link is intuitive. As Gyourko and Molloy (2014) argue:

“local land use policy imposes limits on residential development that restrict the size and type of housing units that can be built on a given amount of land. These restrictions add extra costs to a construction project, creating a wedge between the sales price of a house and the cost of buying the land and building the infrastructure.” (3)

While the findings are not definitive across the board due to methodological challenges in evaluating the relationship between regulation and price (e.g., Quigley and Rosenthal 2005; Gyourko and Molloy 2014), many studies do reveal a positive relationship between regulatory burden and price. For example, Green (1999), in his study of housing regulation in Waukesha County, Wisconsin, found that land use regulations have a small effect on homeownership, but land use regulations (e.g., mobile homes not permitted and frontage requirements) do indeed have a significant effect on housing prices. Green also evaluates the effect of land use restrictions on the supply of affordable housing and finds that land use regulations drive down the availability of affordable housing. In other words, restrictive land use regulations have a disproportionate effect on low price housing and low income households. Additionally, research

by Malpezzi and Mayo (1997) on the Malaysian housing market suggests that significant government intervention in the housing market, through the use of excessive restrictions and requirements, can lead to increased housing prices even when publicly funded housing programs, which are meant to subsidize housing, are also available.

Some scholars have also disaggregated housing restrictions into two clusters of regulations: Land-use zoning and “characteristics” zoning. Land-use zoning refers to the acceptable use of a particular property (i.e., single-family, multi-family, commercial, industrial, etc.). Characteristics zoning, however, refers to regulations which govern the specific characteristics that a development must include in new dwellings, which could include setback requirements, height requirements, or architectural features. Using home sale data from Santa Clara County, CA, Pogodzinski and Sass (1994) found different effects on housing price for land-use versus characteristics zoning. Specifically, they find a weak association between land-use zoning and price, and conclude that land-use zoning “tends to ‘follow the market.’” In other words, local governments zone more land for single-family use when single-family use tends “to be its most valuable use” (626). However, they find that characteristics zoning requirements such as minimum side yard and maximum height requirements actually serve to increase housing prices.

#### *Use of Residential Development Restrictions*

As mentioned above, we distributed a supplemental survey via Qualtrics in March 2017 in order to assess the use of residential development restrictions in the study population. The supplemental survey focused on characteristics zoning requirements that many cities may use in regulating residential development, including setback and height requirements, regulation of accessory dwelling units, park set aside requirements, and design characteristics. It is also

important to remember that the supplemental survey ended up with an over-sampling of Iowa communities.

**Table 5: Use of Residential “Characteristics” Zoning Requirements for Single-Family Zones**

	Minimum Lot Size	Minimum Front Setback	Minimum Side Yard	Maximum Height Requirement	Prohibit Accessory Dwelling Units	Park Fees or Require Park Set Asides by Developers
<b>Yes</b>	97.7%	98.7%	97.4%	90.8%	53.9%	43.2%
<b>No</b>	2.3%	1.3%	2.6%	9.2%	46.1%	56.8%
<b>N =</b>	87	86	88	88	88	74

*SOURCE:* Phase 3 Supplemental Survey

**Table 6: Use of Design Characteristics Requirements for Single-Family Zones**

<i>Requirements for:</i>								
	Fencing	Sidewalks	Residential Street Lights	Arterial Street Landscaping	Residential Street Landscaping	RV Storage	Temp. Storage Containers	Arch. Features
<b>Yes</b>	94.6%	83.6%	52.8%	28.6%	38.6%	75.0%	68.6%	47.1%
<b>No</b>	5.4%	16.4%	47.2%	71.4%	61.4%	25.0%	31.4%	52.9%
<b>N =</b>	74	73	72	70	70	72	70	70

*SOURCE:* Phase 3 Supplemental Survey

Tables 5 and 6 present the descriptive results for the first set of supplemental survey questions focusing on characteristics zoning requirements.<sup>10</sup> What is clear from Table 5 is that most municipalities in the study all require minimum lot sizes, front setbacks, and side yards in addition to establishing a maximum height that single-family homes cannot exceed. There is variation in the last two columns of Table 5, however, with 53.9% of municipalities prohibiting accessory dwelling units and only 43.2% of municipalities requiring developers to either pay park fees or set aside land for greenspace or development of parks. Interestingly, of the 43.2% who require either option, almost half allow developers to choose either park fees or land set asides, and a quarter require developers to do both. There is also significant variation in Table 6

<sup>10</sup> For municipalities that indicated the presence of a minimum lot size, front setback, or side yard requirement, or maximum height limit, a follow-up question was asked requesting the respondent to provide the numeric indicator for each requirement. The descriptive statistics for these supplemental survey items are provided in the Appendix.

with the exception of fencing and sidewalk requirements. While requirements for residential street lights, RV storage, and temporary storage containers are present in more than half of all municipalities in the sample, street landscaping and architectural requirements are present in less than half of the municipalities surveyed. Overall, what Tables 5 and 6 suggest is that there are five or six requirements which are fairly standard for cities, but beyond those there is considerable variation across the remaining eight that were included in the survey.

One way to mitigate the impact of regulations is to provide municipalities processes through which exceptions to development restrictions can be negotiated with developers. We were interested in finding out how prevalent it is for such processes to exist, so we also included the following question in the survey: “If a developer approached your municipality with a proposal for a new residential development but needed exceptions to certain development regulations in order to make the project economically feasible, does your municipality have the flexibility to grant exceptions to developers on a case-by-case basis?” A significant 93.2% of respondents indicated that their municipality did indeed have the flexibility to do so.

For those respondents, we followed up with two questions. First, we asked them to describe the process they would go through to make such exceptions. Most respondents indicated that their municipality would use the variance process or a planned unit development in order to negotiate exceptions to development regulations, while a few respondents said that their municipality could also use developer’s or annexation agreements, or special or conditional use permits, to achieve the same outcome. Not surprisingly, it was also clear from the responses that the municipality’s Board of Adjustment, Planning and Zoning Commission, and City Council would be active in the final approval of agreements. Second, we asked respondents if any development regulations were non-negotiable. A much smaller percentage, 43.1%, of



respondents indicated that there were development regulations which were indeed non-negotiable. Examples of such non-negotiable regulations vary greatly, but include setback, lot size, and easement requirements, permitted uses, density requirements, and water and sewer connections, to name a few.

Finally, we evaluated the bivariate relationship between the characteristics zoning requirements and rate of homeownership.<sup>11</sup> First, we ran comparisons of group means for the relationship between rate of homeownership and the nominal-level items which asked respondents to indicate whether the municipality had a specific regulation in municipal code. Second, we evaluated the correlation coefficients between the rate of homeownership and the scale-level items which asked respondents to provide numeric indicators for lot size (ft<sup>2</sup>) and minimum/maximum size requirements (linear ft). We excluded any regulation item where there was little to no variation (see Tables 5 and 6). In all, we ran ten means comparisons and five correlation coefficients.

Regarding the means comparisons, the mean differences between groups are generally very small, suggesting that there is a weak or no relationship between the regulations and homeownership. Six of the ten regulatory items were in the positive direction (prohibit accessory dwelling units, residential street lights, arterial and residential street landscaping, architectural features, and are there any regulations which are non-negotiable), indicating that cities with the presence of such a characteristic had a higher rate of homeownership. Only architectural features was a statistically significant determinant, however. Cities with architectural feature requirements had an average rate of homeownership of 67.4% while those

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<sup>11</sup> The lack of variation on several key indicators and a small sample size (N=88) precluded the SSWG from running multivariate models with the data. While not ideal, the bivariate relationships allow us to complete a basic review of the relationship between regulations and homeownership.

that did not had an average rate of 62.5%, a mean difference of 4.9% ( $t=2.53$ ,  $p=.014$ ). Three out of the four negative relationships (RV storage, temporary storage containers, and ability to negotiate development exceptions) fail to reach statistical significance, but one is marginally significant: sidewalk requirements. Cities with sidewalk requirements had an average rate of homeownership of 64.2% while those that did not had an average rate of 69.1%, a mean difference of -4.9% ( $t=-1.867$ ,  $p=.066$ ).

The five correlation coefficients were all positive, indicating that as the minimum or maximum requirement increased the rate of homeownership increased as well. We would note, however, that the strength of association is very weak. The largest correlation coefficient is .167 (between street side yard setback and homeownership) and two of the coefficients fail to exceed .1 (between interior side yard and homeownership and between maximum height and homeownership). Once again, what this suggests is that there is little to no relationship between rate of homeownership and the magnitude of the development restrictions that cities in the sample have in municipal code.

### *Discussion*

Two methodological notes should be made about the preceding sections. First, sample size could play a role in the mixed results presented above. The response rate to the supplemental survey, while over 50% of the respondents, only includes between 70 and 88 responses per item. A larger response rate that included additional municipalities from the study population may have afforded us the ability to draw more definitive conclusions from the data by reducing sampling error in data collection. Additionally, the focus of the supplemental survey was at the aggregate level, asking respondents to provide us details about municipal code and

practice. A more detailed analysis of municipal codes themselves may yield data which could also allow for more definitive inferences to be drawn.

The mixed results could also suggest that intervening factors are shaping the relationship between development regulations and homeownership, not unlike the relationship between incentive programs and homeownership. Our sample size did not allow us to run a multivariate model that included both incentives and regulations, or to evaluate any interaction effects between regulations and other intervening factors. It is plausible that adding additional municipalities to the dataset could reveal lurking variables and interaction effects that further help to explain the relationship between development regulations and homeownership.

### **Conclusions and Recommendations for Future Work**

Pella certainly isn't the only community in America that is focused on housing. Recent work done by Osgood, Opp, and Bernotsky (2012) found that 40.6% of municipalities in the United States are focused on affordable housing challenges. Additionally, Pella certainly isn't the only community in America that views its housing prices as problematic. Work by the aforementioned authors also found that nearly 14% of municipalities cite the significant cost of housing as a barrier to economic development efforts in the community. It is clear from the Marion County Housing Study, and from Phase 1 and Phase 2 of the PADCO/PACE-Central College research collaboration, that housing is a serious challenge, so what should be done to address the challenge?

The research presented above focused on two sets of factors which theoretically could shape the rate of homeownership in a community: (1) the use of housing incentive programs; and (2) the regulatory burden imposed on developers and homebuyers. Based upon two surveys of municipal officials employed by municipalities of similar size to Pella and secondary municipal-

level data collected from the 2015 American Community Survey, we find that housing incentive programs in and of themselves do not consistently shape the rate of homeownership. While the presence of a tax increment financing (TIF) program had a marginal positive effect on homeownership; tax abatement, cost-sharing/rebating of infrastructure costs, and public-private partnerships to provide construction loan guarantees to developers had no independent effect on a community's rate of homeownership. Additional modeling revealed that both the presence of a tax abatement program and TIF program for residential development interacted with the municipality's geographic proximity to a city with more than 50,000 persons. The interaction effect was positive for tax abatement, meaning that as the distance from the larger urban area increased, the rate of homeownership increased for cities with tax abatement programs. The interaction effect for TIF was negative, meaning that as the distance from the larger urban area increased, the rate of homeownership actually decreased for cities with a TIF program. This suggests that housing incentive programs should not be viewed as a universal panacea for communities with housing challenges, and also that communities should take other important factors into account before adopting an incentive program. Lurking factors could shape the outcome of the policy initiative.

Our supplemental survey data on development regulations and restrictions yielded minimal results in terms of its impact on a community's rate of homeownership. The small sample size for the supplemental survey (N=88) created methodological challenges for disaggregating by group or running reliable multivariate models to predict homeownership based on regulations and restrictions. Two things can be concluded from the statistical work, however. First, though most municipalities utilized four or five basic characteristics zoning requirements, there was considerable variation in the use of the other eight regulation types about which we

asked in the survey. Communities are indeed uniquely tailoring their regulatory environment based upon community interest and preference. Second, the bivariate statistical assessments provide some preliminary evidence that regulations and restrictions may play a role in shaping the rate of homeownership in a community. It is indeed plausible that if onerous restrictions drive housing prices up, lower- and middle-income buyers could be priced out of the market, creating negative implications for homeownership rates. Unfortunately, our data limitations prevented us from testing this assertion in a multivariate manner. Pursuing this research path would provide scholars and practitioners valuable information about the impact of regulations and could inform policy change in the future.

Where does the community go from here as it attempts to address the housing challenges it faces over the next two decades? Based upon our research over the last three years, we offer the following recommendations to the Pella Area Community & Economic Alliance (PACE) and the City of Pella.

***Housing incentives are viable options, but should not be considered universal panaceas***

The use of housing incentive programs by municipalities leads to varying results in the literature and varying results in our data analysis. This leads us to believe that municipalities should do careful analysis before moving forward with adopting such a program. For example, the presence of a tax abatement program had no independent effect on the rate of homeownership. However, as the distance from a larger urban area increases, the effect on a city's rate of homeownership goes up, indicating that the tax abatement program interacts with a measure of distance to a city of over 50,000 persons. Consider Pella for a moment. The closest city with more than 50,000 persons is Des Moines, approximately 42.8 miles away. Figure 1 indicates that Pella's predicted rate of homeownership as a city nearly 43 miles away from

Des Moines AND having adopted a tax abatement program is 65.45%, about 3% higher than Pella's actual 2015 ACS rate of 62.9%. There may be gains to be had by implementing a tax abatement program, but the return seems small. The political question is this: Is the loss of future property tax revenue over five to ten years of an abatement program justifiable for a small increase in homeownership? Will residents of Pella support such a commitment from the city if homeownership rates do not increase more than 3%?

***Further analysis of tax abatement and TIF programs at the individual-level is warranted***

While the analyses presented above indicate that the rate of homeownership is different for communities with tax abatement and TIF programs, at least when taking into account the community's geographic proximity to a major city with 50,000 persons or more, we cannot generalize about the individual-level behavior of homebuyers. If decision makers in Pella are serious about adopting an incentive program, it would be important to understand the attitudinal predisposition to buying a home in Pella. This is the only way decision makers will know if incentive programs will change the behaviors of potential homebuyers. We recommend that PACE work with local realtors to collect data not only from individuals who purchased homes in Pella but also from individuals who inquired but did not purchase in Pella to see if the presence of an incentive program would have changed the decision they made. PACE may also be interested in working with local employers to collect valuable data on employees who choose to live outside of the City but yet commute to work here every day in order to assess whether an incentive program may lead individuals to purchase a home in the community.

We also offer the following word of caution regarding case study analysis. Case study analysis certainly allows the researcher to probe significantly into one particular case. In the context of this research strain, a case would refer to a municipality and its use of incentive

programs or change in regulatory burden to alter individual behavior. It is also true that case study analysis can be problematic because a focus on the idiosyncratic makes it difficult to draw broad generalizations about the behaviors of municipalities. If PACE decides to pursue case study analyses regarding housing policy, we recommend that PACE carefully and strategically choose municipalities that are the same or substantially the same as Pella in terms of demographics, business and industry, amenities, etc. Otherwise, the information collected during the case study process is not generalizable to Pella.

***If the goal of a housing incentive program is to increase middle class housing options, then a targeted incentive program may make the most sense***

As mentioned above, there is research which indicates that some tax abatement programs are taken advantage of by higher-income residents who utilize benefit programs to buy above-average priced homes (e.g., Koven and Koven 1993), leaving lower- and middle-income residents to offset the cost of services but not reap the benefits of the abatement program. If decision makers in Pella wish to pursue a tax abatement program or another incentive program, they will need to decide whether it will be a universal program (i.e., for any new home construction at any price) or if it will be a targeted program to promote middle-income and workforce housing. If the former is chosen, then the unintended consequences observed by Koven and Koven could be seen in Pella. If the latter is chosen, it would make sense to create an incentive program which is valid at particular price points or zones of the City in order to target the resident homebuyer population the City is truly interested in targeting.

***In addressing the challenge of homeownership, Pella must address its “Insider-Outsider” culture***

It is clear from the literature on firm location that while tax policy can shape a firm’s decision to locate or relocate to a particular locale, there are other factors which firms take into

account when making location decisions, including educational opportunities, adjacency to metro areas, and amenities and quality of life factors (Johnson and Rasker; Rainey and McNamara 2002). The same is true for people who are seeking new communities to locate to (Florida 2002; Bell and Jayne 2009). Richard Florida's work on the "Creative Class" is informative on this point. Florida defines members of the "Creative Class" as a "fast-growing, highly educated, and well-paid segment of the workforce on whose efforts corporate profits and economic growth increasingly depend" (17). Members of the Creative Class, who are putting off buying a home until later in life, are looking for communities with "authenticity and uniqueness," with abundant recreational opportunities and nightlife, that are "open to difference," and have "low entry barriers" (20-22). This is often difficult for smaller cities, as small cities have been stereotyped as "marked by cultural smallness, conservatism or traditionalism that can be a key factor in restricting change" (Bell and Jayne 2009, 693). This sounds very similar to what we found in the Phase 1 Community Survey in 2014 when we wrote:

"Even more interesting was the significant number of respondents who chose openness and acceptance of diverse people or groups as [Pella's] greatest weakness. In addition to the 15.7% of respondents who chose this characteristic, another 22 respondents discussed this characteristic in written responses. While some respondents simply discussed Pella's lack of diversity, others discussed the "closed" nature of the community to outsiders. Many of the respondents citing the "closed" nature of the community cited the continued existence of the 'if you aren't Dutch, you aren't much' mindset." (8)

Pella has many of the quality of life factors and amenities that potential residents and homebuyers find desirable. Pella has abundant recreation opportunities given its proximity to Lake Red Rock and the Volksweg Trail. Pella has excellent educational opportunities both at the K-12 level (Pella Community and Pella Christian Schools) and the post-secondary level (Central College). Pella is close enough to Des Moines that residents can live in a rural community but still have access to all Des Moines has to offer. However, it is our belief that if Pella cannot



overcome the “insider-outsider” issues identified in 2014, advantages from quality of life factors, amenities, and housing incentive programs will have only minimal effect in attracting new residents to the community. Therefore, we recommend that PACE continue to work on promoting the advantages the community has regarding quality of life and amenities, but also strategically address Pella’s welcoming of outsiders into the community.

***PACE and the City of Pella should undertake a comprehensive review of the City’s residential development regulations***

While our findings were impacted by small sample size which led to methodological challenges, it is our belief that there is enough evidence in the literature coupled with our preliminary findings and a call from the Obama White House last fall to justify a comprehensive review of residential development regulations codified in Pella’s Municipal Code, including land use, characteristics zoning, or applicable growth controls. Key fundamental questions to be answered by way of review would include: (1) are Pella’s residential development regulations in-line with other similarly sized municipalities?; and (2) are there ways in which residential development regulations could be modernized in order to face the housing challenges of the next twenty years?

## Appendix

### Descriptive Statistics for Minimum Lot Size, Front Setback, Side Yard, and Maximum Height Requirements in Single-Family Zones

	Minimum Lot Size (ft <sup>2</sup> )	Minimum Front Setback (ft)	Minimum Side Yard (Street) (ft)	Minimum Side Yard (Interior) (ft)	Maximum Height (ft)
<b>Mean</b>	8,247	26.8	20.5	8.4	34.0
<b>Standard Dev.</b>	2,731	5.6	7.5	2.8	4.3
<b>Range</b>	16,780	40.0	29.0	17.0	21.0
<b>Minimum</b>	5,000	10.0	6.0	3.0	24.0
<b>Maximum</b>	21,780	50.0	35.0	20.0	45.0
<b>25<sup>th</sup> Percentile</b>	7,000	25.0	15.0	6.3	35.0
<b>Median</b>	7,920	25.0	23.8	8.0	35.0
<b>75<sup>th</sup> Percentile</b>	9,000	30.0	25.0	10.0	35.0
<b>N =</b>	75	74	70	73	70

*SOURCE:* Phase 3 Supplemental Survey. Missing values in survey replaced, when possible, via searches of municipal code for the municipality in question.

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